

T. S. EXEC 1.4 MASTER

8-18-65

00010

XLIST

01970

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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
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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         CRMIS=200;        DATA MISSED
00230         CREOC=400;        END OF CARD
00240         CREOF=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
00560 CDRDSP: CONO CR,0 ;RELEASE
00570         POPJ PDP,;         CLOSE
00580         JRST ILLOUT        ;OUTPUT
00590         JRST CRINP;        INPUT
000000 711600 000000
000001 263140 000000
000002 254000 000000
000003 254000 000004

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			00600
			00610
000004	621000	000002	00620
			00630
000005	661000	040004	00640
000006	135040	000000	00650
000007	306040	000014	00660
000010	661000	200000	00670
000011	306040	000010	00680
000012	661000	100000	00690
000013	660000	010000	00700
000014	202006	000002	00710
000015	260140	000000	00720
000016	202046	000010	00730
000017	201040	000000	00740
000020	711601	000160	00750
000021	263140	000000	00760

CRINP:	TLZ IOS,IOBEG;	VIRGIN DEVICE?	IOBEG:=0
CDRIN1:	TLO IOS,IOFST+CRMFST;	IOFST:=CRMFST:=1	
	LDB TAC,PIOMOD		
	CAIN TAC,B;	MODE=BINARY?	
	TLO IOS,CRMBIN;	YES. CRMBIN:=1	
	CAIN TAC,I;	MODE=IMAGE?	
	TLO IOS,CRMIMG;	YES. CRMIMG:=1	
	TRO IOS,IOACT;	IOACT:=1	
	MOVEM IOS,DEVIOS(DEVDAT)		
	PUSHJ PDP,SETBYT;	TAC0-5:=TAC12-13:=0; TAC6-11:=BYTE SIZE	
	MOVEM TAC,DEVPTR(DEVDAT)		
	MOVEI TAC, CDRCHN;	ASSIGN PI CHANNEL	
	CONO CR,CRBIN+CRALL+CRBUSY(TAC);	SELECT BINARY, ALL	
	POPJ PDP,;	RETURN	

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00770
00780
000022 711740 000010 00790
000023 254000 000022' 00800
000024 264000 000000 00810
000025 201300 000000 00820
000026 200006 000002 00830
000027 711700 002200 00840
000030 660000 200000 00850
000031 711440 000010 00860
000032 260140 000000 00870
000033 627000 040000 00880
000034 256000 000000 00890
00900
000035 640400 007400 00910
000036 646400 007400 00920
000037 254000 000047' 00930
000040 711700 001000 00940
000041 254000 000051' 00950
000042 603000 200000 00960
000043 254000 000125' 00970
000044 603000 100000 00980
000045 254000 000144' 00990
000046 254000 000067' 01000
01010
01020
000047 201040 000017' 01030
000050 711601 000020 01040
000051 661000 000040 01050
000052 201240 000032 01060
000053 260140 000000 01070
000054 330000 000000 01080
000055 254000 000217' 01090
000056 201040 000056' 01100
000057 542040 000034' 01110
000060 711740 000400 01120
000061 254000 000226' 01130
000062 260140 000000 01140
000063 330000 000000 01150
000064 661000 000002 01160
000065 254000 000231' 01170
01180
000066 260140 000164' 01190
000067 201040 000074' 01200
01210
000070 711640 000002 01220
000071 620100 000160 01230
000072 711602 000000 01240
000073 254000 000112' 01250
01260

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CDRINT:  CONSO CR,CRDONE;    DONE FLAG?
         JRST CDRINT
         JSR CDRSAV;          SAVE ACCUMULATORS AND ESTABLISH
         MOVEI DEVDAT,CDRDAT
         MOVE IOS,DEVIOS(DEVDAT)
         CONSZ CR, CRMISS+CRERR; DATA MISSED OR ERROR?
         TRO IOS,IODERR;      IODERR:=1
         DATAI CR, CRDAT1;   INPUT INFORMATION
         PUSHJ PDP,IOSET;     PROG:=C(JBTADR18-35), ITEM:=C(DEVPTR)
         TLZN IOS,CRMFSST;    FIRST CARD? CRMFSST:=0
         XCT CRDIS            ;NOT FIRST, GO TO SUBROUTINE

CRFIRS:  TRC CRDAT1, 7400;    FIRST COL OF FIRST CARD
         TRCN CRDAT1,7400;    Y, X, 0, OR 1 PUNCH?
         JRST CREOFC;         NO, END OF FILE CARD
         CONSZ CR, CREOFF;    END OF FILE?
         JRST CREOF;         YES
         TLNE IOS,CRMBIN;    CRMBIN=1?
         JRST CRFSTB;        YES
         TLNE IOS,CRMIMG;    CRMIMG=1?
         JRST CRFSTI;        YES
         JRST CRFSTL+1

CREOFC:  MOVEI TAC,CDRCHN    ;WAIT FOR EOC
         CONO CR,CRBUSY(TAC)

CREOF:   TLO IOS, IOEND;     IOEND:=1
         MOVEI DAT,S2EOF
         PUSHJ PDP,STODAT;   STORE END OF FILE CHARACTER
         SKIP
         JRST CRLST2;        BLOCK FULL OR BLOCK COMPLETE
         MOVEI TAC,.;        DATA STORED PROPERLY
         HRRM TAC, CRDIS;    SET DISPATCH TO RETURN HERE.
         CONSO CR, CREOC;    END OF CARD?
         JRST CREXIT;        NO.
         PUSHJ PDP,ADVBF;    ADVANCE BUFFER
         SKIP
         TLO IOS,IOBEG;      IOBEG:=1
         JRST CROFF

CRFSTL:  PUSHJ PDP, CRITMS;   STORE ITEM
         MOVEI TAC,CRCV;      TAC:=CRCV.  HOLLERITH READ

CRREST:  CONI CR, TAC1
         TRZ TAC1, CRBIN+CRALL+CRBUSY; SELECT HOLLERITH, ALL:=0, BUS
         CONO CR, (TAC1);     RESET CARD READER
         JRST CREXT1;         CHANGE DISPATCH AND GO

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			01270
			01280
			01290
			01300
000074	200440	000241'	01310
000075	711740	000400	01320
000076	200440	000142'	01330
000077	134040	000011	01340
000100	231040	000005	01350
000101	135242	000206'	01360
000102	260140	000053'	01370
000103	254000	000052'	01380
000104	254000	000115'	01390
000105	603440	760000	01400
000106	254000	000077'	01410
000107	711700	000400	01420
000110	254000	000115'	01430
000111	201040	000074'	01440
			01450
000112	542040	000057'	01460
000113	254000	000226'	01470
000114	000000	006424	01480
			01490
000115	200440	000143'	01500
000116	134240	000011	01510
000117	260140	000102'	01520
000120	330000	000000	01530
000121	254000	000217'	01540
000122	603440	760000	01550
000123	254000	000116'	01560
000124	254000	000213'	01570
			01580

, HOLLERITH READ MODE

CRCV:	MOVE CRAC, [POINT 6, CRDAT1, 23];	COLUMNS 79 AND 80
	CONSO CR, CREOC;	END OF CARD?
	MOVE CRAC, CRC1;	NO. LOOK AT ALL CHARACTERS
	LDBI TAC, CRAC	; CONVERT HOLLERITH
	IDIVI TAC, 5;	TO ASCII
	LDB DAT, CRCV1(TAC1)	
	PUSHJ PDP, STODAT;	STORE IN BU FER
	JRST CREOF+1	
	JRST CRINS	
	TLNE CRAC, 760000;	WORD COMPLETE?
	JRST CRCV+3;	NO
	CONSZ CR, CREOC;	END OF CARD?
	JRST CRINS;	YES
	MOVEI TAC, CRCV;	NEXT DISPATCH TO CRCV. HOLLERITH READ
CREXT1:	HRRM TAC, CRDIS;	UPDATE DISPTACHER
	JRST CREXIT	
CRCON:	OCT 6424	
CRINS:	MOVE CRAC, CRC2;	BLOCK FULL OR BLOCK COMPLETE INSERT CR
	LDBI DAT, CRAC	
	PUSHJ PDP, STODAT;	STORE CHAR
	SKIP;	EXIT1.
	JRST CRLST2;	EXIT2. BLOCK FULL OR BLOCK COMPLETE
	TLNE CRAC, 760000;	THATS ALL?
	JRST CRINS+1;	NO
	JRST CRLAST;	END OF THE CARD

			01590
			01600
			01610
000125	135040	000242'	01620
000126	302040	000005	01630
000127	660000	400000	01640
000130	711640	000001	01650
000131	620040	000120	01660
000132	711601	000000	01670
000133	201040	000135'	01680
000134	254000	000112'	01690
			01700
000135	201040	000137'	01710
000136	542040	000112'	01720
			01730
000137	200240	000010	01740
000140	260140	000165'	01750
000141	254000	000226'	01760
			01770
000142	440600	000010	01780
000143	170700	000114'	01790

,BINARY READ MODE

CRFSTB: LDB TAC,[POINT 3,CRDAT1,35]; 7-9 PUNCH?
CAIE TAC, 5
TRO IOS, IOIMPM; YES. IOIMPM:=1
CONI CR, TAC
TRZ TAC, CRBUSY+CRALL; BUSY FLAG:=0, ALL FLAG:=0
CONO CR,(TAC); RESET TO RE-READ COL 3
MOVEI TAC, CRCOL2; DISPATCH TO CRCOL2 ON NEXT INTERRUPT
JRST CREXT1

CRCOL2: MOVEI TAC, CRCOL4; DISPATCH TO CRCOL4 ON NEXT INTERRUPT
HRRM TAC,CRDIS

CRCOL4: MOVE DAT, CRDAT1
PUSHJ PDP, CRITMS+1; STORE THE WORD FROM DAT
JRST CREXIT

CRC1: POINT 6,CRDAT1
CRC2: POINT 7,CRCON,20

			01800
			01810
			01820
			01830
000144	201040	000147'	01840
000145	137400	000243'	01850
000146	254000	000112'	01860
			01870
000147	260140	000164'	01880
000150	434400	000240'	01890
000151	201040	000153'	01900
000152	254000	000157'	01910
			01920
000153	711640	000002	01930
000154	620100	000120	01940
000155	711602	000000	01950
			01960
000156	201040	000156'	01970
000157	711700	000400	01980
000160	254000	000213'	01990
000161	202026	000010	02000
000162	350006	000010	02010
000163	254000	000112'	02020
			02030
000164	661000	000004	02040
000165	260140	000117'	02050
000166	254000	000052'	02060
000167	254000	000052'	02070
000170	263140	000000	02080
			02090
000171	575426	231550	02100
000172	325546	734162	
000173	301730	057116	02110
000174	561005	751650	
000175	526552	754262	02120
000176	551665	424104	
000177	215125	545226	02130
000200	462331	647640	
000201	506447	222124	02140
000202	555744	625602	
000203	412070	442614	02150
000204	436211	137534	
000205	246727	420576	02160
			02170
000206	350701	000171'	02180
000207	260701	000171'	02190
000210	170701	000171'	02200
000211	100701	000171'	02210
000212	010701	000171'	02220

,IMAGE READ MODE

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CRFSTI:  MOVEI TAC, .+3;      DISPATCH TO CRFSTI + 3 ON NEXT INTERRUPT
          DPB CRDAT1,[POINT 24,CRTEM,23];      SAVE COLUMN 1 AS MI
          JRST CREXT1

          PUSHJ PDP, CRITMS;  SET ITEM AND CHECK SIZE
          IOR CRDAT1, CRTEM;  CRTEM12-35:=COL 1 AND 2
          MOVEI TAC, .+2;      DISPATCH TO CRFSTI + 7 ON NEXT INTERRUPT
          JRST CRIM1+1

          CONI CR, TAC1
          TRZ TAC1, CRBUSY+CRALL;      BUSY FLAG:=ALL FLAG:=0
          CONO CR, (TAC1);      RESET READER ON COL 3

CRIM1:    MOVEI TAC,.;          DISPATCH TO CRIM1 ON NEXT INTERRUPT
          CONSZ CR, CREOC;      END OF CARD?
          JRST CRLAST;          YES
          MOVEM @DEVPTR(DEVDAT)
          AOS DEVPTR(DEVDAT); INCREMENT ITEM POINTER
          JRST CREXT1

CRITMS:   TLO IOS, IOFST;      IOFST:=1
          PUSHJ PDP, STODAT;    STORE WORD
          JRST CREOF+1
          JRST CREOF+1
          POPJ PDP,;            RETURN

CRCNV:    ASCII .+123456789.

          ASCII .0=@+'\' \ /ST.

          ASCII .UVWXYZ;,( ".

          ASCII .#%-JKLMNOP.

          ASCII .QR:$*[]>&+A.

          ASCII :BCDEFGHI?.:

          ASCII :))<!?:

CRCV1:    POINT 7,CRCNV(TAC),6
          POINT 7,CRCNV(TAC),13
          POINT 7,CRCNV(TAC),20
          POINT 7,CRCNV(TAC),27
          POINT 7,CRCNV(TAC),34

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000213 301200 000122 02230
000214 254000 000234' 02240
000215 260140 000000 02250
000216 330000 000000 02260
000217 260140 000062' 02270
000220 254000 000231' 02280
000221 201040 000047' 02290
000222 711601 000160 02300
000223 661000 040004 02310
000224 623000 000001 02320
000225 260140 000000 02330
000226 202006 000002 02340
000227 202206 000011 02350
000230 254000 000000 02360
000231 620000 010000 02370
000232 711600 000000 02380
000233 254000 000223' 02390
000234 201040 000221' 02400
000235 711601 000160 02410
000236 661000 040000 02420
000237 254000 000226' 02430
000240 000000 000000 02440
000241 140600 000010 02450
000242 000300 000010 02460
000243 143000 000240' 02470

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CRLAST:  CAIL ITEM,+D82;      C(ITEM)<82?
          JRST CRCONT;        NO
CRLST0:  PUSHJ PDP,STOSQD;    STORE WORD COUNT
          SKIP
CRLST2:  PUSHJ PDP,ADVBFF;    ADVANCE BUFFER
          JRST CROFF;        EXIT1.  NEXT BUFFER FULL
          MOVEI TAC, CDRCHN
          CONO CR, CRBIN+CRALL+CRBUSY(TAC);    SELECT BINARY, ALL
          ,ASSIGN PI CHANNEL
CRLST1:  TLO IOS,IOFST+CRMFS;  IOFST:=CRMFS:=1
          TLZE IOS, IOW;      IN A WAIT?  IOW:=0
          PUSHJ PDP, SETIOD;  IOWS:=1
CREXIT:  MOVEM IOS,DEVIOS(DEVDAT);  C(CRIOS):=C(IOS)
          MOVEM ITEM, DEVCTR(DEVDAT);  C(CRCTR):=C(ITEM)
          JRST CDRRET;        RESTORE ACCUMULATORS AND DISMISS INTERR
CROFF:   TRZ IOS,IOACT;      IOACT:=0
          CONO CR,0;          CLEAR CDR CONTROL REGISTER
          JRST CRLST1
CRCONT:  MOVEI TAC, CDRCHN;    ASSIGN PI CHANNEL
          CONO CR, CRBIN+CRALL+CRBUSY(TAC);    SELECT BINARY, ALL,
          TLO IOS,CRMFS;      CRMFS:=1
          JRST CREXIT
CRTEM:   0
END,

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000244

CDRSER - CARD READER SERVICE
SYMBOL TABLE

PAGE 11

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
RUFNT	000012	INT
RUFWRD	000013	INT
CDRCHN	000234'	EXT
CDRDAT	000025'	EXT
CDRDR	000000	EXT
CDRDSP	000000'	INT
CDRIN1	000005'	
CDRINT	000022'	INT
CDRRET	000230'	EXT
CDRSAB	000024'	EXT
CHCHN	000002	
CLOSB	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CRAC	000011	
CRALL	000100	
CRRIN	000040	
CRRUSY	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	
CRFOC	000400	
CRFOF	000051'	
CRFOFC	000047'	
CRFOFF	001000	
CRERR	002000	
CREXIT	000226'	
CRFXT1	000112'	
CRFIRS	000035'	
CRFSTB	000125'	
CRFSTI	000144'	
CRFSTL	000066'	
CRIM1	000156'	
CRINP	000004'	
CRINS	000115'	
CRITMS	000164'	
CRLAST	000213'	

CDR SER - CARD READER SERVICE
SYMBOL TABLE

PAGE 12

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
DVTY	000010	INT
ENTRR	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLOUT	000002'	EXT

CDRSER - CARD READER SERVICE
SYMBOL TABLE

PAGE 13

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
IOFND	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
ITFM	000004	INT
JBFAADR	000000	INT
JBFCCTR	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

CDR SER - CARD READER SERVICE
SYMBOL TABLE

PAGE 14

UUO 000014 INT

END OF ASSEMBLY

00010

XLIST

01970

		00030	;SCHEDULING ALGORITHM	
		00040	;CALL:	
		00050	; PUSHJ PDP, NXTJOB	
		00060	; EXIT	;RETURN HIGHEST PRIORITY USER IN AC ITE
		00070		
		00080	;NXTJOB ASSUMES NO ACS SET EXCEPT PDP AND THAT IS MAY USE	
		00090	;ANY OF THE OTHER ACS	
		00100	;EXECUTION REQUIRES ROUGHLY 37 CYCLES FOR NORMAL CASE	
		00110		
		00120	INTERNAL NXTJOB, QUANTS	
		00130	EXTERNAL IOCOMP,JOBN,JBTSTS,JOB	
		00140	EXTERNAL MTAVAL,DCAVAL,DTAVAL,SCNOFF,SCNON	
		00150		
		00160		
		00170	T=TAC1	;TEMPORARY AC
		00180	C=DEV DAT	
		00190	P=DAT	
		00200		
000000	200100	000000	NXTJOB:	MOVE T, IOCOMP ;NO. OF COMPLETED IO JOBS
000001	202100	000064		MOVEM T, IOAVAL ;MAKE SLOW IO LOOK LIKE FAST IO
		00230		
		00240	;KEEP IO DEVICES BUSY	
000002	515240	777774		HRLZI P, -NUM ;NO. OF IO DEVICE CATEGORIES TO CHECK
000003	336025	000060	NXT0:	SKIPN @AVALTB(P) ;NON-ZERO IF IO JUST BECOME AVAILABLE
000004	253240	000003	NXT1:	AOBJN P, NXT0
000005	327240	000026		JUMPG P, NXT4 ;FINISHED YET
000006	402025	000060		SETZM @AVALTB(P) ;IO DEVICE AVAIL. ACKNOWLEDGE FACT
000007	200105	000065		MOVE T, WAITB(P) ;GET APPROPRIATE JOB STATUS BIT
000010	200205	000071		MOVE ITEM, JOBP(P) ;SEARCH FOR WAITING JOB
000011	350000	000004		AOS ITEM ;LOOK AT EVERYONE ELSE FIRST
000012	301200	000000	NXT2:	CAIL ITEM, JOBN ;MODULO JOBN
000013	201200	000001		MOVEI ITEM, 1 ;SKIP NULL JOB
000014	617104	000000		TSNN T, JBTSTS(ITEM) ;IS WAIT BIT SET FOR THIS JOB?
000015	254000	000023		JRST NXT3 ;NO, KEEP LOOKING
000016	700600	000000		CONO PI, SCNOFF ;YES, TURN SCANNER CHAN. OFF(CONTROL C)
000017	554044	000014		HLRZ TAC, JBTSTS(ITEM) ;IS JOB RUNABLE?
000020	306042	204000		CAIN TAC, RUNABLE(T)
000021	254000	000041		JRST NXT7 ;YES, CLEAR BIT, SET RUN TIME, RETURN
000022	700600	000000		CONO PI, SCNON ;NO, TURN SCANNER CHAN. ON, KEEP LOOKIN
000023	312205	000071	NXT3:	CAME ITEM, JOBP(P) ;HAVE ALL USERS BEEN LOOKED AT
000024	344200	000012		AOJA ITEM, NXT2 ;NO, KEEP LOOKING
000025	254000	000004		JRST NXT1 ;YES, SHOULD NOT HAPPEN

			00450		
			00460		;NO JOBS WAITING TO USE IO DEVICES
			00470		;HAS CURRENT JOB USED ITS QUANTUM
			00480		
000026	201300	000012'	00490	NXT4:	MOVEI C,JOBN ;GET READY FOR POSSIBLE LOOP
000027	334200	000000	00500		SKIPA ITEM, JOB ;CURRENTLY RUNNING JOB
			00510		
000030	350000	000004	00520	NXT6:	AOS ITEM ;LOOK AT NEXT JOB
000031	301200	000026'	00530		CAIL ITEM, JORN ;MODULO JOBN
000032	201200	000001	00540		MOVEI ITEM, 1 ;SKIP NULL JOB
			00550		
000033	554104	000017'	00560	NXT5:	HLRZ T, JBTSTS(ITEM) ;IS THIS JOB RUNABLE
000034	306100	204000	00570		CAIN T, RUNABLE
000035	254000	000050'	00580		JRST NXT9 ;YES, RETURN WITH ITEM SET
000036	367300	000030'	00590	NXT5A:	SOJG C, NXT6 ;NO, LOOKED AT ALL JOBS YET?
000037	403200	000002	00600		SETZB ITEM, T ;YES, INDICATE NULL JOB TO RUN
000040	344100	000054'	00610		AOJA T, NXT8 ;SET TO RUN FOR ONE CLOCK TICK
			00620		
000041	202205	000071'	00630	NXT7:	MOVEM ITEM, JOBP(P) ;SAVE THIS JOB NO. FOR NEXT TIME
000042	620042	000000	00640		TRZ TAC, (T) ;CLEAR WAIT BIT
000043	506044	000033'	00650		HRLM TAC, JBTSTS(ITEM) ;IN JOB STATUS WORD
000044	602100	400000	00660		TRNE T, IOWS ;IS WAIT BIT IOWS?
000045	370000	000000'	00670		SOS IOCOMP ;YES, SUBTRACT REQUEST COUNT
000046	700600	000022'	00680		CONO PI, SCNON ;TURN SCANNER CHANNEL BACK ON
000047	254000	000053'	00690		JRST NXT10 ;AND GO SET RUNNING TIME
			00700		
000050	550104	000043'	00710	NXT9:	HRRZ T, JBTSTS(ITEM) ;HAS TIME GONE TO ZERO FOR THIS JOB?
000051	602100	777777	00720		TRNE T, -1
000052	263140	000000	00730		POPJ PDP, ;NO
000053	200105	000075'	00740	NXT10:	MOVE T, QUANTS(P) ;SET QUANTUM RUNNING TIME FOR THIS QUEUE
000054	542104	000050'	00750	NXT8:	HRRM T, JBTSTS(ITEM)
000055	316200	000027'	00760		CAMN ITEM, JOR ;IS THIS SAME AS OLD JOB?
000056	326200	000036'	00770		JUMPN ITEM, NXT5A ;AND NOT NULL JOB
000057	263140	000000	00780		POPJ PDP,

```

;FLAGS SET NON-ZERO WHEN IO DEVICES BECOME AVAILABLE

AVALTB:    EXP MTAVAL                ;MAG TAPE
           EXP DCAVAL                ;DATA CONTROL
           EXP DTAVAL                ;DECTAPE
           EXP IOAVAL                ;ALL OTHER DEVICES
NUM=.-AVALTB

IOAVAL:    0                        ;FLAG = NO. OF IO COMPLETED JOBS

;BIT IN STATUS WORD MEANING JOB WAITING TO USE DEVICE
WAITB:    EXP MTW
           EXP DCW
           EXP DTW
           EXP IOWS

;LAST JOB SCHEDULED FOR DEVICE
JOBP:    REPEAT NUM,
<        EXP 1
>
EXP 1

EXP 1

EXP 1

EXP 1

;QUANTUM TIMES FOR EACH QUEUE

QUANTS:    EXP 4                    ;MAGTAPE QUEUE
           EXP 4                    ;DATA CONTROL QUEUE
           EXP 4                    ;DECTAPE QUEUE
           EXP 6                    ;IOWAIT SATISFIED QUEUE
           EXP QUANT1               ;STRAIGHT COMPUTATION QUEUE

XP QUANT1,+D15;    STRAIGHT COMPUTATION QUEUE

END,

```

PROGRAM BREAK IS 000102

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
AVALTB	000060'	
R	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
C	000006	
CLOSE	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
D	000017	INT
DAT	000005	INT
DCAVAL	000061'	EXT
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
DTAVAL	000062'	EXT
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
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOAVAL	000064'	
IOREG	000002	INT
IORKTL	040000	INT
IOCOMP	000045'	EXT
IOCON	000040	INT
IODEND	020000	INT
IODERR	200000	INT
IODISC	400000	INT
IODONE	400000	INT
IONTER	100000	INT
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTSTS	000054'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOR	000055'	EXT
JORN	000031'	EXT
JORP	000071'	
LOOKB	040000	INT
MTAVAL	000060'	EXT
MTW	010000	INT
NUM	000004	
NXT0	000003'	
NXT1	000004'	
NXT10	000053'	
NXT2	000012'	
NXT3	000023'	
NXT4	000026'	

NXT5	000033'	
NXT5A	000036'	
NXT6	000030'	
NXT7	000041'	
NXT8	000054'	
NXT9	000050'	
NXTJOB	000000'	INT
OBUFR	100000	INT
OUTPR	004000	INT
P	000005	
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
QUANT1	000017	INT
QUANTS	000075'	INT
RUN	200000	INT
RUNABL	204000	INT
SCNOFF	000016'	EXT
SCNON	000046'	EXT
T	000002	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT
WAITB	000065'	

END OF ASSEMBLY

00010

XLIST

01970

```

00030
00040 INTERNAL CLOCK, CLKINI, NULJOB, APRINT, RSCHED
00050 EXTERNAL APRSAV, APRRET, APRCHN, APRILM, APRCHL
00060 EXTERNAL COMCNT, COMMAND, JOB, JOBADR, APRSAC, JOBDAC, JOBPDP, JOBREL
00070 EXTERNAL USRPDP, JOBPDU, JOBPFC, JBTADR, JOBADR, JOBDAT, USRPDU, CLDS, NXTJOB
00080 EXTERNAL STOPU, SCHEDF, TIME, JOBLEV, JOBUXT, UUUU, JOBDHI, CLKOFF, JBTSTS
00090
00100 ;CLOCK WILL TIME AN INTERVAL AND PUSHJ PDP, TO AN ADDRESS
00110 ;AFTER THE INTERVAL HAS EXPIRED
00120 ;TO MAKE A REQUEST:
00130 ;     CONO PI, PIOFF
00140 ;     DPBI AC, CLOCK
00150 ;     CONO PI, PION
00160 ;AC MUST CONTAIN- XWD ADDRESS, NUMBER OF CLOCK COUNTS+DATA*10000
00170 ;THE HIGH ORDER SIX BITS OF THE RIGHT HALF(DATA) ARE PLACED IN AC
00180 ;TAC RIGHT JUSTIFIED BEFORE THE PUSHJ PDP, ADDRESS IS DONE
00190
00200 ;SYSTEM FLAGS:
00210 ; STOPU IS SET NON-ZERO AT EITHER INTERRUPT SERVICE LEVEL OR
00220 ;     UUU LEVEL AND A CLOCK INTERRUPT IS REQUESTED WHEN CURRENT
00230 ;     JOB MUST BE STOPPED AND ANOTHER ONE RUN.
00240 ; SCHEDF IS SET NON-ZERO BY CLOCK ROUTINE WHEN IF IS IN THE PROCESS
00250 ;     OF RESCHEDULING. IT IS CLEARED AFTER JOB HAS BEEN SET TO
00260 ;     CURRENTLY RUNNING JOB.
00270 ; TIME IS THE TIME SYSTEM HAS RUN IN 60THS OF A SECOND
00280
00290 PION=200
00300 PIOFF=400
00310
00320 STOR=DAT
00330 T=TAC
00340 JA=JDAT
00350
000000 004400 000000' 00360 CLOCK:    POINT 36, CIPWT-1, 35      ;BYTE POINTER TO CLOCK QUEUE
00370 CIPWT:    BLOCK 12                ;THE QUEUE
00380
000013 201000 000000' 00390 CLKINI:    MOVEI CIPWT-1              ;SET UP BYTE POINTER
000014 542000 000000' 00400 HRRM CLOCK
000015 263140 000000' 00410 POPJ PDP,
00420

```

```

000016 254000 000020' 00430
000017 254000 000017' 00440
000020 700340 230000 00450
000021 254000 000024' 00460
000022 264000 000000 00470
000023 254000 000000 00480
000024 700340 002000 00490
000025 254000 000030' 00500
000026 700300 001000 00510
000027 254000 000034' 00520
000030 336000 000000 00530
000031 254000 000017' 00540
000032 264000 000022' 00550
000033 254000 000064' 00560

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```

APRINT:  JRST .+2          ;HERE ON APR INTERRUPT
          JRST .           ;TO OTHER DEVICES ON THIS CHANNEL
          CONSO APR,230000 ;IS IT ANY OF THE OTHERS
          JRST CIP0        ;NO, GO CHECK CLOCK
          JSR APRSAV        ;YES, SAVE ACS
          JRST APRILM      ;AND GO PROCESS ILLEGAL MEMOR
CIP0:     CONSO APR, 2000   ;IS CLOCK ENABLED
          JRST CIP1 ;NO, GO TO OTHER DEVICES
          CONSZ APR, 1000   ;YES, DID CLOCK CAUSE INTERRUPT
          JRST CIP2        ;YES
CIP1:     SKIPN STOPU      ;NO, IS THIS A REQUESTED INTERRUPT
          JRST APRINT+1     ;NO, GO TO OTHER DEVICES
CIP1B:    JSR APRSAV       ;YES, SAVE ACS
          JRST CIP6        ;RESCHEDULE BUT DONT TIME

```

```

000034 264000 000032' 00580
000035 350000 000000 00590
000036 200040 000000 00600
000037 370001 000000 00610
000040 700200 000000 00620
00630
00640
00650
000041 550240 000000' 00660
000042 306240 000000' 00670
000043 254000 000062' 00680
000044 370105 000000 00690
000045 602100 007777 00700
000046 364240 000042' 00710
000047 700600 000400 00720
000050 200060 000000' 00730
000051 370000 000000' 00740
000052 700600 000200 00750
000053 202045 000000 00760
000054 135040 000143' 00770
000055 207000 000002 00780
000056 261140 000005 00790
000057 260142 000000 00800
000060 262140 000005 00810
000061 364240 000042' 00820
00830
000062 332000 000000 00840
000063 260140 000000 00850
00860
000064 402000 000030' 00870
000065 476000 000000 00880
000066 260140 000000 00890
000067 316200 000036' 00900
000070 254000 000136' 00910
00920

```

```

CIP2:   JSR APRSAV           ;SAVE ACS
        AOS TIME             ;INCREMENT TIME
        MOVE TAC,JOB         ;DECREMENT CURRENT JOBS RUNNING TIME
        SOS JBTSTS(TAC)
        CONO APR,CLKOFF      ;TURN CLOCK FLAG OFF

;PROCESS TIMING REQUESTS STORED IN QUEUE
        HRRZ STOR, CLOCK     ;GET END OF LIST
CIP4:   CAIN STOR, CIPWT-1    ;END YET
        JRST CIP5            ;YES
        SOS TAC1, (STOR)     ;DECREMENT TIMING REQUEST
        TRNE TAC1, 7777      ;TIME EXPIRED YET
        SOJA STOR, CIP4      ;NO, CONTINUE SCAN
        CONO PI, PIOFF       ;YES, MOVE LAST ITEM IN LIST TO THS
        MOVE TAC, @CLOCK
        SOS CLOCK
        CONO PI, PION
        MOVEM TAC, (STOR)
        LDB TAC, [POINT 6, TAC1, 23] ;GET 6 BIT DATA ITEM
        MOVSS TAC1           ;SETUP DISPATCH ADDRESS
        PUSH PDP, STOR       ;SAVE ONLY VALUABLE AC
        PUSHJ PDP, (TAC1)    ;AND DISPATCH TO TIMING REQUEST ROUTINE
        POP PDP, STOR
        SOJA STOR, CIP4      ;GO BACK FOR MORE REQUESTS

CIP5:   SKIPE COMCNT         ;ANY COMMANDS TO PROCESS
        PUSHJ PDP, COMMAND   ;YES
RSCHED: ;RESCHEDULE, HERE AFTER APRILM
CIP6:   SETZM STOPU          ;CLEAR INTERRUPT REQUEST FLAG
        SETOM SCHEDF         ;FLAG THAT SCHEDULING IS IN PROGRESS
        PUSHJ PDP, NXTJOB     ;RETURN HIGHEST PRIORITY JOB IN AC ITEM
        CAMN ITEM, JOB        ;IS IT SAME AS CURRENT JOB
        JRST CIP8 ;YES, EXIT

```

		00930	
		00940	;DIFFERENT JOB, SAVE OLD JOB
000071	336000 000067'	00950	SKIPN JOB ;IS OLD JOB THE NULL JOB
000072	254000 000110'	00960	JRST CIP7 ;YES, DONT BOTHER TO SAVE ANYTHING
000073	200440 000000	00970	MOVE JA, JOBADR ;NO, MOVE CHANNEL ACS TO USER JOB AREA
000074	201051 000000	00980	MOVEI T, JOBDAC(JA)
000075	505040 000000	00990	HRLI T, APRSAC
000076	251051 000000	01000	BLT T, JOBDHI(JA)
000077	201051 000000	01010	MOVEI T, JOBPDP(JA) ;MOVE JOB STATE VARIABLES TO JOB DATA A
000100	505040 000000	01020	HRLI T, USRPDP
000101	251051 000000	01030	BLT T, JOBPFI(JA)
000102	200040 000040	01040	MOVE T, 40 ;SAVE LOC. 40
000103	202051 000000	01050	MOVEM T, JOBLEV(JA)
000104	200040 000000	01060	MOVE T, UU00 ;AND UU0 PC
000105	202051 000000	01070	MOVEM T, JOBUXT(JA)
000106	200040 000000	01080	MOVE T, APRCHL ;SET C(CHANNEL INTERRUPT LOC.) AS PC
000107	202051 000000	01090	MOVEM T, JOBPC(JA)
		01100	

```

01110
01120
000110 202200 000071' 01130
000111 403000 000065' 01140
000112 322200 000140' 01150
000113 200444 000000 01160
000114 552440 000073' 01170
000115 552440 000000 01180
000116 556451 000000 01190
000117 700140 000011 01200
000120 201040 000100' 01210
000121 505051 000077' 01220
000122 251040 000000 01230
000123 200051 000103' 01240
000124 202040 000040 01250
000125 200051 000105' 01260
000126 202040 000104' 01270
000127 200051 000107' 01280
000130 202040 000106' 01290
000131 205751 000074' 01300
000132 251740 000017 01310
000133 332000 000064' 01320
000134 254000 000032' 01330
000135 254520 000130' 01340
01350
000136 402000 000111' 01360
000137 254000 000000 01370
01380
01390
000140 254400 000141' 01400
01410
000141 200040 000142' 01420
000142 344000 000001 01430
01440
01450
000143 140600 000002 01460

```

```

;RESTOR NEW JOB
CIP7:  MOVEM ITEM, JOB      ;STORE NEW CURRENT JOB NUMBER
      SETZB 0, SCHEDF      ;INDICATE SCHEDULING FINISHED
      JUMPE ITEM, NUL0     ;IS NEW JOB NULL JOB
      MOVE JA, JBTADR(ITEM) ;SETUP STATE VARIABLES FOR CU
      HRRZM JA, JOBADR     ;IN SYSTEM AREA
      HRRZM JA, JOB DAT
      HLRZM JA, JOBRE( JA) ;SET RELOCATION AND PROTECTIO
      DATAO JA
      MOVEI T, USRPDP
      HRLI T, JOBPDP( JA)  ;MOVE JOB STATE VARIABLES TO SYSTEM ARE
      BLT T, USRPFU
      MOVE T, JOBLEV( JA)  ;RESTORE LOC. 40
      MOVEM T, 40
      MOVE T, JOBUXT( JA)  ;AND UUO PC
      MOVEM T, UUO0
      MOVE T, JOBPC( JA)   ;SET C(CHANNEL LOC.) TO C(JOBPC)
      MOVEM T, APRCHL
      MOVSJ 17, JOBDAC( JA) ;RESTORE USER ACS
      BLT 17, 17
      SKIPE STOPU          ;HAS STOPU BEEN SET SINCE CIP6
      JRST CIP1B           ;YES, GO RESCHEDULE
      JEN @APRCHL         ;NO, DISMISS CHANNEL

CIP8:  SETZM SCHEDF        ;CLEAR SCHEDULING FLAG
      JRST APRRET         ;AND DISMISS INTERRUPT

;THE NULL JOB
NUL0:  JRST 10, NULJOB     ;RENABLE AND RUN IN EXEC. MODE

NULJOB: MOVE 1, .+1
      AOJA 0, 1 ;COUNT IN AC0 FOR VISUAL MONITORING
      ;ALSO PC = 1

END,

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000144

CLOCK - CLOCK SERVICE ROUTINE
SYMBOL TABLE

PAGE 8

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRCHL	000135'	EXT
APRCHN	000000	EXT
APRILM	000023'	EXT
APRINT	000016'	INT
APRRET	000137'	EXT
APRSAC	000075'	EXT
APRSAV	000034'	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFPNT	000012	INT
RUFWRD	000013	INT
CIP0	000024'	
CIP1	000030'	
CIP1B	000032'	
CIP2	000034'	
CIP4	000042'	
CIP5	000062'	
CIP6	000064'	
CIP7	000110'	
CIP8	000136'	
CIPWT	000001'	
CLDS	000000	EXT
CLKINI	000013'	INT
CLKOFF	000040'	EXT
CLOCK	000000'	INT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COMCNT	000062'	EXT
COMMAN	000063'	EXT
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

CLOCK - CLOCK SERVICE ROUTINE
SYMBOL TABLE

PAGE 9

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
DVTY	000010	INT
ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	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
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JA	000011	
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000113	EXT

CLOCK - CLOCK SERVICE ROUTINE
SYMBOL TABLE

PAGE 10

JBTSTS	000037'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOB	000110'	EXT
JORADR	000114'	EXT
JORDAC	000131'	EXT
JORDAT	000115'	EXT
JORDHI	000076'	EXT
JORLEV	000123'	EXT
JORPC	000127'	EXT
JORPDP	000121'	EXT
JORPFU	000101'	EXT
JORREL	000116'	EXT
JORUXT	000125'	EXT
LOOKR	040000	INT
MTW	010000	INT
NUL0	000140'	
NULJOB	000141'	INT
NXTJOB	000066'	EXT
OBUF8	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOFF	000400	
PION	000200	
PROG	000007	INT
RSCHED	000064'	INT
RUN	200000	INT
RUNABL	204000	INT
SCHEDF	000136'	EXT
STOPU	000133'	EXT
STOR	000005	
T	000001	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TIME	000035'	EXT
TTYATC	020000	INT
TTYUSE	010000	INT
USRM0D	010000	INT
USRPDP	000120'	EXT
USRPFU	000122'	EXT
UUO	000014	INT
UU00	000126'	EXT

END OF ASSEMBLY

00010

XLIST

01970

```

00030
00040 ;CALLED FROM COMMAND DECODER WHICH IS CALLED FROM CLOCK ROUTINE
00050 ;WITH FOLLOWING ACS SET:
00060 ;TAC= BYTE POINTER TO COMMAND STRING(SPACE OR CR AFTER COMMAND NAME)
00070 ;ITEM = JOB NUMBER
00080 ;DAT = BYTE POINTER TO LAST OUTPUT CHARACTER
00090 ;DEV DAT= ADDRESS OF DEVICE DATA BLOCK INITIATING COMMAND
00100 ;JDAT = ADDRESS OF JOB DATA AREA, = 0 IF NO JOB AREA
00110
00120 ;UPON RETURN FROM COMMAND SETUP ROUTINE, A CR-LF IS ADDED IF
00130 ;NEEDED AND TTY IS STARTED
00140
00150 ;SINCE THE COMMAND DECODER IS CALLED FROM THE CLOCK ROUTINE
00160 ;COMMAND SETUP ROUTINES MUST RUN TO COMPLETION QUICKLY
00170 ;IF A COMMAND FUNCTION CANNOT DO THIS, IT MUST JUST SET
00180 ;THE JOB TO A RUNABLE STATUS AND RETURN I MEDIATELY
00190
00200
00210 ; "IJOB" - INITIALIZE JOB
00220 INTERNAL IJOB
00230 EXTERNAL RADX10,JOBINI,JOBKIL,CRLF,MONJOB
00240
000000 254000 000000 00250 IJOB: JRST JOBINI
00260
00270 ;PRINT JOB NUMBER
00280
00290 INTERNAL PJOB
00300 PJOB: MOVE TAC, ITEM
00310 PUSHJ PDP,RADX10
00320 JRST CRLF
00330
00340 ;KILL JOB(MUST HAVE CORE ASSIGNED)
00350
00360 INTERNAL KJOB
000004 254000 000000 00370 KJOB: JRST JOBKIL

```

			00380		
			00390	; "START L" OR "START" - START AT LOC. L OR STARTING ADDRESS	
			00400	INTERNAL START	
			00410	EXTERNAL OCTIN, JOBSA, START1, COMERA, STARTU, CPOPJ, CPOPJ1, STARTM	
			00420		
000005	260140	000013'	00430	START: PUSHJ PDP, STRT	
000006	254000	000000	00440	JRST COMERA	;ERROR
000007	254000	000000	00450	JRST STARTU	;GO SET JOB TO START(CONSOLE IN USER MO
			00460		
			00470	; "STARTC L" OR "STARTC" - START AT LOC. L(TTY IN COMMAND MODE)	
			00480		
			00490	INTERNAL STARTC	
			00500	EXTERNAL STARTM	
			00510		
000010	260140	000013'	00520	STARTC: PUSHJ PDP, STRT	
000011	254000	000006'	00530	JRST COMERA	;ERROR
000012	254000	000000	00540	JRST STARTM	;FO SET JOB TO START(TTY IN COM. MODE)
			00550		
			00560	;ROUTINE TO SCAN ARGUMENT	
			00570		
000013	260140	000000	00580	STRT: PUSHJ PDP, OCTIN	;CONVERT OCTAL NO.
000014	254000	000016'	00590	JRST ST2	;EITHER NO NUMBER OR ERROR
000015	254000	000020'	00600	JRST ST3	;START JOB C(TAC1)
			00610		
000016	326100	000000	00620	ST2: JUMPN TAC1, CPOPJ	;NOT A NUMBER IF NON-ZERO
000017	550111	000000	00630	HRRZ TAC1, JOBSA(JDAT)	;NO, START AT STARTING ADDRESS
000020	505100	010000	00640	ST3: HRLI TAC1, 10000	;USER MODE FLAG
000021	254000	000000	00650	JRST CPOPJ1	;OK RETURN

```
00660
00670 ; "CONT" - CONTINUE EXECUTION FROM WHERE LEFT OFF
00680 INTERNAL CONT
00690 EXTERNAL CONTU,CONMES,JBTSTS
00700
000022 205100 002000 00710 CONT:   MOVSI TAC1, JERR
000023 616104 000000 00720         TDNN TAC1, JBTSTS(ITEM)           ;IS JOB ERROR BIT SET?
000024 254000 000000 00730         JRST CONTU                               ;NO, GO SET JOB TO CONTINUE
000025 265040 000000 00740 CONTA:   JSP TAC,CONMES           ;YES, PRINT CANT CONTINUE
00750
000026 416031 623650 00760         ASCIIZ /CAN'T CONTINUE
000027 202071 747250
000030 446352 542432
000031 050000 000000 00770 /
00780
00790 ; "CONTC" - CONTINUE EXECUTION(TTY REMAINS IN COMMAND MODE)
00800
00810 INTERNAL CONTC
00820 EXTERNAL CONTM
00830
000032 205100 002000 00840 CONTC:  MOVSI TAC1, JERR
000033 616104 000023' 00850         TDNN TAC1, JBTSTS(ITEM)           ;IS JOB ERROR BIT SET?
000034 254000 000000 00860         JRST CONTM                               ;NO
000035 254000 000025' 00870         JRST CONTA                               ;YES
00880
00890 ; "DDT" - START EXECUTION AT DDT IN USER AREA
00900 INTERNAL DDTGO
00910 EXTERNAL JOBDOT,STARTU
00920
000036 550111 000000 00930 DDTGO:  HRRZ TAC1, JOBDOT(JDAT)           ;GET DDT STARTING ADDRESS
000037 326100 000043' 00940         JUMPN TAC1,DDT1           ;GO START JOB IF NON-ZERO
000040 265040 000025' 00950         JSP TAC,CONMES           ;ZERO, PRINT"NO DDT"
00960
000041 472364 042210 00970         ASCII /NO DDT
000042 520321 200000 00980 /
00990
000043 505100 010000 01000 DDT1:   HRLI TAC1,USRMOD           ;USER MODE BIT
000044 254000 000007' 01010         JRST STARTU           ;GO SET TO RUN JOB
01020 ;DIGITAL MAYNARD
01030
01040 INTERNAL DIGITAL
01050
000045 265040 000040' 01060 DIGITAL: JSP TAC,CONMES
000046 442131 446236 01070         ASCIIZ /HELLO
000047 064240 000000 01080 /
```

		01090	
		01100	
		01110	
		01120	
		01130	; "CORE #" - ASSIGNS #*1024 WORDS OF CORE TO JOB
		01140	; "CORE" WITH NO ARGUMENT IS EQUIVALENT TO "CORE 0"
		01150	
		01160	INTERNAL CORE
		01170	EXTERNAL CORE1,DECIN,ANYRIN,CONMES,COMERA,NOTENF
		01180	EXTERNAL JOBPFI,JBTADR,CPOPJ,JOBPRT,JOBPR1,JOBZER
		01190	EXTERNAL RADX10
		01200	
000050	260140	000000	01210 CORE: PUSHJ PDP, DECIN ;GET NO. OF 1K BLOCKS
000051	254000	000077'	01220 JRST COR3 ;ERROR
000052	336040	000002	01230 SKIPN TAC,TAC1 ;IS ZERO BEING ASKED FOR?
000053	326440	000000	01240 JUMPN JDAT,JOBZER ;YES, RELEASE ALL DEVICES IF THERE WAS
000054	260140	000000	01250 PUSHJ PDP,CORE1
000055	254000	000065'	01260 JRST COR2 ;CORE NOT AVAILABLE (AC TAC = BLO CKS L
000056	550444	000000	01270 HRRZ JDAT, JBTADR(ITEM) ;CORE GRANTED, CLEAR PART OF
000057	322440	000016'	01280 JUMPE JDAT, CPOPJ ;UNLESS ALL CORE WAS RETURNED
000060	402011	000000	01290 SETZM JOBPRT(JDAT) ;CLEAR PART PROTECTED FROM IO
000061	505051	000060'	01300 HRLI TAC,JOBPRT(JDAT)
000062	541051	000000	01310 HRRI TAC, JOBPR1(JDAT)
000063	251051	000000	01320 BLT TAC, JOBPFI(JDAT)
000064	263140	000000	01330 POPJ PDP,
		01340	
000065	260140	000002'	01350 COR2: PUSHJ PDP,RADX10 ;PRINT NO. OF FREE 1K BLOCKS LEFT
000066	265040	000045'	01360 JSP TAC,CONMES
		01370	
000067	202152	242612	01380 ASCIZ / FREE 1K BLOCKS LEFT, NONE ASSIGNED
000070	201431	320204	
000071	462370	345646	
000072	202310	543250	
000073	261011	647634	
000074	425010	151646	
000075	446171	642610	
000076	064240	000000	01390 /
000077	326100	000011'	01400 COR3: JUMPN TAC1, COMERA ;NOT A NO. IF NON-ZERO, APPEND "?"
000100	254000	000000	01410 JRST NOTENF ;NOT ENOUGH ARGUMENT

		01420	
		01430	
		01440	; "SAVE FILE-NAME" - SAVES JOB AREA ON RETRIEVABLE DEVICE
		01450	; ONLY A SAVE OR A GET IN PROGRESS FOR EACH JOB
		01460	; NO ATTEMPT IS MADE TO SAVE DEVICE ASSIGNMENTS, ACS, OR PC
		01470	INTERNAL SAVE
		01480	EXTERNAL SAVJOB, START1, SGSET
		01490	
000101	201100 000000	01500	SAVE: MOVEI TAC1, SAVJOB ; SETUP TO RUN SAVJOB
000102	254000 000000	01510	JRST SGSET
		01520	
		01530	
		01540	; "GET DEVICE:FILE-NAME" - SETS UP JOB AREA FROM RETRIEVABLE DEVICE
		01550	INTERNAL GET
		01560	EXTERNAL GETJOB
		01570	
000103	201100 000000	01580	GET: MOVEI TAC1, GETJOB ; SETUP TO RUN GET JOB
000104	254000 000102'	01590	JRST SGSET

		01600	
		01610	;"ASSIGN DEV:NAME" - ASSIGNS DEV TO JOB AND GIVES IT LOGICAL NAME NAM
		01620	
		01630	;TEMPORARY ACS
		01640	T1=BUFPNT
		01650	T=BUFWRD
		01660	
		01670	INTERNAL ASSIGN
		01680	EXTERNAL CTEXT1, NOTENF, DEVLST, ASSASG, CONMES, PJOBN, ANYRDX, ERNAM
		01690	EXTERNAL CRLF,DEVLG,SYSTAP
		01700	
000105	260140 000000	01710	ASSIGN: PUSHJ PDP, CTEXT1 ;GET FIRST ARGUMENT
000106	322100 000100'	01720	JUMPE TAC1, NOTENF ;NO ARGUMENT TYPED IF 0
000107	200500 000002	01730	MOVE T1, TAC1 ;SAVE DEVICE NAME
000110	261140 000001	01740	PUSH PDP, TAC ;SAVE INPUT BYTE POINTER
000111	201100 400000	01750	MOVEI TAC1, ASSCON ;SETUP ASSIGNED BY CONSOLE BIT
000112	554300 000000	01760	ASSN: HLRZ DEVDAT, DEVLST
000113	312506 000000	01770	ASSG0: CAME T1,DEVNAM(DEVDAT) ;DOES PHYSICAL NAME MATCH?
000114	254000 000120'	01780	JRST ASSG1 ;NO
000115	260140 000000	01790	PUSHJ PDP, ASSASG ;YES, TRY TO ASSIGN DEVICE
000116	254000 000135'	01800	JRST ASSER1 ;ALREADY ASSIGNED TO ANOTHER JOB
000117	254000 000151'	01810	JRST ASSFIN ;ASSIGNED
		01820	
000120	200046 000000	01830	ASSG1: MOVE TAC,DEVNAM(DEVDAT) ;IS THIS THE SYSTEM TAPE?
000121	316040 000000	01840	CAMN TAC,SYSTAP
000122	254000 000131'	01850	JRST ASSG2 ;YES
000123	135540 000000	01860	LDB T, PJOBN ;SAVE OLD JOB NUMBER FOR THIS
000124	620040 777777	01870	TRZ TAC,-1 ;COMAPRE LEFT HALF ONLY
000125	316040 000012	01880	CAMN TAC, T1
000126	260140 000115'	01890	PUSHJ PDP, ASSASG ;MATCH, TRY TO ASSIGN IT
000127	254000 000131'	01900	JRST ASSG2 ;KEEP LOOKING
000130	322540 000151'	01910	JUMPE T,ASSFIN ;IF OLD JOB NUMBER 0, DEVICE PREVIOUSLY
		01920	
000131	554306 000003	01930	ASSG2: HLRZ DEVDAT, DEVSER(DEVDAT)
000132	326300 000113'	01940	JUMPN DEVDAT, ASSG0
000133	262140 000001	01950	POP PDP, TAC
000134	254000 000211'	01960	JRST NOTDEV ;PRINT NO SUCH DEVICE

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01970
01980 ;ALREADY ASSIGNED TO ANOTHER JOB
01990
000135 262140 000001 02000 ASSER1: POP PDP, TAC
000136 201040 000144' 02010 MOVEI TAC, ASSMS2
000137 260140 000066' 02020 PUSHJ PDP, CONMES
000140 201100 000012 02030 MOVEI TAC1, +D10
000141 135040 000123' 02040 LDB TAC, PJOBN
000142 260140 000000 02050 PUSHJ PDP, ANYRDX
000143 254000 000003' 02060 JRST CRLF
02070
000144 406312 242602 02080 ASSMS2: ASCIZ /ALREADY ASSIGNED TO JOB /
000145 422624 040646
000146 516230 747212
000147 421012 447500
000150 452370 220000

02090
02100 ;DEVICE ASSIGNED, GIVE IT A LOGICAL NAME
02110
000151 262140 000001 02120 ASSFIN: POP PDP, TAC ;RESTORE INPUT BYTE POINTER
000152 261140 000006 02130 PUSH PDP, DEVDAT ;SAVE DDB ADDRESS
000153 260140 000105' 02140 PUSHJ PDP, CTEXT1 ;GET SECOND ARG, LOGICAL DEVICE NAME
000154 332040 000002 02150 SKIPE TAC, TAC1 ;IS THERE A LOGICAL NAME SPECIFIED?
000155 260140 000000 02160 PUSHJ PDP, DEVLG ;YES, SEE IF IT IS ALREADY IN USE
02170 ;BY THIS USER
000156 254000 000161' 02180 JRST ASSF1 ;NO
000157 201040 000173' 02190 MOVEI TAC, LOGERR ;YES, PRINT ERROR
000160 260140 000137' 02200 PUSHJ PDP, CONMES
000161 200303 000000 02210 ASSF1: MOVE DEVDAT, (PDP) ;RESTORE DDB ADDRESS
000162 202106 000005 02220 MOVEM TAC1, DEVLOG(DEVDAT) ;STORE IN DEVICE DATA BLOCK
000163 205100 400000 02230 MOVSJ TAC1, DVDIRIN ;CLEAR DIRECTORY IN CORE BIT
000164 412106 000004 02240 ANDCAM TAC1, DEVMOD(DEVDAT)
000165 260140 000000 02250 PUSHJ PDP, ERNAM ;PRINT PHYSICAL DEVICE NAME
000166 262140 000006 02260 POP PDP, DEVDAT
000167 265040 000160' 02270 JSP TAC, CONMES
02280
000170 202032 351622 02290 ASCIZ / ASSIGNED
000171 436350 542032
000172 050000 000000 02300 /
02310
000173 462370 744606 02320 LOGERR: ASCIZ /LOGICAL NAME ALREADY IN USE, /
000174 406304 047202
000175 466124 040630
000176 512130 142262
000177 202231 620252
000200 516125 420000

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		02330	
		02340	
		02350	;"DEASSIGN DEV" - DEASSIGNS DEVICE FROM CONSOLE
		02360	
		02370	INTERNAL DEASSIGN, NOTDEV
		02380	EXTERNAL CTEXT1, DEVSRC, CONMES, ERNAM, DEASG, DEASTY
		02390	
000201	260140 000153'	02400	DEASSIGN: PUSHJ PDP, CTEXT1 ;GET DEVICE NAME
000202	322100 000000	02410	JUMPE TAC1,DEASTY ;NO ARG. IF 0, DEASSIGN ALL BUT TTY
000203	200040 000002	02420	MOVE TAC, TAC1 ;DEVICE NAME
000204	260140 000000	02430	PUSHJ PDP, DEVSRC ;SEARCH FOR DEVICE
000205	254000 000211'	02440	JRST DEAER1 ;NOT FOUND
000206	260140 000000	02450	PUSHJ PDP, DEASG ;FOUND, DEASSIGN IT
000207	254000 000216'	02460	JRST DEAER2 ;NOT PREVIOUSLY ASSIGNED
000210	263140 000000	02470	POPJ PDP, ;DEVICE DEASSIGNED
		02480	
		02490	NOTDEV:
000211	265040 000167'	02500	DEAER1: JSP TAC,CONMES ;PRINT NO SUCH DEVICE
		02510	
000212	472364 051652	02520	ASCIZ /NO SUCH DEVICE
000213	416204 042212		
000214	532230 342432		
000215	050000 000000	02530	/
		02540	
000216	261140 000006	02550	DEAER2: PUSH PDP, DEVDAT ;PRINT PHYSICAL DEVICE NAME
000217	260140 000165'	02560	PUSHJ PDP, ERNAM
000220	262140 000006	02570	POP PDP, DEVDAT
000221	265040 000211'	02580	JSP TAC,CONMES
		02590	
000222	202570 151634	02600	ASCIZ / WASN'T ASSIGNED
000223	236504 040646		
000224	516230 747212		
000225	420321 200000	02610	/
		02620	

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02630
02640 ; "ATTACH N" - ATTACH CONSOLE TO JOB N
02650 ;CHANGES ADDRESS OF TTY DEVICE DATA BLOCK STORED IN -1(PDP)
02660 ;BY THE COMMAND DECODER
02670
02680 INTERNAL ATTACH
02690 EXTERNAL DECIN,TTYATT,JOBN,ERNAM,CONMES,TTYFND
02700
000226 260140 000050' 02710 ATTACH:  PUSHJ PDP,DECIN      ;GET JOB NO.
000227 254000 000243' 02720          JRST ATT1          ;NOT A NUMBER OR NONE SPECIFIED
000230 332000 000002 02730          SKIPE TAC1          ;0 IS ILLEGAL
000231 301100 000000 02740          CAIL TAC1, JOBN      ;IS JOB NUMBER TOO BIG?
000232 254000 000243' 02750          JRST ATT1          ;ILLEGAL JOB NUMBER
000233 205040 004000 02760          MOVSJ TAC,JNA      ;HAS THIS JOB NO BEEN ASSIGNED?
000234 616042 000033' 02770          TDNN TAC,JBTSTS(TAC1)
000235 254000 000261' 02780          JRST ATT4          ;NO, PRINT ERROR
000236 200200 000002 02790          MOVE ITEM,TAC1      ;JOB NUMBER TO ITEM
000237 260140 000000 02800          PUSHJ PDP,TTYATT    ;NO, ATTACH TTY
000240 254000 000251' 02810          JRST ATT2          ;ERROR CANT ATTACH
000241 202303 777777 02820          MOVEM DEVDAT,-1(PDP)    ;CHANGE DEV DATA BLOCK ADDRES
000242 254000 000000 02830          JRST TTYFND          ;ATTACHED. GO SET UP OUTP. BYTE PTR.
02840
000243 265040 000221' 02850 ATT1:   JSP TAC,CONMES
000244 446311 442616 02860          ASCIIZ /ILLEGAL JOB NUMBER
000245 406304 045236
000246 411011 652632
000247 412132 206424 02870 /
000250 000000 000000
02880
000251 261140 000006 02890 ATT2:   PUSH PDP,DEV DAT
000252 260140 000217' 02900          PUSHJ PDP,ERNAM      ;PRINT TTY DEVICE NAME
000253 262140 000001 02910          POP PDP,TAC
000254 265040 000243' 02920          JSP TAC,CONMES
000255 202031 451212 02930          ASCIIZ / ALREADY ATTACHED
000256 406113 120202
000257 522510 141620
000260 426101 505000 02940 /
02950
000261 265040 000254' 02960 ATT4:   JSP TAC,CONMES
000262 452370 220234 02970          ASCIIZ /JOB NEVER WAS INITIATED
000263 426550 551100
000264 536032 320222
000265 472232 444602
000266 522130 406424 02980 /
000267 000000 000000
02990
03000 ; "DETACH" - DETACH CONSOLE FORM JOB
03010
03020 INTERNAL DETACH
03030 EXTERNAL TTYDET
03040
000270 350003 000000 03050 DETACH:  AOS (PDP)          ;SUPRESS CR-LF SO NO TTY DDB SETUP
000271 254000 000000 03060          JRST TTYDET          ;GO DETACH TTY
03070
03080 END,

```

PROGRAM BREAK IS 000272

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ANYRDX	000142'	EXT
ANYRIN	000000	EXT
ASSASG	000126'	EXT
ASSCON	400000	INT
ASSER1	000135'	
ASSF1	000161'	
ASSFIN	000151'	
ASSG0	000113'	
ASSG1	000120'	
ASSG2	000131'	
ASSIGN	000105'	INT
ASSMS2	000144'	
ASSN	000112'	
ASSPRG	200000	INT
ATT1	000243'	
ATT2	000251'	
ATT4	000261'	
ATTACH	000226'	INT
R	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COMERA	000077'	EXT
CONMES	000261'	EXT
CONT	000022'	INT
CONTA	000025'	
CONTC	000032'	INT
CONTM	000034'	EXT
CONTU	000024'	EXT
COR2	000065'	
COR3	000077'	
CORE	000050'	INT
CORE1	000054'	EXT
CPOPJ	000057'	EXT
CPPOPJ1	000021'	EXT
CRLF	000143'	EXT
CTEXT1	000201'	EXT
D	000017	INT
DAT	000005	INT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDT1	000043'	
DDTG0	000036'	INT
DDTMEM	000037	INT
DDTSYM	000036	INT
DEAER1	000211'	

DEAER2	000216'	
DEASG	000206'	EXT
DEASSI	000201'	INT
DEASTY	000202'	EXT
DECIN	000226'	EXT
DEN	000004	INT
DETACH	000270'	INT
DEVADR	000007	INT
DEVBUF	000006	INT
DEVCHR	000001	INT
DEVCTR	000011	INT
DEVDAT	000006	INT
DEVIAD	000007	INT
DEVIOS	000002	INT
DEVLG	000155'	EXT
DEVLOG	000005	INT
DEVLST	000112'	EXT
DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVPTR	000010	INT
DEVSEF	000003	INT
DEVSRC	000204'	EXT
DGF	000012	INT
DIGITA	000045'	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
DVTY	000010	INT
ENTRB	020000	INT
ERNAM	000252'	EXT
GET	000103'	INT
GETJOB	000103'	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
IJOB	000000'	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT

IORKTL	040000	INT
IOCON	000040	INT
IOEND	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
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000056'	EXT
JBTSTS	000234'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JLOW	100000	INT
JNA	004000	INT
JORDDT	000036'	EXT
JORINI	000000'	EXT
JORKIL	000004'	EXT
JORN	000231'	EXT
JORPFI	000063'	EXT
JORPR1	000062'	EXT
JORPRT	000061'	EXT
JORSA	000017'	EXT
JORZER	000053'	EXT
KJOB	000004'	INT
LOGERR	000173'	
LOOKR	040000	INT
MONJOB	000000	EXT
MTW	010000	INT
NOTDEV	000211'	INT
NOTENF	000106'	EXT
OBUFF	100000	INT
OCTIN	000013'	EXT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PJOB	000001'	INT
PJOBN	000141'	EXT
PROG	000007	INT
RADX10	000065'	EXT

RUN	200000	INT
RUNABL	204000	INT
SAVE	000101'	INT
SAVJOB	000101'	EXT
SGSET	000104'	EXT
ST2	000016'	
ST3	000020'	
START	000005'	INT
START1	000000	EXT
STARTC	000010'	INT
STARTM	000012'	EXT
STARTU	000044'	EXT
STRT	000013'	
SYSTAP	000121'	EXT
T	000013	
T1	000012	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYATT	000237'	EXT
TTYDET	000271'	EXT
TTYFND	000242'	EXT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT

END OF ASSEMBLY

00010

XLIST

01970

		00030	
		00040	;ROUTINE TO RETURN NEXT ALPHANUMERIC STRING
		00050	; IN COMMAND LINE (SIXBIT)
		00060	; CALL: MOVE TAC, BYTE POINTER TO FIRST CHAR.-1
		00070	; PUSHJ PDP, CTEXT
		00080	; SIXBIT STRING RETURN LEFT JUSTIFIED IN AC TAC1
		00090	
		00100	INTERNAL CTEXT, CTEXT1
		00110	
		00120	T=BUFPNT ;TEMPORARY ACS
		00130	T1=BUFWRD
		00140	T2=UU0
		00150	
000000	201100	000000	00160 CTEXT1: MOVEI TAC1, 0 ;CHECK PREVIOUS BREAK CHAR.
000001	135500	000001	00170 LDB T, TAC
000002	306500	000015	00180 CAIN T, 15 ;RETURN IF CR.
000003	263140	000000	00190 POPJ PDP,
		00200	
000004	260140	000035'	00210 CTEXT: PUSHJ PDP, SKIPS ;SKIP LEADING SPACES, TABS
000005	200500	000231'	00220 MOVE T,[POINT 6,TAC1]
000006	201100	000000	00230 MOVEI TAC1, 0
000007	135540	000001	00240 LDB T1, TAC
000010	254000	000012'	00250 JRST CTEXT1
000011	134540	000001	00260 CTEXT0: ILDB T1,TAC
000012	260140	000024'	00270 CTEXT1: PUSHJ PDP, CTEXT ;IS IT ALPHANUMERIC
000013	263140	000000	00280 POPJ PDP, ;NO, EXIT
000014	640540	000040	00290 TRC T1,40 ;CONVERT TO SIXBIT
000015	136540	000012	00300 IDPB T1,T ;YES, STORE AWAY
000016	312500	000232'	00310 CAME T,[POINT 6,TAC1,35] ;SIX CHARACTER YET
000017	254000	000011'	00320 JRST CTEXT0 ;NO
000020	134540	000001	00330 CTEXT2: ILDB T1, TAC ;YES
000021	260140	000024'	00340 PUSHJ PDP, CTEXT ;IS IT ALPHANUMERIC
000022	263140	000000	00350 POPJ PDP, ;NO, EXIT
000023	254000	000020'	00360 JRST CTEXT2
		00370	
		00380	;SCAN FOR ALPHANUMERIC CHAR IN T1
000024	301540	000060	00390 CTEXT: CAIL T1, "0"
000025	303540	000132	00400 CAILE T1, "Z" ;LETTERS ARE LARGER THAN NOS.
000026	263140	000000	00410 POPJ PDP, ;NEITHER
000027	303540	000071	00420 CAILE T1, "9"
000030	301540	000101	00430 CAIL T1, "A"
000031	350003	000000	00440 AOS (PDP) ;LETTER OR NUMBER
000032	263140	000000	00450 POPJ PDP,

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00460
00470 ;ROUTINE TO IGNORE LEADING SPACES AND TABS
00480 ;CALL:  MOVE TAC, BYTE POINTER TO CHAR.
00490 ;      PUSHJ PDP, SKIPS1
00500
00510 INTERNAL SKIPS1
00520
000033 135500 000001 00530 SKIPS1:  LDB T, TAC
000034 254000 000036' 00540 JRST SKIPSA
00550
00560
00570 ;ROUTINE TO IGNORE LEADING SPACES AND TABS
00580 ;CALL:  MOVE TAC, BYTE POINTER TO CHAR.-1
00590 ;      PUSHJ PDP, SKIPS
00600
00610 INTERNAL SKIPS
00620
000035 134500 000001 00630 SKIPS:  ILDB T, TAC
000036 302500 000040 00640 SKIPSA: CAIE T, " "
000037 306500 000011 00650 CAIN T, 11
000040 254000 000035' 00660 JRST SKIPS
000041 263140 000000 00670 POPJ PDP,

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		00680	
		00690	;ROUTINE TO APPEND A "?" TO INPUT STRING AND SET AS OUTPUT
		00700	;CALL: MOVE TAC, BYTE POINTER TO LAST CHAR. IN INPUT STRING
		00710	; PUSHJ PDP, COMERA
		00720	
		00730	INTERNAL COMERA
		00740	
000042	133000 000001	00750	COMERA: IBP TAC
		00760	
		00770	
		00780	;ROUTINE TO REPLACE LAST CHARACTER IN INPUT STRING BY "?"
		00790	;AND SET AS OUTPUT
		00800	;CALL: MOVE TAC, BYTE POINTER TO LAST CHAR. IN INPUT STRING
		00810	; PUSHJ PDP, COMERR
		00820	
		00830	INTERNAL COMERR
		00840	
		00850	EXTERNAL TTYBUF
		00860	
000043	200240 000001	00870	COMERR: MOVE DAT,TAC
000044	201506 000000	00880	MOVEI T,TTYBUF(DEVDAT) ;IS THERE MORE THAN 3 WORDS I
000045	305505 777775	00890	CAIGE T,-3(DAT)
000046	541252 000003	00900	HRRI DAT,3(T) ;YES, TYPE ONLY 3
000047	201500 000077	00910	MOVEI T, "?" ;APPEND "?"
000050	137500 000005	00920	DPB T, DAT
000051	265040 000060	00930	JSP TAC,CONMES
		00940	
000052	202331 747222	00950	ASCIIZ / MONITOR COMMAND ERROR
000053	522372 220206		
000054	476331 540634		
000055	421010 551244		
000056	476441 505000	00960	/
		00970	

		00980	
		00990	
		01000	;ROUTINE TO PRINT CARRIAGE RETURN-LINE-FEED
		01010	;CALL: MOVE DAT,BYTE POINTER TO OUTPUT
		01020	; PUSHJ PDP,CRLF
		01030	
		01040	INTERNAL CRLF
		01050	
000057	201040 000233'	01060	CRLF: MOVEI TAC,[ASCII /
		01070	/]
		01080	
		01090	;ROUTINE TO MOVE ASCII CHAR. STRING TO CONSOLE OUTPUT BUFFER
		01100	; CALL: MOVE DAT, BYTE POINTER TO LAST OUTPUT CHARACTER
		01110	; MOVEI TAC, ADDRESS OF ASCII MESSAGE
		01120	; PUSHJ PDP, CONMES
		01130	; STRING TERMINATED BY NULL
		01140	; CONMES DOES NOT START TTY
		01150	
		01160	INTERNAL CONMES
		01170	
000060	261140 000002	01180	CONMES: PUSH PDP, TAC1
000061	505040 440700	01190	HRLI TAC, 440700 ;FORM BYTE POINTER
000062	134100 000001	01200	CON0: ILDB TAC1, TAC
000063	322100 000066'	01210	JUMPE TAC1, CON1
000064	136100 000005	01220	IDPB TAC1, DAT
000065	254000 000062'	01230	JRST CON0
000066	262140 000002	01240	CON1: POP PDP, TAC1
000067	263140 000000	01250	POPJ PDP,
		01260	
		01270	;ROUTINE TO PRINT "TOO FEW ARGUMENTS"
		01280	;CALL: MOVE DAT,BYTE POINTER
		01290	; PUSHJ PDP,NOTENF
		01300	
		01310	INTERNAL NOTENF
		01320	
000070	265040 000060'	01330	NOTENF: JSP TAC,CONMES
		01340	
000071	522371 720214	01350	ASCIIZ /TOO FEW ARGUMENTS
000072	426564 040644		
000073	436531 542634		
000074	522461 505000	01360	/

		01370	
		01380	
		01390	;ROUTINE TO INITIALIZE A JOB
		01400	;CALL: MOVE ITEM, JOB NUMBER
		01410	; PUSHJ PDP, JOBINI
		01420	; DEVDAT IS SETUP ON RETURN
		01430	
		01440	INTERNAL JOBINI, JOBZER
		01450	EXTERNAL JBTSTS, PJOBN, CORE1, MONJOB, ESTOP, TYATT
		01460	
000075	326200 000100'	01470	JOBINI: JUMPJ ITEM, JOB0 ;HAS A JOB NUMBER BEEN ASSIGNED?
000076	260140 000135'	01480	PUSHJ PDP, ASSJOB ;NO, THEN ASSIGN ONE.
000077	254000 000060'	01490	JRST CONMESS ;NONE LEFT
000100	260140 000000	01500	JOB0: PUSHJ PDP, TTYATT ;ATTACH TTY
000101	255000 000000	01510	JFCL ;ALREADY ATTACHED
000102	205040 004000	01520	MOVSI TAC, JNA ;CLEAR JOB NO. ASSIGNED BIT
000103	412044 000000	01530	ANDCAM TAC, JBTSTS(ITEM) ;TO FORCE MESSAGE
000104	205040 646471	01540	MOVSI TAC, 646471 ;SIXBIT /TTY/
000105	202046 000005	01550	MOVEM TAC, DEVLOG(DEVDAT) ;SET LOGICAL NAME
000106	201500 400000	01560	MOVEI T, ASSCON ;SET ASSIGNED BY CONSOLE BIT
000107	436506 000004	01570	IORM T, DEVMOD(DEVDAT)
000110	260140 000172'	01580	PUSHJ PDP, DEASTY ;DE-ASSIGNED ALL DEVICES EXCEPT TTY
000111	322440 000000	01590	JUMPE JDAT, CPOPJ ;DOES JOB ALREADY HAVE CORE?
		01600	
		01610	
		01620	;ROUTINE TO RELEASE ALL DEVICES AND FLUSH CORE
		01630	;RUN AS MONITOR JOB
		01640	;CALL: SAME AS JOBINI
		01650	
		01660	EXTERNAL IOKILL
		01670	
000112	541100 000115'	01680	JOBZER: HRRI TAC1, JOB1 ;ADDRESS OF SUB. TO RELEASE DEV.
000113	505100 000000	01690	JOBZR1: HRLI TAC1, ESTOP ;RETURN ADDRESS AFTER IORELS
000114	254000 000000	01700	JRST MONJOB ;GO SCHEDULE MONITOR JOB
		01710	
000115	260140 000000	01720	JOB1: PUSHJ PDP, IOKILL ;KILL ALL IO DEVICES
000116	201040 000000	01730	MOVEI TAC, 0 ;FLUSH ALL CORE
000117	370003 000000	01740	SOS (PDP) ;CORE1 WILL SKIP RETURN
000120	254000 000000	01750	JRST CORE1
		01760	

			01770	
			01780	
			01790	;ROUTINE TO KILL CURRENT JOB
			01800	;CALL PUSHJ PDP,JOBKIL
			01810	
			01820	INTERNAL JOBKIL
			01830	EXTERNAL JBTSTS,TTYKIL
			01840	
000121	350003	000000	01850	JOBKIL: AOS (PDP) ;SUPPRESS CR-LF AND JOB INIT. CHECK
000122	201040	000001	01860	MOVEI TAC,1
000123	260140	000173'	01870	PUSHJ PDP,DEASAL ;DEASSIGN ALL DEVICES
000124	322440	000132'	01880	JUMPE JDAT,JOBKA ;DOES JOB HAVE CORE?
000125	541100	000127'	01890	HRRI TAC1,JOBK2 ;YES,RELEASE DEVICES AND CLEAR CORE
000126	254000	000113'	01900	JRST JOBZR1
			01910	
000127	261140	000006	01920	JOBK2: PUSH PDP,DEV DAT ;SAVE DEV DAT FOR TTYKIL
000130	260140	000115'	01930	PUSHJ PDP,JOB1 ;FLUSH CORE AND RELEASE DEVICES
000131	262140	000006	01940	POP PDP,DEV DAT
000132	205040	002000	01950	JOBKA: MOVSI TAC,JERR ;CLEAR ALL BUT JOB ERROR BIT
000133	202044	000103'	01960	MOVEM TAC,JBTSTS(ITEM) ;IN JOB STATUS WORD
000134	254000	000000	01970	JRST TTYKIL ;RETURN TTY TO VIRGIN STATE
			01980	
			01990	
			02000	;ROUTINE TO ASSIGN AN UNUSED JOB NUMBER
			02010	;CALL PUSHJ PDP,ASSJOB
			02020	; ERROR RETURN TAC DESTROYED
			02030	; OK RETURN ITEM SET, TAC AND TAC1 PRESERVED
			02040	
			02050	INTERNAL ASSJOB
			02060	EXTERNAL MJOBN,JBTSTS,CPOPJ1
			02070	
000135	205200	000000	02080	ASSJOB: MOVSI ITEM,MJOBN
000136	253200	000137'	02090	AOBJN ITEM,.-1
000137	205540	004000	02100	MOVSI T1,JNA
000140	612544	000133'	02110	TDNE T1,JBTSTS(ITEM)
000141	253200	000140'	02120	AOBJN ITEM,.-1
000142	325200	000145'	02130	JUMPGE ITEM,ASSJB1
000143	405200	777777	02140	ANDI ITEM,-1
000144	254000	000000	02150	JRST CPOPJ1
			02160	
000145	265040	000060'	02170	ASSJB1: JSP TAC,CONMES
000146	452370	220206	02180	ASCIIZ /JOB CAPACITY EXCEEDED
000147	406410	141622		
000150	522624	042660		
000151	416130	542212		
000152	420321	200000	02190	/

		02200	
		02210	
		02220	;ROUTINE TO DEASSIGN A DEVICE
		02230	;CALL: MOVE DEVDAT, DEVICE DATA BLOCK
		02240	; MOVE ITEM, JOB NUMBER
		02250	; PUSHJ PDP, DEASG
		02260	; ERROR NOT PREVIOUSLY ASSIGNED
		02270	; OK RETURN WITH DEVICE DEASSIGNED
		02280	
		02290	INTERNAL DEASG
		02300	EXTERNAL PJOBN, CPOPJ1
		02310	
000153	135500	000000	02320 DEASG: LDB T, PJOBN ;WAS DEVICE ASSIGNED TO THIS JOB?
000154	312500	000004	02330 CAME T, ITEM
000155	263140	000000	02340 POPJ PDP, ;NO, RETURN
000156	205500	400000	02350 MOVSJ T,DVDIRIN ;CLEAR DIRECTORY IN CORE BIT
000157	412506	000004	02360 ANDCAM T,DEVMOD(DEVDAT)
000160	201500	400000	02370 MOVEI T, ASSCON ;YES, IS ASSIGNED BY CONSOLE BIT ON?
000161	616506	000004	02380 TDNN T, DEVMOD(DEVDAT)
000162	263140	000000	02390 POPJ PDP, ;NO
000163	413506	000004	02400 ANDCAB T,DEVMOD(DEVDAT) ;YES, CLEAR BIT
000164	402006	000005	02410 SETZM DEVLOG(DEVDAT) ;CLEAR LOGICAL NAME
000165	602500	200000	02420 TRNE T, ASSPRG ;IS ASSIGNED BY PROGRAM BIT ON?
000166	254000	000144	02430 JRST CPOPJ1 ;YES
000167	201500	000000	02440 MOVEI T,0 ;NO, CLEAR JOB NUMBER
000170	137500	000153	02450 DPB T, PJOBN
000171	254000	000166	02460 JRST CPOPJ1
		02470	
		02480	;ROUTINE TO DEASSIGN ALL DEVICES EXCEPT LOGICAL TTY
		02490	;CALL: MOVE ITEM, JOB NUMBER
		02500	; PUSHJ PDP, DEASTY
		02510	
		02520	INTERNAL DEASTY
		02530	
000172	205040	646471	02540 DEASTY: MOVSJ TAC, 646471 ;SIXBIT /TTY/
		02550	02550 ;FALL INTO DEASAL
		02560	
		02570	;ROUTINE TO DEASSIGN ALL DEVICES EXCEPT ONE
		02580	;CALL: MOVE ITEM, JOB NUMBER
		02590	; MOVE TAC, LOGICAL DEVICE NOT TO BE DEASSIGNED
		02600	; PUSHJ PDP, DEASAL
		02610	
		02620	INTERNAL DEASAL
		02630	EXTERNAL DEVLST
		02640	
000173	261140	000006	02650 DEASAL: PUSH PDP,DEV DAT
000174	554300	000000	02660 HLRZ DEV DAT,DEV LST ;SEARCH ALL DDBS
000175	312046	000005	02670 DEAL: CAME TAC, DEV LOG(DEVDAT) ;IS THIS THE LOGICAL NAME
000176	260140	000153	02680 PUSHJ PDP, DEASG ;NO, TRY TO DEASSIGN IT
000177	255000	000000	02690 JFCL ;IGNORE IF CANT
000200	554306	000003	02700 HLRZ DEV DAT, DEV SER(DEVDAT)
000201	326300	000175	02710 JUMP DEV DAT, DEAL
000202	262140	000006	02720 POP PDP,DEV DAT
000203	263140	000000	02730 POPJ PDP,

		02740	
		02750	
		02760	;ROUTINE TO READ CONSOLE AND CONVERT ANY RADIX NUMBER
		02770	; CALL: MOVE TAC1, DESIRED RADIX
		02780	; MOVE TAC, BYTE POINTER TO FIRST CHARACTER
		02790	; PUSHJ PDP, ANYRIN
		02800	; ERROR EXIT ;AC TAC1=0 IF NO NUMBER BEFORE FIRST NO
		02810	; NORMAL EXIT ;AC TAC1 CONTAINS NUMBER
		02820	; SCAN STOPS ON FIRST ILLEGAL CHARACTER OR CR
		02830	; IGNORES SPACES, TABS, RUBOUTS
		02840	
		02850	INTERNAL OCTIN,ANYRIN,DECIN,DECIN1
		02860	EXTERNAL CPOPJ1, CPOPJ
		02870	
		02880	C=BUFPNT ;CHARACTER AC
		02890	R=BUFWRD ;RADIX AC
		02900	
000204	133000	000001	02910 DECIN1: IBP TAC ;SKIP SEPARATION CHARACTER
000205	201100	000012	02920 DECIN: MOVEI TAC1,12 ;DECIMAL INPUT
000206	254000	000210	02930 JRST ANYRIN
		02940	
000207	201100	000010	02950 OCTIN: MOVEI TAC1, 10
000210	200540	000002	02960 ANYRIN: MOVE R, TAC1
000211	201100	000000	02970 MOVEI TAC1, 0
000212	260140	000033	02980 PUSHJ PDP, SKIPS1 ;SKIP LEADING SPACES, TABS
000213	135500	000001	02990 LDB C, TAC
000214	306500	000015	03000 CAIN C, 15 ;CHECK FOR INITIAL CR
000215	263140	000000	03010 POPJ PDP, ;EXIT WITH 0 IN TAC1
000216	302500	000055	03020 OCT0: CAIE C,"-" ;DASH?
000217	306500	000015	03030 CAIN C,15 ;CR?
000220	254000	000171	03040 JRST CPOPJ1 ;YES, ONLY LEGAL TERMINATORS
000221	275500	000060	03050 SUBI C,60
000222	321500	000224	03060 JUMPL C, OCTE ;ERROR IF NEGATIVE
000223	311500	000013	03070 CAML C, R ;OR .GE. RADIX
000224	344100	000111	03080 OCTE: AOJA TAC1,CPOPJ ;ERROR,INSURE TAC1 NON-ZERO
000225	220100	000013	03090 IMUL TAC1, R
000226	270100	000012	03100 ADD TAC1, C
000227	134500	000001	03110 OCT1: ILDB C, TAC
000230	254000	000216	03120 JRST OCT0
		03130	
000231	440600	000002	03140 END,
000232	000600	000002	
000233	064240	000000	

THERE ARE NO ERRORS

PROGRAM BREAK IS 000234

COMCSS - COMMAND COMMON ROUTINES
SYMBOL TABLE

PAGE 11

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ANYRIN	000210'	INT
ASSCON	400000	INT
ASSJB1	000145'	
ASSJOB	000135'	INT
ASSPRG	200000	INT
R	000014	INT
RUFPNT	000012	INT
RUFWRD	000013	INT
C	000012	
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COMERA	000042'	INT
COMERR	000043'	INT
CON0	000062'	
CON1	000066'	
CONMES	000060'	INT
CORE1	000120'	EXT
CPOPJ	000224'	EXT
CPOPJ1	000220'	EXT
CRLF	000057'	INT
CTFX	000024'	
CTFX0	000011'	
CTFX1	000012'	
CTFX2	000020'	
CTFXT	000004'	INT
CTFXT1	000000'	INT
D	000017	INT
DAT	000005	INT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTMEM	000037	INT
DDTSYM	000036	INT
DEA1	000175'	
DEASAL	000173'	INT
DEASG	000153'	INT
DEASTY	000172'	INT
DECIN	000205'	INT
DECIN1	000204'	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

DEVLST	000174'	EXT
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
DVTY	000010	INT
FNTRB	020000	INT
ESTOP	000113'	EXT
I	000010	INT
IB	000013	INT
IBUFR	200000	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORKTL	040000	INT
IOCON	000040	INT
IONEND	020000	INT
IONERR	200000	INT
IONISC	400000	INT
IONONE	400000	INT
IONTER	100000	INT
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IOKILL	000115'	EXT
IONRCK	000100	INT
IODEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT

JBFAOR	000000	INT
JBFCOR	000002	INT
JBFPTR	000001	INT
JBTSTS	000140'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOU	100000	INT
JNA	004000	INT
JOR0	000100'	
JOR1	000115'	
JORINI	000075'	INT
JORK2	000127'	
JORKA	000132'	
JORKIL	000121'	INT
JORZER	000112'	INT
JORZR1	000113'	
LOOKR	040000	INT
MJOB	000135'	EXT
MONJOB	000114'	EXT
MTW	010000	INT
NOTENF	000070'	INT
OBUEB	100000	INT
OCT0	000216'	
OCT1	000227'	
OCTE	000224'	
OCTIN	000207'	INT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PJOB	000170'	EXT
PROG	000007	INT
R	000013	
RUN	200000	INT
RUNABL	204000	INT
SKIPS	000035'	INT
SKIPS1	000033'	INT
SKIPSA	000036'	
T	000012	
T1	000013	
T2	000014	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYATT	000100'	EXT
TTYBUF	000044'	EXT
TTYKIL	000134'	EXT
TTYUSE	010000	INT
USMOD	010000	INT
UUO	000014	INT

END OF ASSEMBLY

00010

XLIST

01970


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00030
00040 ;CALLED FROM CLOCK ROUTINE WHEN COMCNT IS GREATER THAN 0
00050 ;AS SET BY TTY SERVICE ROUTINE
00060 ;ALL ACS HAVE BEEN SAVED BY CLOCK CHANNEL
00070 ;THE COMMAND DECODER CALLS TTYCOM WHICH SCANS FOR TTY WHICH TYPED
00080 ;THE COMMAND AND THEN DISPATCHES(PUSHJ) TO APPROPRIATE
00090 ;COMMAND SETUP ROUTINE OF THE SAME NAME WITH ACS SET AS:
00100 ;ITEM = JOB NUMBER
00110 ;TAC = BYTE POINTER TO COMMAND STRING(SPACE OR CR AFTER COMMAND NAME)
00120 ;DAT = BYTE POINTER TO LAST OUTPUT CHARACTER
00130 ;DEV DAT = ADDRESS OF DEVICE DATA BLOCK TYPING COMMAND
00140 ;JDAT = ADDRESS OF JOB AREA, = 0 IF NO JOB AREA
00150 ;PROG = ADDRESS OF PROGRAM AREA
00160 ;DEV DAT IS ALSO PUSHED ON END OF PD LIST SO IT MAY BE DESTROYED
00170 ;UPON RETURN FROM COMMAND SETUP ROUTINE, A CR-LF IS ADDED TO
00180 ;MESSAGE AND TTY IS STARTED ON TTY SPECIFIED BY -1(PDP)
00190
00200 ;SINCE THE COMMAND DECODER IS CALLED FROM THE CLOCK ROUTINE
00210 ;COMMAND SETUP ROUTINE MUST RUN TO COMPLETION QUICKLY
00220 ;IF A COMMAND FUNCTION CANNOT DO THIS, IT MUST JUST SET
00230 ;THE JOB TO RUNABLE STATUS AND RETURN IMMEDIATELY
00240
00250 INTERNAL COMMAND
00260 EXTERNAL TTYCOM,TTYSTR,CTEXT,JBTADR,CONMES
00270 EXTERNAL COMERR,COMCNT
00280 EXTERNAL JOBINI,CRLF,CTEXT1,RADX10,ASSJOB,JBTSTS
00290
00300 T=BUFPNT ;TEMPORARY ACS
00310 T1=BUFWRD
00320
```

000000	260140	000000	00330
000001	254000	000041'	00340
000002	261140	000006	00350
000003	260140	000000	00360
000004	322100	000043'	00370
000005	205500	777760	00380
000006	312112	000074'	00390
000007	253500	000006'	00400
000010	325500	000047'	00410
000011	200112	000114'	00420
000012	326200	000026'	00430
000013	603100	200000	00440
000014	254000	000026'	00450
000015	260140	000000	00460
000016	254000	000067'	00470
			00480
			00490

COMMAND:	PUSHJ PDP, TTYCOM	;SETUP DEV DAT, DAT, TAC, AND ITEM
	JRST COM2	;NONE FOUND
	PUSH PDP, DEV DAT	;SAVE TTY DDB ADDRESS
	PUSHJ PDP, CTEXT	;RETURN COMMAND NAME IN TAC1
	JUMPE TAC1, COM2A	;IGNORE BLANK LINE
	MOVSI T, -DISPL	;SEARCH FOR COMMAND NAME
	CAME TAC1, COMTAB(T)	
	A0BJN T, .-1	
	JUMPE T, COM2B	;WAS COMMAND FOUND?
	MOVE TAC1, DISP(T)	;YES, GET DISPATCH ADDRESS AND BITS
	JUMPN ITEM, COM1	;HAS A JOB NUMBER BEEN ASSIGNED
	TLNE TAC1, NOJOB	;NO, IS A JOB NUMBER NEEDED FOR THIS CO
	JRST COM1 ;NO	
	PUSHJ PDP, ASSJOB	;TRY TO ASSIGN A FREE JOB NUMBER
	JRST COM3A	;NONE AVAILABLE, ERROR MESSAGE

000017	261140	000001	00500		
000020	261140	000002	00510	PUSH PDP, TAC	;SAVE INPUT BYTE POINTER
000021	403340	000011	00520	PUSH PDP, TAC1	;SAVE ADDRESS OF COMMAND ROUTINE
000022	260140	000000	00530	SETZB PROG, JDAT	;NO CORE, CLEAR REL. ADDRESS
000023	262140	000002	00540	PUSHJ PDP, JOBINI	;INITIALIZE JOB
000024	262140	000001	00550	POP PDP, TAC1	;RESTORE ADR OF COMMAND ROUTINE
000025	202303	000000	00560	POP PDP, TAC	;RESTORE INPUT BYTE POINTER
000026	550444	000000	00570	MOVEM DEVDAT, (PDP)	;SET ADDRESS OF TTY DEV. DATA BLOCK
000027	336340	000011	00580	HRRZ JDAT, JBTADR(ITEM)	;AND JOB DATA AREA
000030	603100	400000	00590	SKIPN PROG, JDAT	;SET PROG. DOES JOB HAVE CORE?
000031	254000	000035'	00600	TLNE TAC1, NOCORE	;NO, IS CORE NEEDED FOR THIS COMMAND?
000032	201040	000051'	00610	JRST COM1C	;NO
000033	260140	000000	00620	MOVEI TAC, NOCOR	;YES, PRINT "NO CORE ASSIGNED"
000034	254000	000036'	00630	PUSHJ PDP, CONMES	
			00640	JRST COM1A	
			00650		
000035	260142	000000	00660	COM1C: PUSHJ PDP, (TAC1)	;DISPATCH TO COMMAND SETUP ROUTINE
000036	326200	000055'	00670	COM1A: JUMPN ITEM, COM3	;ADD CR-LF AND CHECK FOR JOB INIT.
000037	262140	000006	00680	COM1D: POP PDP, DEVDAT	;RESTORE TTY DDB ADDRESS
000040	260140	000000	00690	PUSHJ PDP, TTYSTR	;START OUTPUT, IF ANY
000041	370000	000000	00700	COM2: SOS COMCNT	;DECREMENT COMMAND COUNT
000042	263140	000000	00710	POPJ PDP,	;EXIT
			00720		
000043	135100	000001	00730	COM2A: LDB TAC1, TAC	;NULL FIELD, WAS BREAK CHAR. A CR?
000044	302100	000015	00740	CAIE TAC1, 15	;A CR?
000045	306100	000073	00750	CAIN TAC1, ";"	;OR A SEMI COLON?
000046	254000	000037'	00760	JRST COM1D	;YES, IGNORE LINE
000047	260140	000000	00770	COM2B: PUSHJ PDP, COMERR	;NO, PRINT MONITOR COMMAND ERROR
000050	254000	000037'	00780	JRST COM1D	
			00790		
000051	472364	041636	00800	NOCOR: ASCIZ /NO CORE ASSIGNED	
000052	512124	040646			
000053	516230	747212			
000054	420321	200000	00810	/	
			00820		
000055	200044	000000	00830	COM3: MOVE TAC, JBTSTS(ITEM)	;GET STATUS WORD
000056	663040	004000	00840	TLOE TAC, JNA	;IS JOB NO ASSIGNED BIT ON YE
000057	254000	000067'	00850	JRST COM3A	;YES, JOB INIT. BEFORE
000060	202044	000055'	00860	MOVEM TAC, JBTSTS(ITEM)	
000061	201040	000134'	00870	MOVEI TAC, [ASCIZ /JOB /]	
000062	260140	000033'	00880	PUSHJ PDP, CONMES	;PRINT JOB N INITIALIZED
000063	200040	000004	00890	MOVE TAC, ITEM	
000064	260140	000000	00900	PUSHJ PDP, RADX10	;PRINT JOB NUMBER
000065	201040	000071'	00910	MOVEI TAC, JOBM	
000066	260140	000062'	00920	PUSHJ PDP, CONMES	
000067	260140	000000	00930	COM3A: PUSHJ PDP, CRLF	
000070	254000	000037'	00940	JRST COM1D	
			00950		
000071	202231	644650	00960	JOBM: ASCIZ / INITIALIZED	
000072	446031	444664			
000073	426101	505000	00970	/	
			00980		

```

00990
01000 ;TABLE OF CONSOLE COMMANDS
01010
01020 NOCORE=400000 ;NO CORE NEEDED FOR COMMAND
01030 NOJOB=200000 ;NO JOB NUMBER NEEDED FOR COMMAND
01040
01050 DEFINE NAMES
01060 <REPEAT 0,<
01070 C G,COMERR,0
01080 >
01090 C CORE,CORE,NOCORE
01100 C GET,GET,0
01110 C START,START,0
01120 C IJOB,IJOB,NOCORE+NOJOB
01130 C PJOB,PJOB,NOCORE
01140 C KJOB,KJOB,NOCORE
01150 C SAVE,SAVE,0
01160 REPEAT 0,<
01170 C RESAVE,COMERR,0
01180 >
01190 C CONT,CONT,0
01200 C DDT,DDTGO,0
01210 C ASSIGN,ASSIGN,NOCORE
01220 C DEASSI,DEASSIGN,NOCORE
01230 C STARTC,STARTC,0
01240 C CONTC,CONTC,0
01250 C DETACH,DETACH,NOCORE+NOJOB
01260 C ATTACH,ATTACH,NOCORE+NOJOB
01270 REPEAT 0,<
01280 C MTAPE,COMERR,0
01290 C DAYTIM,COMERR,NOCORE
01300 C RUNTIM,COMERR,NOCORE
01310 C TOTTIM,COMERR,NOCORE
01320 C MULTIM,COMERR,NOCORE
01330 C SYSDDT,COMERR,NOCORE
01340 C SYSMK,SYSMK,0
01350 >
01360 C DIGITAL,DIGITAL,NOCORE+NOJOB
01370 >

```

000074	435762	450000	01380	
000075	474564	000000	01390	;GENERATE TABLE OF SIXBIT COMMAND NAMES
000076	636441	626400	01400	
000077	515257	420000	01410	DEFINE C(A,B,C)
000100	605257	420000	01420	< ZZ=.,+1
000101	535257	420000	01430	SIXBIT /A/
000102	634166	450000	01440	IFN .-ZZ,<RELOC ZZ> ;ONLY FIRST 6 CHARACTERS
000103	435756	640000	01450	>
000104	444464	000000	01460	
000105	416363	514756	01470	COMTAB: NAMES
000106	444541	636351		SIXBIT /CORE/
000107	636441	626443		SIXBIT /GET/
000110	435756	644300		SIXBIT /START/
000111	444564	414350		SIXBIT /IJOB/
000112	416464	414350		SIXBIT /PJOB/
000113	445147	516441		SIXBIT /KJOB/
000114	540000	000000		SIXBIT /SAVE/
				SIXBIT /CONT/
				SIXBIT /DDT/
				SIXBIT /ASSIGN/
				SIXBIT /DEASSI/
				SIXBIT /STARTC/
				SIXBIT /CONTC/
				SIXBIT /DETACH/
				SIXBIT /ATTACH/
				SIXBIT /DIGITAL/
			01480	DISPL=.-COMTAB ;LENGTH OF TABLE

		01490	
		01500	;GENERATE THE DISPATCH TABLE
		01510	
		01520	DEFINE C(A,B,C)
		01530	< XWD C,B
		01540	EXTERNAL B
		01550	>
		01560	
		01570	DISP: NAMES
000114	400000	000000	XWD NOCORE,CORE
000115	000000	000000	XWD 0,GET
000116	000000	000000	XWD 0,START
000117	600000	000000	XWD NOCORE+NOJOB, IJOB
000120	400000	000000	XWD NOCORE,PJOB
000121	400000	000000	XWD NOCORE,KJOB
000122	000000	000000	XWD 0,SAVE
000123	000000	000000	XWD 0,CONT
000124	000000	000000	XWD 0,DDTGO
000125	400000	000000	XWD NOCORE,ASSIGN
000126	400000	000000	XWD NOCORE,DEASSIGN
000127	000000	000000	XWD 0,STARTC
000130	000000	000000	XWD 0,CONTC
000131	600000	000000	XWD NOCORE+NOJOB,DETACH
000132	600000	000000	XWD NOCORE+NOJOB,ATTACH
000133	600000	000000	XWD NOCORE+NOJOB,DIGITAL
		01580	
000134	452370	220000	01590 END,

THERE ARE NO ERRORS

PROGRAM BREAK IS 000135

COMINI - THE COMMAND DECODER
SYMBOL TABLE

PAGE 9

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSIGN	000125	EXT
ASSJOB	000015	EXT
ASSPRG	200000	INT
ATTACH	000132	EXT
R	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COM1	000026	
COM1A	000036	
COM1B	000033	
COM1C	000035	
COM1D	000037	
COM2	000041	
COM2A	000043	
COM2B	000047	
COM3	000055	
COM3A	000067	
COMCNT	000041	EXT
COMERR	000047	EXT
COMMAN	000000	INT
COMTAB	000074	
CONMES	000066	EXT
CONT	000123	EXT
CONTC	000130	EXT
CORE	000114	EXT
CRLF	000067	EXT
CTEXT	000003	EXT
CTEXT1	000000	EXT
D	000017	INT
DAT	000005	INT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTGO	000124	EXT
DDTMEM	000037	INT
DDTSYM	000036	INT
DEASSI	000126	EXT
DEN	000004	INT
DETACH	000131	EXT
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
DIGITA	000133'	EXT
DIN	000003	INT
DISP	000114'	
DISPL	000020	
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
FNTRR	020000	INT
GET	000115'	EXT
I	000010	INT
IB	000013	INT
IBUFR	200000	INT
IJOB	000117'	EXT
INITR	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORKTL	040000	INT
IOCON	000040	INT
IONEND	020000	INT
IONERR	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
IOSTRT	000010	INT
IOUSE	400000	INT

COMINI - THE COMMAND DECODER
SYMBOL TABLE

PAGE 11

IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBTADR	000026'	EXT
JBTSTS	000060'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JORINI	000022'	EXT
JORM	000071'	
KJOB	000121'	EXT
LOOKB	040000	INT
MTW	010000	INT
NOCOR	000051'	
NOCORE	400000	
NOJORN	200000	
OBUF8	100000	INT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PJOB	000120'	EXT
PROG	000007	INT
RADX10	000064'	EXT
RUN	200000	INT
RUNARL	204000	INT
SAVE	000122'	EXT
START	000116'	EXT
STARTC	000127'	EXT
T	000012	
T1	000013	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYCOM	000000'	EXT
TTYSTR	000040'	EXT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT
ZZ	000114'	

END OF ASSEMBLY

00010

XLIST

01970

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00030
00040 ;          PUSHJ PDP, CORE1      ;ITEM = JOB #. TAC = 1K CORE BLOCKS
00050 ;                                ;REQUESTED
00060 ;          RET1                  ;OLD CORE RETURNED.
00070 ;          RET2                  ;OLD CORE RETURNED. JBTADR, JOBRCL ARE
00080 ;                                ;SET UP
00090 ; JBTADR (ITEM) = POINTER TO JOB AREA. JOBRCL (JBTADR) = HIGHEST LOCAT
00100 ; C(RH) JBTADR IS SET TO 0 OR REQUESTED CORE. JOBRCL IS SET IF CORE G
00110 ; TAC = CORTALLY AT EXIT.
00120 ; NOT A PURE PROCEDURE ...
00130 ;CORTAL: 0                        ;COUNT OF FREE CORE
00140 ;CORTAB: BLOCK +D2              ;TABLE OF 72 BITS. 1 BIT FOR
00150 ;1K OF CORE. 1 = USED. 0 = FREE
00160 ;CORLST: POINT 1, CORTAB, 32    ;POINTER FIRST OUT OF BOUNDS
00170 ;
00180 ;TEMPORARY USAGE
00190 CORUSZ: 0                        ;SIZE OF USERS CODE, OLD.-NEW
00200 CORLOC: 0                        ;POSITION OF 1ST FREE BLOCK
00210 ;
00220 ;AC ASSIGNMENTS
00230 COR1=BUFPNT
00240 COR2=BUFWRD
00250 COR3=UUO
00260 INTERNAL CORE1
00270 EXTERNAL JBTADR, JOBRCL, CORLST, CORTAL, CORTAB

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00280
00290
000002 135500 000042' 00300
000003 202500 000001' 00310
000004 322500 000013' 00320
000005 554504 000000 00330
000006 350000 000012 00340
000007 240500 777766 00350
000010 202500 000000' 00360
000011 402000 000014 00370
000012 260140 000056' 00380
000013 402004 000005' 00390
000014 322040 000037' 00400
000015 200600 000043' 00410
000016 476000 000001' 00420
000017 260140 000044' 00430
000020 254000 000040' 00440
000021 315500 000001 00450
000022 254000 000017' 00460
000023 213000 000012 00470
000024 272500 000001' 00480
000025 202040 000000' 00490
000026 201600 000001 00500
000027 260140 000056' 00510
000030 200500 000001' 00520
000031 240500 000012 00530
000032 542504 000013' 00540
000033 240040 000012 00550
000034 275040 000001 00560
000035 542052 000000 00570
000036 506044 000032' 00580
000037 350003 000000 00590
000040 200040 000000 00600
000041 263140 000000 00610
00620
000042 121004 000036' 00630
000043 440100 000000 00640

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CORE1:  LDB COR1, CORE1P
        MOVEM COR1, CORLOC
        JUMPE COR1, CORGET      ;IF 0 NO CORE NOEW.
        HLRZ COR1, JBTADR(ITEM) ;CLEAR OLD CORE
        AOS COR1                ;HIGHEST ADDRESS AVAIL. FORM
        ASH COR1, -+D10
        MOVEM COR1, CORUSZ
CORRET:  CLEARM COR3            ;RETURN OLD CORE
        PUSHJ PDP, CORSTG
CORGET:  SETZM JBTADR(ITEM)     ;CLEAR JOB ADDRESS TO 0
        JUMPE TAC, COROK       ;IF NO CORE TO GET, RETURN
        MOVE COR3, CORE2P      ;SET UP FOR
        SETOM CORLOC           ;HOLE SEARCH
CORG1:   PUSHJ PDP, CORHOL
        JRST CORNG             ;UNSUCCESSFUL SEARCH
        CAMGE COR1, TAC        ;HOLE FOUND
        JRST CORG1
CORGVE:  MOVNS COR1            ;BACKUP CORLOC
        ADDM COR1, CORLOC
        MOVEM TAC, CORUSZ      ;RESERVE HOLE FOR JOB
        MOVEI COR3, 1          ;SET CORTAB
        PUSHJ PDP, CORSTG
        MOVE COR1, CORLOC      ;C(RH)=RELOC, C(LH)=PROTECT
        ASH COR1, +D10
        HRRM COR1, JBTADR(ITEM)
        ASH TAC, +D10
        SUBI TAC, 1
        HRRM TAC, JOBREL (COR1)
        HRLM TAC, JBTADR(ITEM)
COROK:   AOS (PDP)
CORNG:   MOVE TAC, CORTAL
        POPJ PDP,
CORE1P:  POINT 8, JBTADRR(ITEM),25
CORE2P:  POINT 1, CORTAB

```

		00650	
		00660	
		00670	; PUSHJ PDP, CORHOL ;COR1-HOLES FREE, COR2=TEMP
		00680	; RETURN1 ;COR3=POINTER. RETURN1=END OF STRING RE
		00690	; RETURN2 ;HOLE FOUND.
		00700	; CORLOC CONTAINS 0,1.. N, THE CORE BLK PTR. CORLST IS PTR TO
		00710	; STOP STRING TEST
000044	402000 000012	00720	CORHOL: CLEARM COR1
000045	316600 000000	00730	CORH01: CAMN COR3, CORLST ;TEST DONE
000046	263140 000000	00740	POPJ PDP,
000047	134540 000014	00750	ILDB COR2, COR3 ;TEST NEXT BLOCK
000050	350000 000001	00760	AOS CORLOC
000051	336000 000013	00770	SKIPN COR2
000052	344500 000045	00780	AOJA COR1, CORH01 ;COUNT FREE
000053	322500 000045	00790	JUMPE COR1, CORH01
000054	350003 000000	00800	AOS (PDP)
000055	263140 000000	00810	POPJ PDP,
		00820	:: PUSHJ PDP, CORSTG ;CORUSZ=SIZE RESERVED. CORLOC=LOCATION
		00830	; IF COR3=0, THEN FREE CORE
		00840	; IF COR3=1, THEN RESERVE CORE.
		00850	; USES COR1, COR2, COR3
		00860	; CORTAL=COUNT OF FREE CORE, AND IS UPDATED
000056	261140 000001	00870	CORSTG: PUSH PDP, TAC ;SAVE NO. OF BLOCKS BEING REQ
000057	200540 000000	00880	MOVE COR2,CORUSZ ;FIX CORTALLY
000060	332000 000014	00890	SKIPE COR3
000061	213000 000013	00900	MOVNS COR2
000062	272540 000040	00910	ADDM COR2, CORTAL
000063	200040 000001	00920	MOVE TAC, CORLOC ;GET POINTER-1
000064	231040 000044	00930	IDIVI TAC, +D36 ;TAC=WORD,TAC1=BIT
000065	270040 000076	00940	ADD TAC, CORLP1 ;FORM BYTE POINTER
000066	213000 000002	00950	MOVNS TAC1
000067	271100 000044	00960	ADDI TAC1, +D36
000070	137100 000077	00970	DPB TAC1, [POINT 6, TAC, 5]
000071	200540 000000	00980	MOVE COR2, CORUSZ
000072	136600 000001	00990	CORLOP: DPBI COR3, TAC ;SET OR CLEAR EACH BIT IN USE
000073	367540 000072	01000	SOJG COR2, CORLOP
000074	262140 000001	01010	POP PDP, TAC
000075	263140 000000	01020	POPJ PDP,
		01030	
000076	000100 000043	01040	CORLP1: XWD 100, CORTAB
		01050	
000077	360600 000001	01060	END,

THERE ARE NO ERRORS

PROGRAM BREAK IS 000100

CORE - CORE ALLOCATION ROUTINE
SYMBOL TABLE

PAGE 6

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSE	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COR1	000012	
COR2	000013	
COR3	000014	
CORE1	000002'	INT
CORE1P	000042'	
CORE2P	000043'	
CORG1	000017'	
CORGET	000013'	
CORGVE	000023'	
CORH01	000045'	
CORH0L	000044'	
CORLOC	000001'	
CORLOP	000072'	
CORLP1	000076'	
CORLST	000045'	EXT
CORNG	000040'	
COROK	000037'	
CORRET	000011'	
CORSTG	000056'	
CORTAB	000076'	EXT
CORTAL	000062'	EXT
CORUSZ	000000'	
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

CORE - CORE ALLOCATION ROUTINE
SYMBOL TABLE

PAGE 7

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
IBUFR	200000	INT
INITB	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
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTAADR	000042	EXT
JBUF	000005	INT
JDAT	000011	INT

CORE - CORE ALLOCATION ROUTINE
SYMBOL TABLE

PAGE 8

JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JORREL	000035	EXT
LOOKB	040000	INT
MTW	010000	INT
OBUEB	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RUN	200000	INT
RUNABL	204000	INT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT

END OF ASSEMBLY

00010

XLIST

01970
00010

00030
00040
00050

DTSIZ=1

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00060
00070
00080
00090 ;SUBROUTINE FOR DIRECTORY SEARCH
00100 ;PROG CONTAINS ACTUAL START OF PROGRAM
00110 ;DEV DAT CONTAINS ACTUAL START OF DVDB
00120 ;UUO CONTAINS RELATIVE ADDRESS OF DIRECTORY ENTRY IN USER AREA
00130 ;FORMAT PUSHJ PDP, UDIRSH
00140 ; JRST X ;RETURN IF EMPTY ENTRY FOUND
00150 ; NORMAL RETURN WHEN ENTRY IS FOUND
00160 INTERNAL ULOOK, UENTER
00170 EXTERNAL UXIT,PUUOAC,IOIERR,DIRERR,ADRCK,CPOPJ1,THSDAT
00180 UDIRLN=4
00190 UDIRIN=100 ;DIRECTORY IN
00200 UDIREN=200 ;DIRECTORY ENTERED INTO
00210 UNWFRE=400 ;FREE BLOCK POINTER CHANGED
00220 ULINKF=1000 ;LAST OUTPUT BLOCK LINKED TO STORAGE
00230 UX1=TAC
00240 UX2=TAC1
00250 UX3=DAT
000000 602600 777760 00260 UDIRSH: TRNE UUO,777760 ;IS BLOCK IN UUO ACS?
000001 260140 000000 00270 PUSHJ PDP,ADRCK ;NO. CHECK ADDRESS
000002 201054 000003 00280 MOVEI TAC,3(UUO)
000003 603000 000002 00290 TLNE IOS, IOBEG
000004 260140 000343' 00300 PUSHJ PDP, UBEG
000005 550040 000007 00310 HRRZ UX1, PROG ;COPY ADR OF START OF PROGRAM
000006 272040 000014 00320 ADDM UX1, UUO ;ACTUAL START OF DIR. IN USER
000007 201066 000000 00330 MOVEI UX1,@UDIR(DEV DAT) ;ACTUAL POINTER TO DIRECTORY
000010 550101 000000 00340 HRRZ UX2, 0(UX1) ;RELATIVE ADDR OF 1ST ENTRY I
00350 ;DIRECTORY
000011 505042 777603 00360 HRLI UX1, -+D129+UDIRLN(UX2) ;ENTRY COUNTER
000012 272100 000001 00370 ADDM UX2, UX1 ;START OF 1ST ENTRY IN DIRECT
000013 332000 000002 00380 SKIPE UX2
000014 303100 000174 00390 CAILE UX2,174 ;IS THE REL ADR OF 1ST ENTRY INSIDE BUF
000015 254000 000000 00400 JRST DIRERR ;NO
000016 336101 000000 00410 UDIR2: SKIPN UX2, 0 (UX1) ;FIRST WORD OF ENTRY
000017 263140 000000 00420 POPJ PDP, ;SPACES FOUND
000020 316114 000000 00430 CAMN UX2, 0(UUO) ;CHECK IF = TO USER AREA
000021 254000 000026' 00440 JRST UDIR4 ;CHECK 2ND WORD
000022 270040 000034' 00450 UDIR3: ADD UX1, UDIRK1
000023 321040 000016' 00460 JUMPL UX1, UDIR2
000024 262140 000001 00470 POP PDP, UX1 ;TAKE PREVIOUS EXIT FROM TABL
000025 254000 000000 00480 JRST UXIT ;TABLE FULL
000026 554114 000001 00490 UDIR4: HLRZ UX2, 1 (UUO) ;2ND WORD IN USER ARE
000027 322100 000000 00500 JUMPE UX2, CPOPJ1
000030 554241 000001 00510 HLRZ UX3, 1 (UX1) ;2ND WORD OF DIRECTORY AREA
000031 302242 000000 00520 CAIE UX3, 0 (UX2)
000032 254000 000022' 00530 JRST UDIR3 ;CHECK MORE ENTRIES
000033 254000 000027' 00540 JRST CPOPJ1 ;MATCH, SKIP RETURN
00550
000034 000004 000004 00560 UDIRK1: XWD UDIRLN, UDIRLN

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00570
00580 ;SUBROUTINE FOR DIRECTORY LOOKUP
00590
00600 ;FORMAT   PUSHJ PDP, UDIRLU           ;VIA UUO
00610 ;                JRST X                ;ENTRY NOT IN TABLE
00620
000035 260140 000000' 00630 ULOOK:   PUSHJ PDP, UDIRSH
000036 254000 000025' 00640           JRST UXIT                ;TABLE FULL
000037 540241 000001 00650           HRR UX3, 1 (UX1)
000040 506246 000007 00660           HRLM UX3, DEVIAD (DEV DAT)
000041 505101 000000 00670 ULOOK1:  HRLI UX2, 0 (UX1)           ;FROM DIRECTORY
000042 541114 000000 00680           HRRI UX2, 0 (UUO)           ;TO USER
000043 251114 000003 00690           BLT UX2, UDIRLN-1(UUO)
000044 135100 001272' 00700           LDB UX2, [POINT 12,2(UX1),35] ;GET DATE USER(ENTER)EXEC(LOO
000045 326100 000050' 00710           JUMPX UX2, .+3                ;IS IT 0?
000046 200100 000000 00720           MOVE UX2, THSDAT           ;YES, USE CURRENT DATE
000047 137100 001273' 00730           DPB UX2, [POINT 12,2(UUO),35] ;SET EXEC
000050 350003 000000 00740           AOS (PDP)
000051 254000 000311' 00750           JRST UTWDR
00760
00770 ;SUBROUTINE TO ENTER NEW OR CHANGE OLD DIRECTORY ENTRY
00780 ;FORMAT   PUSHJ PDP, UDIRCH
00790 ;                JRST X                ;NO ROOM IN TABLE
00800
000052 260140 000000' 00810 UENTER:  PUSHJ PDP, UDIRSH
000053 254000 000054' 00820           JRST .+1
000054 350246 000000 00830           AOS UX3, UFREE (DEV DAT)
000055 542254 000001 00840           HRRM UX3, 1(UUO)
000056 506246 000010 00850           HRLM UX3, DEVOAD (DEV DAT)
000057 250040 000014 00860           EXCH UX1, UUO
000060 661000 001600 00870           TLO IOS, UDIREN+UNWFRE+ULINKF
000061 202006 000002 00880           MOVEM IOS, DEVIOS(DEV DAT)
000062 254000 000041' 00890           JRST ULOOK1

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		00900	
		00910	;CREATE A CLEAN TAPE AND DIRECTORY
		00920	
		00930	INTERNAL UTPCLR
		00940	EXTERNAL USRJDA
		00950	
		00960	
000063	135040	000000	00970 UTPCLR: LDB TAC,PUUOAC
000064	200301	000000	00980 MOVE DEVDAT,USRJDA(TAC)
000065	322300	000000	00990 JUMPE DEVDAT,IOIERR
000066	554046	000000	01000 HLRZ TAC,DEVNAM(DEVDAT)
000067	302040	446441	01010 CAIE TAC,446441
000070	254000	000036'	01020 JRST UXIT ;NOT DTA
000071	200006	000002	01030 MOVE IOS,DEVIOS(DEVDAT)
000072	621000	000002	01040 TLZ IOS,IOBEG
000073	661000	000700	01050 TLO IOS,UDIRIN+UDIREN+UNWFRE
		01060	IFE DTSIZ,< MOVEM DEVDAT,DIREC>
			;THIS FOR SINGLE DIRECTORY ONLY
000074	200046	000007'	01070 MOVE TAC,UDIR(DEVDAT)
000075	200100	001274'	01080 MOVE TAC1,[XWD 1,5]
000076	202101	000000	01090 MOVEM TAC1,(TAC)
000077	507000	000001	01100 HRLS TAC
000100	253040	000101'	01110 AOBJN TAC,.,+1
000101	402001	000000	01120 SETZM (TAC)
000102	200100	000001	01130 MOVE TAC1,TAC
000103	350000	000001	01140 AOS TAC
000104	251042	000176	01150 BLT TAC,176(TAC1)
000105	201040	000001	01160 MOVEI TAC, 1
000106	202046	000054'	01170 MOVEM TAC, UFREE (DEVDAT)
000107	202006	000002	01180 MOVEM IOS, DEVIOS(DEVDAT)
000110	260140	000326'	01190 PUSHJ PDP,UTPREL
000111	254000	000070'	01200 JRST UXIT
		01210	
		01220	
		01230	
		01240	;END OF DTDR

01250
01260

		01290			
		01300	UREV=10000		;DT REVERSE BIT
		01310	DTSIZ=1		;1 FOR ONE BUFFER PER TAPE UNIT
		01320			
		01330	UBLK=1		;NUMBER OF BLOCKS/BLOCK
		01340	UCHN=1		;CHANNEL OF DATA CONTROL = 1, LOC 42
		01350	UCHA=42		;DATA CONTROL INTERRUPT POSITION
		01360	EXTERNAL UXIT,ADVBFF,ADVBFE,IOSET,OUT,WAIT1,WSYNC		
		01370	EXTERNAL PIOMOD,PUNIT,UFREE,UDIR,ADRERR,JOBPFI		
		01380	ENTRY UTDSP		
		01390			
		01400			
		01410	DACI=4010		;DC INPUT DT
		01420	DACO=3410		;DC OUTPUT DT
		01430	SL=220000		;DT TURN ON, SELECT
		01440	DTR=3000		;DT TURN AROUND DELAY
		01450	DT=2000		;DT START/STOP DELAY
		01460	RD=300		;DT RD
		01470	WD=700		;DT WR
		01480	RB=200		;DT READ BLOCK NOS.
		01490	VEOT=2		;EOT FLAG BIT
R=10000		;DT REVERSE BIT			
		01510	JDE=40000		;JOB DONE ENABLE
		01520	EE=100000		;ENABLE END FLAG
		01530	URDIR=2000		;READING DIRECTORY
		01540			
000112	254000	000326'	01550	UTDSP: JRST UTPREL	;RELEASE
000113	254000	000312'	01560	JRST UTPCLS	;CLOSE
000114	254000	000125'	01570	JRST UOUT	;OUTPUT
000115	254000	000204'	01580	JRST UIN	;INPUT
000116	254000	000052'	01590	JRST UENTER	;ENTER IN DIRECTORY
000117	254000	000035'	01600	JRST ULOOK	;LOOKUP IN DIRECTORY
000120	254000	000633'	01610	JRST UDMPO	;DUMPOUT
000121	254000	001022'	01620	JRST UDMPI	;DUMPIN
000122	254000	000272'	01630	JRST SETO	;SET OUTPUT BLOCK NO.
000123	254000	000267'	01640	JRST SETI	;SET INPUT BLOCK NO.
000124	254000	000277'	01650	JRST GETF	;GET FREE BLOCK

			01660			
			01670			
000125	260140	001142'	01680	UOUT:	PUSHJ PDP, UINTER	;CHECK INTERLOCK
000126	661000	000020	01690		TLO IOS, IO	;WRITING
000127	550046	000010	01700		HRRZ TAC,DEVOAD(DEVDAT)	
000130	270040	000007	01710		ADD TAC, PROG	;ACTUAL BUFFER ADDRESS
000131	554106	000010	01720		HLRZ TAC1,DEVOAD(DEVDAT)	;BLOCK TO WRITE
000132	306100	000001	01730		CAIN TAC1,1	
000133	254000	000171'	01740		JRST UOUT4	;COPY DIRECTORY
000134	554101	000001	01750		HLRZ TAC1, 1(TAC)	;BLOCK TIE
000135	621000	001000	01760		TLZ IOS, ULINKF	;NOT LINKED TO FREE STORAGE
000136	326100	000144'	01770		JUMPN TAC1, UOUT1	;USE BLOCK NUMBER INDICATED
000137	623000	000002	01780		TLZE IOS, IOBEG	;GET FREE STORAGE BLOCK
000140	260140	000370'	01790		PUSHJ PDP, UBEG3	
000141	661000	001400	01800		TLO IOS,UNWFE+ULINKF	;LINKED TO FREE STORAGE
000142	202006	000002	01810		MOVEM IOS, DEVIOS (DEVDAT)	
000143	350106	000106'	01820		AOS TAC1,UFREE(DEVDAT)	;NEXT FREE BLOCK
000144	306100	000001	01830	UOUT1:	CAIN TAC1,1	;IF 1, THIS IS LAST BLOCK
000145	400100	000000	01840		SETZ TAC1,	;LAST BLOCK TIE = 0
000146	506101	000001	01850		HRLM TAC1,1(TAC)	;BLOCK
000147	552040	001121'	01860		HRRZM TAC,UBUF	;ACTUAL LOCATION OF DATA
000150	544046	000010	01870		HLR TAC,DEVOAD(DEVDAT)	
000151	506106	000010	01880		HRLM TAC1, DEVOAD(DEVDAT)	;NEXT BLOCK
000152	254000	000375'	01890		JRST USETW	
			01900		;RETURN FROM WRITING 1 BLOCK	
			01910			
000153	200046	000010	01920	UOUT2:	MOVE TAC,DEVOAD(DEVDAT)	
000154	505040	000007	01930		HRLI TAC,PROG	;PROG, BUFFER ADDRESS
000155	515100	400000	01940		HRLZI TAC1,IOUSE	
000156	412120	000001	01950		ANDCAM TAC1,@TAC	;SET USE BIT IN BUFFER
000157	554106	000010	01960		HLRZ TAC1,DEVOAD(DEVDAT)	;BLOCK TIE
000160	322100	000167'	01970		JUMPE TAC1,UOUT3	;WAS BLOCK WRITTEN THE LAST 0
000161	540060	000001	01980		HRR TAC,@TAC	;PROG, NEXT BUFFER ADDRESS
000162	542046	000010	01990		HRRM TAC,DEVOAD(DEVDAT)	;NEXT BUFFER
000163	602000	000040	02000		TRNE IOS, IOCON	;CONTINUOUS?
000164	254000	000167'	02010		JRST UOUT3	;STOP TAPE AND DISMISS
000165	335020	000001	02020		SKIPGE @TAC	;IS NEXT BUFFER EMPTY?
000166	254000	000126'	02030		JRST UOUT+1	;PROCESS NEXT BLOCK
000167	262140	000001	02040	UOUT3:	POP PDP, TAC	;REDUCE TABLE
000170	254000	001220'	02050		JRST DTC1	;STOP TAPE AND DISMISS

			02060		
			02070		
			02080	;COPY DIRECTORY WHEN WRITING BLOCK 1	
000171	505101	000001	02090	UOUT4: HRLI TAC1,1(TAC)	;BUFFER ADDRESS, FROM
000172	540106	000074'	02100	HRR TAC1, UDIR(DEVDAT)	;DIRECTORY ADDRESS, TO
000173	550046	000172'	02110	HRRZ TAC, UDIR(DEVDAT)	;DIRECTORY ADDRESS
000174	251101	000177	02120	BLT TAC1, 177(TAC)	;MORE BUFFER AREA TO DIRECTOR
000175	661000	000300	02130	TLO IOS, UDIRIN+UDIREN	;SET DIRECTORY BITS
000176	200126	000173'	02140	MOVE TAC1, @UDIR(DEVDAT)	;NEXT FREE BLOCK IN DIRECTORY
000177	556106	000143'	02150	HLRZM TAC1,UFREE(DEVDAT)	;PLACE IN DATA BLOCK
000200	515100	400000	02160	HRLZI TAC1, IOUSE	
000201	413101	000000	02170	ANDCAB TAC1, 0(TAC)	;CLEAR USE BIT
000202	542106	000010	02180	HRRM TAC1, DEVOAD(DEVDAT)	;ADVANCE BUFFER POINTER
000203	254000	000242'	02190	JRST UEND2	
			02200	,INPUT- NON DUMP	
			02210		
000204	260140	001142'	02220	UIN: PUSHJ PDP, UINTER	;CHECK INTERLOCK
000205	621000	000020	02230	TLZ IOS, IO	;READING
000206	550046	000007	02240	HRRZ TAC,DEVIAD(DEVDAT)	;UBUF:=TAC:=DEVIAD+PROG
000207	270040	000007	02250	ADD TAC,PROG	
000210	554106	000007	02260	HLRZ TAC1, DEVIAD(DEVDAT)	;BLOCK TO READ
000211	306100	000001	02270	CAIN TAC1, 1	;TRYING TO READ DIRECTORY?
000212	254000	000251'	02280	JRST UIN2	;COPY DIRECTORY
000213	552040	001121'	02290	HRRZM TAC,UBUF	
000214	554046	000007	02300	HLRZ TAC,DEVIAD(DEVDAT)	;TAC:=C(DEVIAD LH)
000215	322040	000236'	02310	JUMPE TAC,UEND	;NEXT BLOCK=0, THEN END OF FI
000216	254000	000377'	02320	JRST USETR	
			02330	;RETURN FROM READING ONE BLOCK	
			02340		
000217	550046	000007	02350	UIN1: HRRZ TAC,DEVIAD(DEVDAT)	
000220	270040	000007	02360	ADD TAC,PROG	
000221	554101	000001	02370	HLRZ TAC1,1(TAC)	
000222	506106	000007	02380	HRLM TAC1,DEVIAD(DEVDAT)	;NEXT BLOCK NUMBER TO READ
000223	200046	000007	02390	MOVE TAC,DEVIAD(DEVDAT)	
000224	505040	000007	02400	HRLI TAC,PROG	
000225	515100	400000	02410	HRLZI TAC1,IOUSE	
000226	436120	000001	02420	IORM TAC1,@TAC	;SET USE BIT
000227	540060	000001	02430	HRR TAC,@TAC	
000230	542046	000007	02440	HRRM TAC,DEVIAD(DEVDAT)	;NEXT BUFFER ADDRESS
000231	602000	000040	02450	TRNE IOS, IOCON	;CONTINUOUS?
000232	254000	000167'	02460	JRST UOUT3	;EXIT
000233	331020	000001	02470	SKIPL @TAC	;IS NEXT BUFFER FULL
000234	254000	000205'	02480	JRST UIN+1	;PROCESS NEXT BLOCK
000235	254000	000167'	02490	JRST UOUT3	;EXIT
			02500		
000236	661000	000040	02510	UEND: TLO IOS, IOEND	
000237	202006	000002	02520	MOVEM IOS, DEVIOS(DEVDAT)	
000240	721300	020000	02530	CONSZ UTC, 20000	;IS TAPE STOPPED?
000241	254000	000167'	02540	JRST UOUT3	;STOP TAPE AND EXIT
000242	371000	000000	02550	UEND2: SOSL DCREQ	;DECREMENT REQUEST COUNT, IS ANY ONE WA
000243	476000	000000	02560	SETOM DCAVAL	;YES,SET DATA CONTROL AVAILAB
000244	371000	000000	02570	SOSL DTREQ	;DECREMENT REQUEST COUNT, IS ANYONE WAI
000245	476000	000000	02580	SETOM DTAVAL	;YES,SET DECTAPE CONTROL AVAI
000246	620000	010000	02590	TRZ IOS, IOACT	;CLEAR ACTIVE BIT
000247	202006	000002	02600	MOVEM IOS, DEVIOS(DEVDAT)	;RESTORE STATUS BITS
000250	263140	000000	02610	POPJ PDP, 0	;EXIT

			02620		
			02630		
			02640	;COPY DIRECTORY WHEN READING BLOCK 1	
000251	623000	000002	02650	UIN2: TLZE IOS, IOBEG	;IS DIRECTORY IN
000252	254000	000265'	02660	JRST UIN4	;READ IN DIRECTORY
000253	260140	000242'	02670	PUSHJ PDP, UEND2	;CLR INDICATORS
000254	200106	000177'	02680	UIN3: MOVE TAC1,UFREE(DEVDAT)	;NEXT FREE BLOCK IN DATA BLOC
000255	506126	000176'	02690	HRLM TAC1, @UDIR(DEVDAT)	;PLACE IN DIRECTORY
000256	541101	000001	02700	HRRI TAC1, 1(TAC)	;BUFFER ADDRESS, TO
000257	504106	000255'	02710	HRL TAC1, UDIR(DEVDAT)	;DIRECTORY ADDRESS, FROM
000260	251101	000200	02720	BLT TAC1, 200 (TAC)	;MOVE DIRECTORY TO BUFFER ARE
000261	515100	400000	02730	HRLZI TAC1, IOUSE	
000262	437101	000000	02740	IORB TAC1, (TAC)	;SET USE BIT
000263	542106	000007	02750	HRRM TAC1,DEVIAD(DEVDAT)	;ADVANCE BUFFER
000264	263140	000000	02760	POPJ PDP, 0	;EXIT
000265	260140	000370'	02770	UIN4: PUSHJ PDP, UBEG3	
000266	254000	000254'	02780	JRST UIN3	
000267	260140	000000	02790	SETI: PUSHJ PDP, WAIT1	
000270	506606	000007	02800	HRLM UUO,DEVIAD(DEVDAT)	;SET INPUT BLOCK NO.
000271	254000	000111'	02810	JRST UXIT	
			02820		
			02830		
000272	260140	000267'	02840	SETO: PUSHJ PDP, WAIT1	
000273	260140	001142'	02850	PUSHJ PDP, UINTER	;WAIT FOR USE TO STOP
000274	260140	000242'	02860	PUSHJ PDP, UEND2	;CLEAR INDICATORS
000275	506606	000010	02870	HRLM UUO,DEVOAD(DEVDAT)	;SET OUTPUT BLOCK NO.
000276	254000	000271'	02880	JRST UXIT	
			02890		
000277	260140	000272'	02900	GETF: PUSHJ PDP, WAIT1	
000300	603000	000002	02910	TLNE IOS, IOBEG	
000301	260140	000343'	02920	PUSHJ PDP, UBEG	
000302	661000	000400	02930	TLO IOS, UNWFRE	
000303	202006	000002	02940	MOVEM IOS, DEVIOS(DEVDAT)	
000304	350046	000254'	02950	AOS TAC, UFREE(DEVDAT)	;GET FREE BLOCK
000305	506046	000010	02960	HRLM TAC, DEVOAD(DEVDAT)	
000306	505600	000007	02970	HRLI UUO, PROG	
000307	542060	000014	02980	HRRM TAC, @UUO	
000310	254000	000276'	02990	JRST UXIT	

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03000
03010
03020 INTERNAL UTPCLS,UTWDR,UREG,UTPREL
03030
03040 UTWDR: IFE DTSIZ,< PUSHJ PDP,UTPREL>

000311 254000 000310' 03050 JRST UXIT
03060
03070
000312 607000 001000 03080 UTPCLS: TLNN IOS,ULINKF
000313 254000 000326' 03090 JRST UTPREL
000314 135040 000000 03100 LDB TAC,PIOMOD ;MODE
000315 301040 000016 03110 CAIL TAC,16
000316 254000 000326' 03120 JRST UTPREL
000317 544046 000006 03130 HLR TAC,DEVBUF(DEVDAT)
000320 505040 000007 03140 HRLI TAC,PROG
000321 540060 000001 03150 HRR TAC,@TAC ;TAC:=BUFFER ADDRESS
000322 271040 000001 03160 ADDI TAC,1
000323 201100 000001 03170 MOVEI TAC1,1
000324 506120 000001 03180 HRLM TAC1,@TAC
000325 254000 000000 03190 JRST OUT
03200
03210 UTPREL: IFE DTSIZ,< TLNE IOS,IOBEG ;RELEASE
03220 POPJ PDP,>
03230 TLZE IOS,UDIREN
03240 JRST UTPRL1
03250 TLNN IOS,UNWFRE
03260 POPJ PDP,>
03270 TLNN IOS,UDIRIN
03280 PUSHJ PDP,UBEG>

03290 IFN DTSIZ,< TLZN IOS,UDIREN+UNWFRE
03300 POPJ PDP,>
000326 627000 000600 TLZN IOS,UDIREN+UNWFRE
000327 263140 000000 POPJ PDP,>
000330 260140 001142' 03310 UTPRL1: PUSHJ PDP,UINTER ;IS SYSTEM AVAILABLE?
000331 540046 000304' 03320 HRR TAC,UFREE(DEVDAT)
000332 506066 000257' 03330 HRLM TAC,@UDIR(DEVDAT)
000333 200046 000332' 03340 MOVE TAC,UDIR(DEVDAT)
000334 275040 000001 03350 SUBI TAC,1
000335 202040 001121' 03360 MOVEM TAC,UBUF
000336 661000 002000 03370 TLO IOS,URDIR
000337 202006 000002 03380 MOVEM IOS,DEVIOS(DEVDAT)
000340 201040 000001 03390 MOVEI TAC,1
000341 260140 000375' 03400 PUSHJ PDP,USETW
000342 254000 000277' 03410 JRST WAIT1

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			03420		
			03430		
			03440	,READ THE DIRECTORY FROM THIS DEC-TAPE	
			03450		
000343	335006	000004	03460	UBEG:	SKIPGE DEVMOD(DEVDAT) ;IS DIRECTORY IN CORE?
000344	661000	000100	03470		TLO IOS,UDIRIN
000345	603000	000100	03480		TLNE IOS,UDIRIN
000346	263140	000000	03490		POPJ PDP, 0
000347	260140	001142'	03500		PUSHJ PDP, UINTER ;CHECK INTERLOCK
000350	261140	000001	03510	UBEG2:	PUSH PDP, TAC ;SAVE TAC
000351	550046	000333'	03520		HRRZ TAC,UDIR(DEVDAT)
000352	275040	000001	03530		SUBI TAC, 1
000353	202040	001121'	03540		MOVEM TAC,UBUF
000354	661000	002100	03550		TLO IOS,UDIRIN+URDIR
000355	621000	000002	03560		TLZ IOS, IOBEG
000356	202006	000002	03570		MOVEM IOS,DEVIOS(DEVDAT)
000357	205040	400000	03580		MOVSI TAC,DVDIRIN ;SET DIRECTORY IN CORE BIT
000360	436046	000004	03590		IORM TAC,DEVMOD(DEVDAT)
000361	201040	000001	03600		MOVEI TAC,1
000362	260140	000377'	03610		PUSHJ PDP,USETR
000363	260140	000000	03620		PUSHJ PDP,WSYNC
000364	544066	000351'	03630		HLR TAC,@UDIR(DEVDAT)
000365	552046	000331'	03640		HRRZM TAC,UFREE(DEVDAT)
000366	262140	000001	03650	UBEGX:	POP PDP,TAC
000367	263140	000000	03660		POPJ PDP, 0
			03670		
000370	603000	000100	03680	UBEG3:	TLNE IOS, UDIRIN
000371	263140	000000	03690		POPJ PDP, 0
000372	254000	000350'	03700		JRST UBEG2
			03710		
000373	260140	001220'	03720	UTBERR:	PUSHJ PDP, DTC1 ;ILL. BLOCK NO.
000374	254000	000000	03730		JRST UTBKER
			03740		
000375	201100	000535'	03750	USETW:	MOVEI TAC1,RIT
000376	334000	000000	03760		SKIPA
000377	201100	000527'	03770	USETR:	MOVEI TAC1,READ
000400	542100	000500'	03780		HRRM TAC1,DDIG
000401	552040	001117'	03790		HRRZM TAC,UBKN
000402	323040	000373'	03800		JUMPLE TAC,UTBERR ;ILL. BLOCK NO.?
000403	301040	001102	03810		CAIL TAC,1102
000404	254000	000373'	03820		JRST UTBERR ;ILL. BLOCK NO.
000405	135040	000000	03830		LDB TAC,PUNIT ;UNIT
000406	241040	000003	03840		ROT TAC, 3
000407	271040	000000	03850		ADDI TAC, DTCCHN ;DECTAPE CHANNEL
000410	202040	001116'	03860		MOVEM TAC, UNIT ;UNIT AND CHANNEL
000411	201040	000137	03870		MOVEI TAC, 137
000412	542040	001166'	03880		HRRM TAC, DTCINT
000413	275040	000021	03890		SUBI TAC, 21
000414	542040	001172'	03900		HRRM TAC, CONSZ1 ;FALL INTO FILL

```

03910
03920
000415 720200 000000 03930
000416 700600 002100 03940
000417 202300 001151' 03950
000420 202300 001122' 03960
000421 201040 000002 03970
000422 272040 001122' 03980
000423 200040 001275' 03990
000424 202040 000042 04000
000425 202340 001120' 04010
000426 200040 001121' 04020
000427 505040 777600 04030
000430 202040 001114' 04040
000431 271040 000177 04050
000432 202040 001113' 04060
000433 721300 020000 04070
000434 254000 000453' 04080
000435 200040 001116' 04090
000436 137040 000457' 04100
000437 137040 000460' 04110
000440 137040 000461' 04120
000441 137040 000462' 04130
000442 200040 001116' 04140
000443 405040 000070 04150
000444 271040 323201 04160
000445 607000 010000 04170
000446 271040 010000 04180
000447 721220 000001 04190
000450 720200 004011 04200
000451 202006 000002 04210
000452 263140 000000 04220

```

FILL:

```

CONO DC,0
CONO PI,2100
MOVEM DEVDAT, USVDB
MOVEM DEVDAT,UDVDAT
MOVEI TAC, DEVIOS
ADDM TAC,UDVDAT
MOVE TAC, [JSR DDIF]
MOVEM TAC,UCHA
MOVEM PROG,UPROG
MOVE TAC,UBUF
HRLI TAC,-200
MOVEM TAC,BLI
ADDI TAC,200-1
MOVEM TAC,BLO
CONSZ UTC, 20000
JRST FILLC
MOVE TAC, UNIT
DPB TAC,F1
DPB TAC,F2
DPB TAC,F3
DPB TAC,F4
MOVE TAC,UNIT
ANDI TAC, 70
    ADDI TAC, SL+DTR+RB+EE+UCHN
TLNN IOS, UREV
ADDI TAC, GR
CONO UTC, @TAC
FILL2: CONO DC, DACI+UCHN
MOVEM IOS, DEVIOS (DEVDAT)
POPJ PDP,

```

```

;DESELECT DC
;TURN ON CHANNEL 1
;SAVE DATA BLOCK ADDR
;UDVDAT:=DTJIOS POINTER

;DATA CONTROL INTERRUPT CHANN
;UPROG:=PROG
;BLI:=XWD-200,C(UBUF)
;BLO=XWD-200,C(UBUF+200)

;IS TAPE MOVING?
;YES
;RDDA:=RDRM:=WTDA:=WTRM:=C(UN

;TAC HAS UNIT ONLY
;WAS REV, GO FWD
;WAS FWD, GO REV

;SET UP DC FOR INPUT

```

			04230		
			04240		
			04250	,TAPE IS ACTIVE - GIVE A COMMAND	
000453	721240	000001	04260	FILLC: CONI UTC,TAC	;UTC COMMAND: UNIT, OLD DIRE
000454	405040	010070	04270	ANDI TAC,GR+70	;DIRECTION PLUS UNIT
000455	721201	320201	04280	CONO UTC,SL+RR+EE+UCHN(TAC)	;NO TIME DELAY
000456	254000	000450'	04290	JRST FILL2	
			04300		
000457	000600	000517'	04310	F1: POINT 6,RDDA,35	
000460	000600	000531'	04320	F2: POINT 6,RDRM,35	
000461	000600	000523'	04330	F3: POINT 6,WTDA,35	
000462	000600	000537'	04340	F4: POINT 6,WTRM,35	
			04350	,CHANGE DIRECTION - GIVE NEW COMMANDS	
000463	721240	000001	04360	RRV: CONI UTC,TAC	
000464	431040	010000	04370	XORI TAC,GR	;REVERSE BIT
000465	405040	550777	04380	ANDI TAC,550777	
000466	435040	002000	04390	IORI TAC,DT	
000467	721201	220000	04400	CONO UTC,SL(TAC)	
000470	720200	004011	04410	CONO DC,DACI+UCHN	
000471	254000	000515'	04420	JRST DXIT	
			04430	,EXAMINE BLOCK NUMBERS - DISPATCHED FROM INTERRUPT - UCHA, DC.	
000472	000000	000000	04440	DDIF: 0	;GOING FORWARD
000473	202040	001115'	04450	MOVEM TAC,SV1	;SV1:=TAC
000474	721700	000002	04460	CONSZ UTS, VEOT	
000475	254000	000463'	04470	JRST RRV	
000476	720040	000001	04480	DATAI DC,TAC	
000477	316040	001117'	04490	CAMN TAC,UBKN	;BLK NOT =STR
000500	254000	000500'	04500	JRST .	;JRST READ, RIT, IF RIGHT UBK
000501	721300	010000	04510	CONSZ UTC,10000	;GOING BACKWARDS
000502	254000	000506'	04520	JRST .+4	;BACKWARDS
000503	311040	001117'	04530	CAML TAC,UBKN	;BLK > STR > FORWARDS
000504	254000	000463'	04540	JRST RRV	
000505	254000	000510'	04550	JRST .+3	
000506	317040	001117'	04560	CAMG TAC,UBKN	;BACKWARDS
000507	254000	000463'	04570	JRST RRV	;BACKWARDS
000510	721240	000001	04580	DDIG2: CONI UTC,TAC	
000511	405040	550777	04590	ANDI TAC,550777	
000512	721201	220000	04600	CONO UTC,SL(TAC)	
000513	334000	000000	04610	SKIP A	
000514	542040	000042	04620	DXIT1: HRRM TAC,UCHA	
000515	200040	001115'	04630	DXIT: MOVE TAC,SV1	;RESTORE TAC
000516	254520	000472'	04640	JEN @DDIF	;RE-ENABLE, DISMISS.

			04650		
			04660		
			04670	,DISPATCH FROM UCHA INITIALLY ON CORRECT BLOCK MARK	
			04680	,SETS OP TO READ, WRITE IN FWD, REVERSE	
			04690		
			04700	;RD FORWARD	
000517	721200	360300	04710	RDDA: CONO UTC,SL+RD+JDE+EE	;GETS UNIT NO. - RE
000520	201040	000551'	04720	MOVEI TAC,RDFW	
000521	720200	004011	04730	CONO DC,DACI+UCHN	
000522	254000	000514'	04740	JRST DXIT1	
			04750		
000523	721200	360700	04760	WTDA: CONO UTC,SL+WD+JDE+EE	;GETS UNIT NO. - RE
000524	201040	000563'	04770	MOVEI TAC,WTFW	
000525	720200	003411	04780	CONO DC,DACO+UCHN	
000526	254000	000514'	04790	JRST DXIT1	
			04800		
000527	721340	010000	04810	READ: CONSO UTC,10000	;ENTRY TO SET UP READ
000530	254000	000517'	04820	JRST, RDDA	
			04830	;READ REVERSE	
000531	721200	370300	04840	RDRM: CONO UTC,SL+GR+RD+JDE+EE	;GETS UNIT NO. - RESETS TO RD
000532	201040	000543'	04850	MOVEI TAC,RDRV	
000533	720200	004011	04860	CONO DC,DACI+UCHN	
000534	254000	000514'	04870	JRST DXIT1	
000535	721340	010000	04880	RIT: CONSO UTC,10000	;GOING REVERSE - ENTRY TO SET
000536	254000	000523'	04890	JRST WTDA	;WRITE FORWARD
			04900	;WRITE REVERSE	
000537	721200	370700	04910	WTRM: CONO UTC,SL+WD+GR+JDE+EE	;GETS UNIT NO. - RESETS TO WT
000540	201040	000555'	04920	MOVEI TAC,WTRV	
000541	720200	003411	04930	CONO DC,DACO+UCHN	
000542	254000	000514'	04940	JRST DXIT1	
			04950		
			04960	,DC INTERRUPT PROCESSING TO READ/WRITE DATA IN EITHER	
			04970	,DIRECTION, AND RE-ENABLE INTERRUPT.	
			04980	,EXIT BLOCK PROCESSING AT ENPT(WRITE), ENPTI(READ)	
			04990		
000543	000000	000000	05000	RDRV: 0	;ENTRY VIA UCHA - READ REV
000544	720000	001113'	05010	BLKI DC,BLO	
000545	264000	000620'	05020	JSR ENPTI	
000546	370000	001113'	05030	SOS BLO	
000547	370000	001113'	05040	SOS BLO	
000550	254520	000543'	05050	JEN @RDRV	
			05060		
000551	000000	000000	05070	RDFW: 0	;ENTRY VIA UCHA - READ FWD
000552	720000	001114'	05080	BLKI DC,BLI	
000553	264000	000620'	05090	JSR ENPTI	
000554	254520	000551'	05100	JEN @RDFW	
			05110		
000555	000000	000000	05120	WTRV: 0	;ENTRY VIA UCHA - WRITE REV
000556	720100	001113'	05130	BLKO DC,BLO	
000557	264000	000567'	05140	JSR ENPT	
000560	370000	001113'	05150	SOS BLO	
000561	370000	001113'	05160	SOS BLO	
000562	254520	000555'	05170	JEN @WTRV	
			05180		
000563	000000	000000	05190	WTFW: 0	;ENTRY VIA UCHA - WRITE FWD
000564	720100	001114'	05200	BLKO DC,BLI	
000565	264000	000567'	05210	JSR ENPT	

000566 254520 000563' 05220

JEN @WTFW

		05230	
		05240	;END OF OUTPUT BLOCK
		05250	
000567	000000 000000	05260	ENPT: 0
000570	264000 000603'	05270	JSR, ENP
000571	202040 001115'	05280	ENPT2: MOVEM TAC,SV1 ;SV1:=TAC
000572	515040 010000	05290	HRLZI TAC,UREV
000573	721300 010000	05300	CONSZ UTC,10000
000574	412060 001122'	05310	ANDCAM TAC,@UDVDAT
000575	721340 010000	05320	CONSO UTC,10000
000576	436060 001122'	05330	IORM TAC,@UDVDAT
000577	201040 000615'	05340	MOVEI TAC,UOFF
000600	542040 000042	05350	HRRM TAC,UCHA
000601	200040 001115'	05360	MOVE TAC,SV1
000602	254120 000567'	05370	JRSTF @ENPT
		05380	
		05390	,CHECK ERROR BITS DC MISSED, OT PARITY, I LEG OP, TAPE END
000603	000000 000000	05400	ENP: 0
000604	720300 010000	05410	CONSZ DC, 10000; DATA MISSED
000605	264000 000627'	05420	JSR ERROR2
000606	254120 000603'	05430	JRSTF @ENP
		05440	
		05450	,SAVE STATE OF UTS, UTC, DC, TURN OFF DC, UTC, +1@ERRTAL,+1@UERR
		05460	;ERROR LOOPS
000607	000000 000000	05470	ERROR: 0
000610	721640 001111'	05480	CONI UTS, C12
000611	721240 001112'	05490	CONI UTC, C13
000612	720240 001110'	05500	CONI DC, C11
000613	476000 001124'	05510	SETOM ERRFLG
000614	254120 000607'	05520	JRSTF @ERROR
		05530	;INTERRUPT FROM DATA FLAG AFTER BLKO HAS COUNTED OUT
000615	000000 000000	05540	UOFF: 0
000616	700600 001100	05550	CONO PI, 1100 ;TURN DC CHANNEL OFF
000617	254520 000615'	05560	JEN @UOFF ;DISMISS EXTRA WRITE FLAG
		05570	
		05580	;END OF INPUT BLOCK
000620	000000 000000	05590	ENPTI: 0
000621	250040 000620'	05600	EXCH TAC, ENPTI
000622	202040 000567'	05610	MOVEM TAC, ENPT
000623	264000 000603'	05620	JSR ENP
000624	720200 000000	05630	CONO DC, 0
000625	200040 000620'	05640	MOVE TAC, ENPTI
000626	254000 000571'	05650	JRST ENPT2
		05660	;DETECT FIRST ERROR ONLY
000627	000000 000000	05670	ERROR2: 0
000630	336000 001124'	05680	SKIPN ERRFLG ;PREVIOUSLY DETECTED ERROR?
000631	264000 000607'	05690	JSR ERROR ;STORE ERROR CONDITIONS
000632	254120 000627'	05700	JRSTF @ERROR2 ;CONTINUE LOOP
		05710	
		05720	
		05730	;END OF PART 1 DTSER2

05740

		05760		
		05770	EXTERNAL SETIOD	
		05780	INTERNAL UDMP0, UDMP1	
		05790		
		05800	; DUMP OUT	
000633	661000 000020	05810	UDMP0: TLO IOS, IO	;SET FOR OUTPUT
000634	260140 001142'	05820	PUSHJ PDP, UINTER	;CHECK INTERLOCK
000635	606600 777777	05830	TRNN UU0, 777777	;COMMAND ADDRESS?
000636	254000 000722'	05840	JRST UDMP2-1	;ERROR
000637	201040 000727'	05850	MOVEI TAC, DDUMP	;RETURN WHEN BLOCK FOUND
000640	200100 001276'	05860	UDMP0: MOVE TAC1, [JSR DMPADV]	;BLKI OR BLKO RETURN,COMMANDS
		05870		
		05880	;COMMON ROUTINE FOR ALL DUMP MODES. START SEARCH	
000641	542040 000500'	05890	UDMP1: HRRM TAC, DDIG	;SEARCH RETURN
000642	202100 000043	05900	MOVEM TAC1, UCHA+1	;INTERRUPT RETURN
000643	200040 001275'	05910	MOVE TAC, [JSR DDIF]	
000644	202040 000042	05920	MOVEM TAC, UCHA	;DATA CONTROL CHANNEL
000645	554046 000010	05930	HLRZ TAC, DEV0AD (DEV DAT)	;BLOCK NUMBER
000646	607000 000020	05940	TLNN IOS, IO	;WRITING?
000647	554046 000007	05950	HLRZ TAC, DEVIAD(DEV DAT)	;INPUT BLOCK NUMBER
000650	202040 001117'	05960	MOVEM TAC, UBKN	;BLOCK TO LOOK FOR
000651	552300 001151'	05970	HRRZM DEV DAT, USVDB	;DATA BLOCK ADDRESS
000652	135040 000405'	05980	LDB TAC,PUNIT ;UNIT	
000653	241040 000003	05990	ROT TAC, 3	
000654	271040 000407'	06000	ADDI TAC, DTCCHN	
000655	202040 001116'	06010	MOVEM TAC, UNIT ;UNIT AND DT CHANNEL	
000656	405040 000070	06020	ANDI TAC, 70	
000657	721201 323201	06030	CONO UTC, SL+DTR+RB+EE+UCHN(TAC)	
000660	476000 001153'	06040	SETOM UERRCN	;SET ERROR COUNTER
000661	201040 000037	06050	MOVEI TAC, 37	;DO NOT CHECK FOR INCOMPLETE
000662	542040 001166'	06060	HRRM TAC, DTCINT	
000663	201040 000016	06070	MOVEI TAC,16	
000664	542040 001172'	06080	HRRM TAC, DTCINT+4	
000665	720200 004011	06090	CONO DC, DACI+UCHN	;SET DATA CONTROL
000666	700600 002100	06100	CONO PI,2100 ;INSURE CHANNEL 1 ON	
000667	552340 001126'	06110	HRRZM PROG, UDMPA	;SAVE PROGRAM
000670	606600 777777	06120	TRNN UU0, 777777	;COMMAND ADDRESS
000671	263140 000000	06130	POPJ PDP, 0	;COMMAND LIST ON TAPE, INPUT
000672	550040 000014	06140	HRRZ TAC, UU0	;GET CMD PNTR
000673	550100 000001	06150	HRRZ TAC1, TAC	;SAVE POINTER
000674	270100 000007	06160	UDMP1A: ADD TAC1, PROG	;GET ACTUAL POINTER
000675	552100 001125'	06170	HRRZM TAC1, UDMP	;STORE WORKING POINTER
		06180		
		06190	;CHECK ENTIRE COMMAND LIST FOR VALIDITY	
000676	336120 001125'	06200	UDMP1B: SKIPN TAC1, @UDMP	;GET COMMAND
000677	254000 000712'	06210	JRST UDMP1C	;END OF COMMAND LIST
000700	327100 000674'	06220	JUMPG TAC1, UDMP1A	;CHANGE COMMAND SEQUENCE
000701	576100 001141'	06230	HLREM TAC1, SVCNTR	;SAVE -N
000702	553000 000002	06240	HRRZS TAC1	;GET ADDRESS
000703	305100 000000	06250	CAIGE TAC1, JOBPF1 ;IS IT ABOVE IO PROT. AREA	
000704	254000 000000	06260	JRST ADRERR ;NO, ADDRESS CHECK ERROR	
000705	274100 001141'	06270	SUB TAC1, SVCNTR	;GET AREA END
000706	313100 000000	06280	CAMLE TAC1, USRREL	;LESS THAN END?
000707	254000 000722'	06290	JRST UDMP2-1	;OUT OF BOUNDS
000710	350000 001125'	06300	AOS UDMP	;INDEX COMMAND LIST POINTER
000711	254000 000676'	06310	JRST UDMP1B	;GET NEXT COMMAND

			06320		
			06330	;GET FIRST COMMAND	
000712	270040	000007	06340	UDMP1C: ADD TAC, PROG	;GET ACTUAL ADDRESS
000713	552040	001125'	06350	HRRZM TAC, UDMP	;SAVE POINTER
000714	336060	001125'	06360	SKIPN TAC, @UDMP	;1ST COMMAND
000715	254000	000723'	06370	JRST UDMP2	;NOTHING TO DO
000716	270040	000007	06380	ADD TAC, PROG	;ACTUAL POINTER
000717	325040	000713'	06390	JUMPGE TAC, .-4	;CHANGE COMMAND SEQUENCE
000720	202040	001113'	06400	MOVEM TAC, BLO	;SAVE I/O POINTER
000721	263140	000000	06410	POPJ PDP, 0	
			06420	;EXIT WITH ERROR	
000722	660000	040000	06430	TRO IOS, IOBKTL	
000723	201040	777775	06440	UDMP2: MOVEI TAC, -3	
000724	572040	001153'	06450	HRREM TAC, UERRCN	
000725	402000	001124'	06460	SETZM ERRFLG	
000726	254000	000242'	06470	JRST UEND2	
			06480		
			06490	;SEARCH RETURN,OUTPUT,COMMAND LIST IN MEMORY	
000727	721300	010000	06500	DDUMP: CONSZ UTC,GR	
000730	254000	000510'	06510	JRST DDIG2	;KEEP GOING
000731	200040	001277'	06520	MOVE TAC,[BLKO DC,BLO]	
000732	202040	000042	06530	MOVEM TAC, UCHA	
000733	720200	003411	06540	CONO DC,DACO+UCHN	
000734	200040	001116'	06550	MOVE TAC,UNIT	
			06560		
000735	721201	360700	06570	CONO UTC,SL+WD+JDE+EE(TAC)	
000736	254000	000515'	06580	JRST DXIT	
			06590	;BLKI OR BLKO RETURN, COMMAND LIST IN MEMORY	
000737	000000	000000	06600	DMPADV: 0	
000740	202040	001115'	06610	MOVEM TAC,SV1	
000741	354040	001125'	06620	AOSA TAC,UDMP	;POINTER

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06630
06640
000742 552040 001125' 06650
000743 336041 000000 06660
000744 254000 000752' 06670
000745 270040 001126' 06680
000746 325040 000742' 06690
000747 202040 001113' 06700
000750 200040 001115' 06710
000751 254520 000737' 06720
06730
06740
000752 264000 000603' 06750
000753 700600 001100 06760
000754 721740 000040 06770
000755 720200 000000 06780
000756 254000 000750' 06790
06800
000757 721300 010000 06810
000760 254000 000510' 06820
000761 200040 001300' 06830
000762 202040 001113' 06840
06850
06860
000763 200040 001301' 06870
000764 202040 000042 06880
000765 720200 004011 06890
000766 200040 001116' 06900
000767 721201 360300 06910
000770 254000 000515' 06920
06930
06940
000771 000000 000000 06950
000772 331000 001113' 06960
000773 254000 001010' 06970
000774 202040 001115' 06980
000775 200040 001113' 06990
000776 576040 001141' 07000
000777 553000 000001 07010
001000 274040 001141' 07020
001001 303040 000000 07030
001002 254000 001102' 07040
001003 200040 001126' 07050
001004 272040 001113' 07060
001005 201040 001012' 07070
001006 542040 000043 07080
001007 334040 001115' 07090
001010 720200 000000 07100
001011 254520 000771' 07110

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DMPA1:  HRRZM TAC, UDMP      ;STORE POINTER
        SKIPN TAC, 0(TAC)    ;IS WORD ZERO
        JRST DMPA2          ;END
        ADD TAC, UDMPA       ;ADD PROGRAM
        JUMPGE TAC, DMPA1    ;CHANGE COMMAND
        MOVEM TAC, BLO
DMPXT:  MOVE TAC, SV1
        JEN @DMPADV

;END OF COMMAND LIST, INPUT OR OUTPUT
DMPA2:  JSR ENP
        CONO PI, 1100        ;TURN DATA CONTROL CHANNEL OF
        CONSO UTS, 40        ;WRITING?
        CONO DC, 0          ;SHUT OFF DATA CONTROL
        JRST DMPXT

;SEARCH RETURN, INPUT COMMAND LIST ON TAPE
DDMPI:  CONSZ UTC, GR        ;GOING BACKWARDS?
        JRST DDIG2          ;KEEP GOING
        MOVE TAC, [XWD -1,BLO-1]
        MOVEM TAC, BLO

;COMMON INSTRUCTIONS FOR COMMAND LIST IN MEMORY OR ON TAPE
DDMPI2: MOVE TAC, [BLKI DC,BLO]
        MOVEM TAC, UCHA
        CONO DC, DACI+UCHN
        MOVE TAC, UNIT
        CONO UTC, SL+RD+JDE+EE(TAC)
        JRST DXIT

;INPUT COMMAND LIST ON TAPE.  BLKI RETURN AFTER READING COMMAND
DMPRD:  0
        SKIPL BLO            ;END OF COMMAND LIST?
        JRST DMPRD1
        MOVEM TAC, SV1       ;SAVE TAC
        MOVE TAC, BLO        ;PICK UP COMMAND
        HLREM TAC, SVCNTR    ;-N
        HRRZS TAC           ;ADDRESS
        SUB TAC, SVCNTR      ;END ADDRESS
DMPRD0: CAILE TAC, 0         ;<END?, MODIFIED
        JRST DMPERR         ;OUT OF BOUNDS, EXIT
        MOVE TAC, UDMPA      ;PROG
        ADDM TAC, BLO        ;TO GET ACTUAL I/O POINTER
        MOVEI TAC, DMPRDA    ;NEW RETURN
        HRRM TAC, UCHA+1
        SKIPA TAC, SV1       ;RESTORE TAC
DMPRD1: CONO DC, 0
        JEN @DMPRD

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		07120	
		07130	
		07140	;INPUT COMMAND LIST ON TAPE. BLKI RETURN AFTER READING DATA
001012	000000 000000	07150	DMPRDA: 0
001013	202040 001115'	07160	MOVEM TAC, SV1 ;SAVE TAC
001014	200040 001300'	07170	MOVE TAC, [XWD -1,BLO-1]
001015	202040 001113'	07180	MOVEM TAC, BLO ;READ INTO BLO
001016	201040 000771'	07190	MOVEI TAC, DMPRD ;USE PREV. RETURN
001017	542040 000043	07200	HRRM TAC, UCHA+1
001020	200040 001115'	07210	MOVE TAC, SV1 ;SAVE TAC
001021	254520 001012'	07220	JEN @DMPRDA
		07230	
001022	621000 000020	07240	;DUMP IN
001023	260140 001142'	07250	UDMPI: TLZ IOS, IO
001024	602600 777777	07260	PUSHJ PDP, UINTER
001025	254000 001033'	07270	TRNE UUO, 777777 ;COMMAND LIST ON TAPE
001026	200040 000706'	07280	JRST UDMPI2 ;COMMAND LIST IN CORE
001027	542040 001001'	07290	MOVE TAC, USRREL ;LENGTH OF USER AREA
001030	201040 000757'	07300	HRRM TAC, DMPRD0
001031	200100 001302'	07310	MOVEI TAC, DDMP1 ;SEARCH RETURN
001032	254000 000641'	07320	MOVE TAC1, [JSR DMPRD] ;BLOCK IN RETURN
001033	201040 001035'	07330	JRST UDMPI1
001034	254000 000640'	07340	UDMPI2: MOVEI TAC, DDMP13 ;COMMAND LIST IN CORE
		07350	JRST UDMPI0
001035	721300 010000	07360	;SEARCH RETURN, INPUT COMMAND LIST IN MEMORY
001036	254000 000510'	07370	DDMPI3: CONSZ UTC, GR
001037	254000 000763'	07380	JRST DDIG2 ;KEEP GOING
		07390	JRST DDMP12 INPUT COMMAND LIST IN CORE
001040	332000 001124'	07400	;JOB DONE AFTER COMMAND LIST RUNS OUT
001041	660000 200000	07410	DMPEND: SKIPE ERRFLG
001042	202006 000002	07420	TRO IOS,IODERR
001043	200040 001116'	07430	MOVEM IOS,DEV10S(DEVDAT)
001044	405040 000070	07440	MOVE TAC,UNIT
001045	700600 002100	07450	ANDI TAC, 70
001046	720200 004011	07460	CONO PI,2100
001047	721201 220200	07470	CONO DC, DACI+UCHN
001050	200040 001303'	07480	CONO UTC, SL+RB(TAC) ;SWITCH TO SEARCH MODE
001051	202040 000042	07490	MOVE TAC, [JSR UDMPRB]
001052	254000 000000	07500	MOVEM TAC, UCHA
		07510	JRST DTCRET
001053	000000 000000	07520	;SEARCH RETURN TO READ NEXT FREE BLOCK
001054	250300 001151'	07530	UDMPRB: 0
001055	202040 001130'	07540	EXCH DEVDAT, USVDB ;GET DVDB
001056	202000 001131'	07550	MOVEM TAC,SVAC
001057	202140 001132'	07560	MOVEM IOS,SVAC+1
001060	202100 001133'	07570	MOVEM PDP,SVAC+2
001061	200006 000002	07580	MOVEM TAC1,SVAC+3
001062	607000 000020	07590	MOVE IOS,DEV10S(DEVDAT)
001063	254000 001066'	07600	TLNN IOS,IO
001064	720046 000365'	07610	JRST .+3 ;INPUT
001065	661000 000400	07620	DATAI DC,UFREE(DEVDAT) ;LAST FREEBLOCK TALLY
001066	720200 000000	07630	TLO IOS,UNWFRE ;SET FREE BLOCK CHANGED BIT
001067	201040 000654'	07640	CONO DC,0 ;TURN OFF DATA CONTROL
001070	721201 005000	07650	MOVEI TAC,DTCCHN
001071	200140 001304'	07660	CONO UTC,5000(TAC) ;STOP TAPE
001072	264000 001154'	07670	MOVE PDP,[XWD -5,SVAC+3] ;USE REST OF SCAV BLOCK
001073	260140 001227'	07680	JSR IODSET
			PUSHJ PDP,DTC1B

001074	200040	001130'	07690
001075	200000	001131'	07700
001076	200140	001132'	07710
001077	200100	001133'	07720
001100	250300	001151'	07730
001101	254520	001053'	07740
			07750
001102	250300	001151'	07760
001103	201040	400000	07770
001104	436046	000002	07780
001105	250300	001151'	07790
001106	200040	001115'	07800
001107	254000	001010'	07810

```

MOVE TAC,SVAC
MOVE IOS,SVAC+1
MOVE PDP,SVAC+2
MOVE TAC1,SVAC+3
EXCH DEVDAT,USVDB
JEN @UDMPRB
;ADDRESS CHECK FROM COMMAND.  COMMANDS ON TAPE
DMPERR:  EXCH DEVDAT, USVDB      ;GET DVDB
        MOVEI TAC, IOIMPM      ;ERROR BITS
        ORM TAC, DEVIOS(DEVDAT) ;SET STATUS
        EXCH DEVDAT, USVDB      ;RESTORE DEVDAT
        MOVE TAC, SV1          ;RESTORE TAC
        JRST DMPRD1

```

			07820			
			07830			
001110	000000	000000	07840	C11:	0	;TEMP CONI DC
001111	000000	000000	07850	C12:	0	;TEMP CONI UTS
001112	000000	000000	07860	C13:	0	;TEMP CONI UTC
001113	000000	000000	07870	BLO:	0	;XWD -200 C(UBUF)
001114	000000	000000	07880	BLI:	0	;XWD,-200,C(UBUF+200)
001115	000000	000000	07890	SV1:	0	;TEMPORARY FOR TAC DURING INTERRUPT
001116	000000	000000	07900	UNIT:	0	;IN BITS 30-32
001117	000000	000000	07910	UBKN:	0	;BLOCK BEING SEARCHED FOR
001120	000000	000000	07920	UPROG:	0	;HOLDS PROG
001121	000000	000000	07930	UBUF:	0	;ABS. LOC OF DATA
001122	000000	000000	07940	UDVDAT:	0	;PTR TO IOS
001123	000000	000000	07950	ERRTAL:	0	;TOTAL NO. OF ERRORS
001124	000000	000000	07960	ERRFLG:	0	; -1 IF ERROR OCCURED, 0 OTHERWISE
			07970			
001125	000000	000000	07980	UDMP:	0	;HOLDS DUMP UWO ADDRESS
001126	000000	000000	07990	UDMPA:	0	;HOLDS USER PROGRAM STARTING ADDRESS
001127	000000	000000	08000	SV0:	0	
			08010	SVAC:	BLOCK 11	
001141	000000	000000	08020	SVCNTR:	0	;HOLDS -N OF DUMP COMMAND WORD
			08030			
			08040			;CHECK FOR INTERLOCK ON DECTAPE AND DATA CONTROLS
001142	660000	010000	08050	UINTER:	TRO IOS, IOACT	
001143	202006	000002	08060		MOVEM IOS, DEVIOS(DEVDAT)	
001144	352000	000244'	08070		AOSE DTREQ	;IS DECTAPE CONTROL FREE?
001145	260140	000000	08080		PUSHJ PDP, DTWAIT	;WAIT
001146	352000	000242'	08090		AOSE DCREQ	;IS DATA CONTROL FREE?
001147	260140	000000	08100		PUSHJ PDP, DCWAIT	;WAIT
001150	263140	000000	08110		POPJ PDP, 0	;EXIT
			08120			
001151	000000	000000	08130	USVDB:	0	;SAVE DATA BLOCK ADDRESS
001152	000000	000000	08140	USVIO:	0	;SAVE IOS
001153	777777	777775	08150	UERRCN:	-3	;ERROR COUNTER
			08160			
001154	000000	000000	08170	IODSET:	0	
001155	623000	000001	08180		TLZE IOS,IOW	
001156	260140	000000	08190		PUSHJ PDP,SETIOD	
001157	202006	000002	08200		MOVEM IOS,DEVIOS(DEVDAT)	
001160	254020	001154'	08210		JRST @IODSET	

		08220		
		08230	;INITIALIZATION	
		08240		
001161	201040	777775	08250	DTCINI: MOVEI TAC, -3
001162	572040	001153'	08260	HRREM TAC, UERRCN
001163	402000	001124'	08270	SETZM ERRFLG
001164	721200	000000	08280	CONO UTC, 0
001165	263140	000000	08290	POPJ PDP, 0
		08300		
001166	721740	000137	08310	DTCINT: CONSO UTS, 137
001167	254000	001167'	08320	JRST .
001170	721700	000020	08330	CONSZ UTS, 20
001171	254000	001244'	08340	JRST UTIME
001172	721700	000116	08350	CONSZ1: CONSZ UTS, 116
001173	264000	000627'	08360	JSR ERROR2
		08370		
		08380	;JOB DONE	
001174	720200	000000	08390	CONO DC, 0
001175	202000	001127'	08400	MOVEM 0, SV0
001176	721240	000000	08410	CONI UTC, 0
001177	202000	001152'	08420	MOVEM 0, USVIO5
001200	405000	230070	08430	ANDI 0, 230070
001201	721220	000000	08440	CONO UTC, 00
001202	200000	001127'	08450	MOVE 0, SV0
001203	264000	000000	08460	JSR DTCSAV
001204	260140	001252'	08470	PUSHJ PDP, DSETAC
001205	332000	001124'	08480	SKIPE ERRFLG
001206	254000	001256'	08490	JRST DTREDO
001207	627000	002000	08500	TLZN IOS, URDIR
001210	254000	001213'	08510	JRST .+3
001211	264000	001154'	08520	JSR IODSET
001212	254000	001220'	08530	JRST DTC1
001213	640000	000017	08540	TRC IOS, 17
001214	646000	000017	08550	TRCN IOS, 17
001215	254000	001040'	08560	JRST DMPEND
001216	264000	001154'	08570	JSR IODSET
001217	254000	001237'	08580	JRST DTCONT
001220	200040	001152'	08590	DTC1: MOVE TAC, USVIO5
001221	405040	010007	08600	ANDI TAC, 10007
001222	435040	005000	08610	ORI TAC, 5000
001223	721220	000001	08620	CONO UTC, 0 TAC
001224	621000	010000	08630	TLZ IOS, UREV
001225	602040	010000	08640	TRNE TAC, 10000
001226	661000	010000	08650	TLO IOS, UREV

;CLEAR ERROR COUNTER

;ALL ERRORS AND JOB DONE
 ;MODIFIED BY INITIALIZATION
 ;TIME FLAG
 ;SET DECTAPE CONTROL AVAILABL
 ;INC BLK, PARITY, ILL OP, END
 ;ERROR

;TURN OFF DATA CONTROL
 ;SAVE ZERO

;SAVE DIRECTION AND UNIT
 ;SWITCH TO MOVE MODE

;DIRECTION, CHANNEL
 ;TIME FLAG ENABLE
 ;STOP TAPE, AND DESELECT

```

001227 371000 001146' 08660
001230 476000 000243' 08670
001231 620000 010000 08680
001232 202006 000002 08690
001233 201040 777775 08700
001234 572040 001153' 08710
001235 402000 001124' 08720
001236 263140 000000 08730
001237 201100 000153' 08740
001240 607000 000020 08750
001241 201100 000217' 08760
001242 260142 000000 08770
001243 254000 001232' 08780
001244 721340 004000 08790
001245 254000 001167' 08800
001246 371000 001144' 08810
001247 476000 000245' 08820
001250 721200 000000 08830
001251 254520 000000 08840
001252 200300 001151' 08850
001253 200340 001120' 08860
001254 200006 000002 08870
001255 263140 000000 08880
001256 640000 000017 08890
001257 646000 000017 08900
001260 254000 001040' 08910
001261 350000 001153' 08920
001262 254000 001266' 08930
001263 402000 001124' 08940
001264 260140 000415' 08950
001265 254000 001052' 08960
001266 660000 200000 08970
001267 623000 000001 08980
001270 260140 001156' 08990
001271 254000 001220' 09000
001272 001401 000002 09010
001273 001414 000002 09020
001274 000001 000005 09030
001275 264000 000472' 09040
001276 264000 000737' 09050
001277 720100 001113' 09060
001300 777777 001112' 09070
001301 720000 001113' 09080
001302 264000 000771' 09090
001303 264000 001053' 09100

```

```

DTC1A:
DTC1B:  SOSL DCREQ          ;DECREMENT REQUEST COUNT, ANYONE LEFT W
        SETOM DCAVAL          ;YES, DATA CONTROL AVAILABLE
        TRZ IOS, IOACT
DTC2:   MOVEM IOS, DEVIOS(DEV DAT)
        MOVEI TAC, -3
        HRREM TAC, UERRCN
        SETZM ERRFLG
        POPJ PDP,
DTCONT: MOVEI TAC1, UOUT2
        TLNN IOS, IO          ;WRITING?
        MOVEI TAC1, UIN1
        PUSHJ PDP, 0(TAC1)
        JRST DTC2
;INTERRUPT FROM TIME FLAG AFTER STOP DELAY
UTIME:  CONSO UTC, 4000
        JRST DTCINT+1
        SOSL DTREQ          ;DECREMENT REQUEST COUNT, IS ANYONE STI
        SETOM DTAVAL          ;YES, DECTAPE CONTROL AVAILABL
        CONO UTC, 0          ;CLR FLAGS
        JEN @DTCCHL
;SET UP NECESSARY DECTAPE ACCUMULATORS
DSETAC: MOVE DEV DAT, USVDB
        MOVE PROG, UPROG
        MOVE IOS, DEVIOS(DEV DAT)
        POPJ PDP,
;RE-DO DECTAPE COMMAND IF AN ERROR OCCURED
DTREDO: TRC IOS, 17
        TRCN IOS, 17
        JRST DMPEND
        AOS UERRCN          ;NOT YET 3 ERRORS
        JRST DTRD2          ;THIRD ERROR
        SETZM ERRFLG        ;CLEAR FLAG
        PUSHJ PDP, FILL      ;RE-EXECUTE THE COMMAND
        JRST DTCRET         ;EXIT
DTRD2:  TRO IOS, IODERR      ;SET ERROR INDICATION
        TLZE IOS, IOW
        PUSHJ PDP, SETIOD    ;RELEASE WAIT
        JRST DTC1           ;STOP THE TAPE
EXTERNAL DTREQ, DCREQ, DTWAIT, DCWAIT, DTCSAV, DTCRET
EXTERNAL DTAVAL, DCAVAL, DTCCHL, UTBKER, DTCCHN, USRREL
INTERNAL DTCINT, DTCINI, DTSIZ, UBUF
END,

```

001304 777773 001133'

THERE ARE NO ERRORS

PROGRAM BREAK IS 001305

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRCK	000001'	EXT
ADRERR	000704'	EXT
ADVBFE	000000	EXT
ADVBFF	000000	EXT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
BLI	001114'	
BLO	001113'	
RUFPT	000012	INT
RUFWRD	000013	INT
C11	001110'	
C12	001111'	
C13	001112'	
CLOS8	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CONSZ1	001172'	
CPOPJ1	000033'	EXT
D	000017	INT
DACI	004010	
DACO	003410	
DAT	000005	INT
DCAVAL	001230'	EXT
DCL	000001	INT
DCREQ	001227'	EXT
DCW	020000	INT
DCWAIT	001147'	EXT
DDI	000007	INT
DDIF	000472'	
DDIG	000500'	
DDIG2	000510'	
DDMPI	000757'	
DDMPI2	000763'	
DDMPI3	001035'	
DDO	000006	INT
DDTMEM	000037	INT
DDTSYM	000036	INT
DDUMP	000727'	
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
DIRERR	000015	FXT
DLK	000005	INT
DMPA1	000742	
DMPA2	000752	
DMPADV	000737	
DMPEND	001040	
DMPERR	001102	
DMPRD	000771	
DMPRD0	001001	
DMPRD1	001010	
DMPRDA	001012	
DMPXT	000750	
DOU	000002	INT
DR	000016	INT
DRL	000000	INT
DSFTAC	001252	
DSI	000011	INT
DSO	000010	INT
DT	002000	
DTAVAL	001247	EXT
DTC1	001220	
DTC1A	001227	
DTC1B	001227	
DTC2	001232	
DTCCHL	001251	EXT
DTCCHN	001067	EXT
DTCINI	001161	INT
DTCINT	001166	INT
DTCONT	001237	
DTCRET	001265	EXT
DTC SAV	001203	EXT
DTR	003000	
DTRD2	001266	
DTRD0	001256	
DTRDQ	001246	EXT
DTSIZ	000001	INT
DTW	040000	INT
DTWAIT	001145	EXT
DVAVAL	000040	INT
DVCDR	100000	INT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
DXIT	000515	
DXIT1	000514	
EE	100000	

ENP	000603'	
ENPT	000567'	
ENPT2	000571'	
ENPTI	000620'	
ENTRB	020000	INT
FRRFLG	001124'	
ERROR	000607'	
ERROR2	000627'	
ERRTAL	001123'	
F1	000457'	
F2	000460'	
F3	000461'	
F4	000462'	
FILL	000415'	
FILL2	000450'	
FILLC	000453'	
GETF	000277'	
GR	010000	
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
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
IONSET	001154'	
IONTER	100000	INT
IOFND	000040	INT
IOFST	000004	INT
IOIERR	000065'	EXT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSET	000000	FXT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JDF	040000	

JERR	002000	INT
JLOW	100000	INT
JNA	004000	INT
JORPFI	000703'	EXT
LOOKB	040000	INT
MTW	010000	INT
OBUFF	100000	INT
OUT	000325'	EXT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOMOD	000314'	EXT
PROG	000007	INT
PUNIT	000652'	EXT
PUUOAC	000063'	EXT
RB	000200	
RD	000300	
RDDA	000517'	
RDFW	000551'	
RDRM	000531'	
RDRV	000543'	
READ	000527'	
RIT	000535'	
RRV	000463'	
RUN	200000	INT
RUNABL	204000	INT
SETI	000267'	
SETIOD	001270'	EXT
SETO	000272'	
SL	220000	
SV0	001127'	
SV1	001115'	
SVAC	001130'	
SVCNTR	001141'	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
THSDAT	000046'	EXT
TTYATC	020000	INT
TTYUSE	010000	INT
UBFG	000343'	INT
UBFG2	000350'	
UBFG3	000370'	
UBFGX	000366'	
UBKN	001117'	
URLK	000001	
UBUF	001121'	INT
UCHA	000042	
UCHN	000001	
UDIR	000364'	EXT
UDIR2	000016'	
UDIR3	000022'	
UDIR4	000026'	
UDIREN	000200	
UDIRIN	000100	

UDIRK1	000034'	
UDIRLN	000004	
UDIRSH	000000'	
UDMP	001125'	
UDMP0	000640'	
UDMP1	000641'	
UDMP1A	000674'	
UDMP1B	000676'	
UDMP1C	000712'	
UDMP2	000723'	
UDMPA	001126'	
UDMPI	001022'	INT
UDMPI2	001033'	
UDMP0	000633'	INT
UDMPRB	001053'	
UDVDAT	001122'	
UEND	000236'	
UEND2	000242'	
UENTER	000052'	INT
UERRCN	001153'	
UFREE	001064'	EXT
UIN	000204'	
UIN1	000217'	
UIN2	000251'	
UIN3	000254'	
UIN4	000265'	
UINTER	001142'	
ULINKF	001000	
ULOOK	000035'	INT
ULOOK1	000041'	
UNIT	001116'	
UNWFRE	000400	
UOFF	000615'	
UOUT	000125'	
UOUT1	000144'	
UOUT2	000153'	
UOUT3	000167'	
UOUT4	000171'	
UPROG	001120'	
URDIR	002000	
URFV	010000	
USFTR	000377'	
USFTW	000375'	
USRJDA	000064'	EXT
USRM0D	010000	INT
USRREL	001026'	EXT
USVDR	001151'	
USVIO5	001152'	
UTBERR	000373'	
UTRKER	000374'	EXT
UTDSP	000112'	INT
UTIME	001244'	
UTPCLR	000063'	INT
UTPCLS	000312'	INT
UTPREL	000326'	INT

UTPRL1	000330'	
UTWDR	000311'	INT
UU0	000014	INT
UX1	000001	
UX2	000002	
UX3	000005	
UXIT	000311'	EXT
VEOT	000002	
WAIT1	000342'	EXT
WD	000700	
WSYNC	000363'	EXT
WTDA	000523'	
WTFW	000563'	
WTRM	000537'	
WTRV	000555'	

END OF ASSEMBLY

00010

XLIST

01970

00030	
00040	
00050	EXTERNAL APRCHL,APRRET,HOLD,HOLDI,APRCHN
00060	EXTERNAL JOB,JOBADR,JOBREL,TTYFND,TTYCTR,TTYSTR
00070	EXTERNAL JBTADR, UXIT,JOBPDP,JOBTRP,USRPDP,UBUF,PJOBN
00080	EXTERNAL CPOPJ,HOLDI1,WAIT1,USRPOV,JOBPFI
00090	EXTERNAL CRLF,MJOBPD,JOBPDJ,CPOPJ1

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 4
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		00100		
		00110	;CALL:	PUSHJ PDP,ADRCK
		00120	;	HRRZ TAC,LOC
		00130	;	OK RETURN
		00140		
		00150		INTERNAL ADRCK
		00160		
		00170		
000000	261140	000001	ADRCK:	PUSH PDP, TAC
000001	256023	777777		XCT @-1(PDP)
000002	350003	777777		AOS -1(PDP)
000003	261140	000002		PUSH PDP,TAC1
000004	135100	000000		LDB TAC1,PJOBN
000005	554102	000000		HLRZ TAC1,JBTADR(TAC1)
000006	303040	000000		CAILE TAC,JOBPFI ;IN IO PROTECTED PART OF DATA AREA?
000007	313040	000002		CAMLE TAC,TAC1 ;NO,IS IT GREATER THAN PROTECTION?
000010	260140	000014		PUSHJ PDP,ADRERR ;YES
000011	262140	000002		POP PDP,TAC1 ;NO
000012	262140	000001		POP PDP, TAC
000013	263140	000000		POPJ PDP,
		00300		

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 5
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			00310		
			00320	INTERNAL ADRERR	
			00330		
000014	550100	000003	00340	ADRERR:	HRRZ TAC1,PDP
000015	317100	000000	00350		CAMG TAC1,JOBADR ;IS THIS ERROR AT UUO OR INTERRUPT SERV
000016	254000	000027'	00360		JRST ADRERI ;INTERRUPT SERVICE LEVEL
000017	265040	000231'	00370		JSP TAC,ERRPTU
000020	440700	000023'	00380		POINT 7,AERM1
000021	260140	000155'	00390		PUSHJ PDP,ERNAM
000022	254000	000207'	00400		JRST ERSYC1
			00410		
000023	406110	451212	00420	AERM1:	ASCIZ /ADDRESS CHECK FOR /
000024	516464	041620			
000025	426071	320214			
000026	476444	000000			
			00430		
			00440		
000027	135200	000004'	00450	ADRERI:	LDB ITEM, PJORN
000030	265040	000232'	00460		JSP TAC,ERRPNT
000031	440700	000023'	00470		POINT 7,AERM1
000032	260140	000155'	00480		PUSHJ PDP,ERNAM
000033	201100	000045'	00490		MOVEI TAC1,AERM3
000034	260140	000333'	00500		PUSHJ PDP,MESPNT
000035	250303	000000	00510	ADRER2:	EXCH DEVDAT, (PDP) ;GET ADDRESS OF D.D. BLOCK DETECTING ER
000036	135040	000422'	00520		LDB TAC, [POINT 3, DEVCHR(DEV DAT), 11] ;GET PI CHANNEL NO.
000037	261140	000001	00530		PUSH PDP, TAC ;AND SAVE
000040	200046	000003	00540		MOVE TAC,DEVSER(DEV DAT)
000041	260141	000000	00550		PUSHJ PDP,DRL(TAC) ;RELEASE DEVICE
000042	262140	000001	00560		POP PDP, TAC ;RESTORE PI CHANNEL NO.
000043	250303	000000	00570		EXCH DEVDAT, (PDP)
000044	254000	000000	00580		JRST HOLDI ;AND GO DISMISS CHANNEL
			00590		
000045	202112	551222	00600	AERM3:	ASCIZ / DURING INTERRUPT/
000046	472164	044634			
000047	522132	251252			
000050	502500	000000			

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 6
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			00610		
			00620		
			00630	INTERNAL APRILM	
			00640	EXTERNAL USRREL	
			00650		
			00660	POVF=200000	
			00670	POVC=400000	
			00680	NXM=10000	
			00690	ILM=20000	
			00700		
000051	201040	000000	00710	APRILM:	MOVEI TAC,APRCHN
000052	700340	020000	00720		CONSO APR,ILM
000053	254000	000100'	00730		JRST APRNXM
000054	700201	020000	00740		CONO APR,ILM(TAC)
000055	550040	000000	00750		HRRZ TAC,APRCHL
000056	313040	000000	00760		CAMLE TAC, USRREL
000057	254000	000064'	00770		JRST APRJRS
000060	265040	000231'	00780		JSP TAC,ERRPTU
000061	440700	000070'	00790		POINT 7,APM1
000062	260140	000144'	00800	APRIL1:	PUSHJ PDP,EPTADR
000063	254000	000132'	00810		JRST APRDMS ;GO DISMISS APR CHANNEL
			00820		
000064	265040	000231'	00830	APRJRS:	JSP TAC,ERRPTU
000065	440700	000073'	00840		POINT 7,APM2
000066	260140	000144'	00850		PUSHJ PDP,EPTADR
000067	254000	000132'	00860		JRST APRDMS
			00870		
000070	446311	420232	00880	APM1:	ASCIZ /ILL MEM REF/
000071	426324	051212			
000072	430000	000000			
000073	502064	042660	00890	APM2:	ASCIZ /PC EXCEEDS MEM BOUND/
000074	416130	542246			
000075	202330	546500			
000076	412372	547210			
000077	000000	000000			
			00900		
000100	700340	010000	00910	APRNXM:	CONSO APR,NXM
000101	254000	000111'	00920		JRST APRPDL
000102	700201	010000	00930		CONO APR,NXM(TAC)
000103	265040	000231'	00940		JSP TAC,ERRPTU
000104	440700	000106'	00950		POINT 7,APM3
000105	254000	000062'	00960		JRST APRIL1
			00970		
000106	472371	620212	00980	APM3:	ASCIZ /NON EX MEM/
000107	541011	542632			
000110	000000	000000			

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 7

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000111	700340	200000	00990	APRPDL:	CONSO APR,POVF	
000112	265240	000202'	01000		JSP DAT, ERROR	;NOT APR, MUST BE HARDWARE PROB.
000113	700201	400000	01010		CONO APR,POVC(TAC)	
000114	200040	000055'	01020		MOVE TAC,APRCHL	
000115	332100	000000	01030		SKIPE TAC1,USRPOV	
000116	607040	010000	01040		TLNN TAC,10000	;WAS OVF IN USER MODE?
000117	254000	000122'	01050		JRST PDLOV	;NO, GO PRINT MESSAGE
000120	542100	000114'	01060		HRRM TAC1,APRCHL	;RESET RETURN
000121	254000	000000	01070		JRST APRRET	;DISMISS CLOCK
000122	265040	000231'	01080	PDLOV:	JSP TAC,ERRPTU	
000123	440700	000134'	01090		POINT 7,APM4	
000124	260140	000144'	01100		PUSHJ PDP,EPTADR	
000125	200040	000120'	01110		MOVE TAC,APRCHL	
000126	603040	010000	01120		TLNE TAC,10000	
000127	254000	000132'	01130		JRST APRDMS	;GO DIMISS APR CHANNEL
000130	201100	000225'	01140		MOVEI TAC1,ERMS1	
000131	260140	000340'	01150		PUSHJ PDP,MESPC	
000132	201040	000000	01160	APRDMS:	MOVEI TAC, 0	;SET TO DISMISS APR CHANNEL
000133	254000	000000	01170		JRST HOLDI1	
			01180			
			01190			
000134	502111	420236	01200	APM4:	ASCIZ .PDL OV.	
000135	530000	000000				
			01210			
			01220			
			01230			
000136	202032	420212	01240	APMSYS:	ASCIZ / AT EXEC LOC /	
000137	542130	320230				
000140	476064	000000				
			01250			
000141	202032	420252	01260	APMUSR:	ASCIZ / AT USER LOC /	
000142	516132	220230				
000143	476064	000000				
			01270			
000144	200040	000125'	01280	EPTADR:	MOVE TAC,APRCHL	
000145	261140	000001	01290	EPTAD1:	PUSH PDP,TAC	;PRINT "AT EXEC LOC " OR " AT USER LOC
000146	201100	000136'	01300		MOVEI TAC1,APMSYS	
000147	603040	010000	01310		TLNE TAC,10000	
000150	201100	000141'	01320		MOVEI TAC1,APMUSR	
000151	260140	000333'	01330		PUSHJ PDP,MESPNT	
000152	262140	000001	01340		POP PDP,TAC	
000153	405040	777777	01350		ANDI TAC,-1	
000154	254000	000344'	01360		JRST OCTPNT	

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		01370	
		01380	INTERNAL ERNAM
		01390	
		01400	
000155	201100 000167'	01410	ERNAM: MOVEI TAC1,ERRDEV
000156	260140 000333'	01420	PUSHJ PDP,MESPNT
000157	200100 000423'	01430	MOVE TAC1,[POINT 6,@-1(PDP)]
000160	201000 000006	01440	MOVEI 0,6
000161	134040 000002	01450	ERNAM1: ILDB TAC,TAC1
000162	322040 000166'	01460	JUMPE TAC,+.4
000163	271040 000240	01470	ADDI TAC,240
000164	136040 000005	01480	IDPB TAC,DAT
000165	367000 000161'	01490	SOJG 0,ERNAM1
000166	263140 000000	01500	POPJ PDP,
		01510	
000167	422132 644606	01520	ERRDEV: ASCIZ /DEVICE /
000170	425000 000000		
		01530	
		01540	INTERNAL DIRERR
		01550	
000171	262140 000000	01560	DIRERR: POP PDP,0 ;FLUSH RETURN ADDRESS
000172	265040 000231'	01570	JSP TAC,ERRPTU
000173	440700 000176'	01580	POINT 7,DIRER1
000174	260140 000155'	01590	PUSHJ PDP,ERNAM
000175	254000 000207'	01600	JRST ERSYC1
		01610	
000176	412030 420210	01620	DIRER1: ASCIZ /BAD DIRECTORY FOR /
000177	446450 541650		
000200	476453 120214		
000201	476444 000000		

```
01630
01640      ;          INTERNAL ERRODIS
01650
01660      ;ERRDIS:  LDB TAC,[POINT 4,DEVCHR(DEV DAT),17]
01670      ;          ADDI TAC,ERRC2
01680      ;          SKIPL TAC1,@TAC
01690      ;          JRST 4,.
01700      ;          TLZ TAC1,400000
01710      ;          MOVEM TAC1,@TAC
01720      ;          MOVE PDP,JOBPDP(PROG)
01730      ;          MOVE TAC,@TAC
01740      ;          HRLI TAC,PROG
01750      ;          MOVE TAC,@TAC
01760      ;          HLL TAC,1(PDP)
01770      ;          PUSH PDP,TAC
01780      ;          JRST UXIT
01790
01800      ;ERRC2:  XWD PROG,JOBTRP
```

			01810		
			01820	;UNEXPLAINED ERROR ENTRY	
			01830	;CALL: JSP DAT, ERROR	
			01840		
			01850	INTERNAL ERROR	
			01860	EXTERNAL JOBPD1	
			01870		
000202	201200	000001	01880	ERROR: MOVEI ITEM,1	;PRINT ON OPERATORS CONSOLE(JOB 1)
000203	265040	000232'	01890	JSP TAC,ERRPNT	
000204	440700	000220'	01900	POINT 7, ERR1	
000205	550043	777776	01910	HRRZ TAC,-2(PDP)	;GET LOC OF CALL TO ERROR
000206	260140	000342'	01920	EPOCT: PUSHJ PDP,PCPNT	
000207	201100	000225'	01930	ERSYC1: MOVEI TAC1,ERMS1	
			01940		
000210	260140	000340'	01950	ERSYCL: PUSHJ PDP,MESPC	
000211	254000	000000	01960	JRST HOLD	
			01970		
000212	260140	000333'	01980	EPCAD0: PUSHJ PDP,MESPNT	;PRINT MESS
000213	260140	000216'	01990	EPCAD1: PUSHJ PDP,EPCAD	;PRINT LAST USER CALL TO MONITOR
000214	254000	000211'	02000	JRST HOLD	
			02010		
000215	260140	000333'	02020	EPCADR: PUSHJ PDP,MESPNT	
000216	200051	000000	02030	EPCAD: MOVE TAC, JOBPD1(JDAT)	;GET LAST USER UUO CALL
000217	364040	000145'	02040	SOJA TAC,EPTAD1	
			02050		
000220	426452	247644	02060	ERR1: ASCIZ /ERROR IN MONITOR AT /	
000221	202231	620232			
000222	476351	152236			
000223	511010	152100			
000224	000000	000000			
			02070		
000225	355010	554212	02080	ERMS1: ASCIZ /; EXEC CALLED FROM /	
000226	415010	340630			
000227	462130	420214			
000230	512371	520000			

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```

02090
02100 ;ERROR SETUP ROUTINE
02110 ;CALL:  MOVE ITEM, JOBNUMBER
02120 ;      MOVE DEVDAT, DEVICE DATA BLOCK IF DEVICE ERROR
02130 ;      JSP TAC, ERRPNT
02140 ;      POINT 7, ERROR MESSAGE
02150 ;      RETURN
02160
02170
02180         INTERNAL ERRPNT,ERRPTU
02190
02200
000231 200200 000000 02210 ERRPTU:  MOVE ITEM, JOB
000232 200344 000005' 02220 ERRPNT:  MOVE PROG, JBTADR(ITEM)
000233 200444 000232' 02230         MOVE JDAT, JBTADR(ITEM) ;GET ADDRESS OF JOB DATA AREA
000234 322440 000240' 02240         JUMPE JDAT, ERRPD ;SET UP PDP IN USER AREA IF HE HAS CORE
000235 205140 000000 02250         MOVSJ PDP, MJOBPD
000236 541151 000000 02260         HRRJ PDP, JOBPDL(JDAT)
02270
000237 253140 000240' 02280         AOBJN PDP, .+1 ;LEAVE ROOM FOR UO RETURN
000240 261140 000005 02290 ERRPD:  PUSH PDP, DAT ;SAVE CALL TO ERROR SUB
000241 261140 000006 02300         PUSH PDP, DEVDAT
000242 261140 000001 02310         PUSH PDP, TAC ;SAVE RETURN
000243 260140 000000 02320         PUSHJ PDP, TTYFND
000244 201100 000254' 02330         MOVEI TAC1, SYSERR
000245 260140 000333' 02340         PUSHJ PDP, MESPNT
000246 200040 000004 02350         MOVE TAC, ITEM
000247 260140 000362' 02360         PUSHJ PDP, RADX10
000250 260140 000000 02370         PUSHJ PDP, CRLF ;PRINT CRLF
000251 200123 000000 02380         MOVE TAC1, @(PDP)
000252 260140 000333' 02390         PUSHJ PDP, MESPNT
000253 254000 000000 02400         JRST CPOPJ1
02410
02420
02430
02440
000254 064250 551244 02450 SYSERR:  ASCIZ /
000255 476444 044634 02460 ERROR IN JOB /
000256 202251 741100
000257 000000 000000

```

```
02450
02460
02470      ,ERROR TRAP HANDLING
02480
02490
02500      ;ERRTRP:  LDB TAC,[POINT 4,DEVCHR(DEV DAT),17]
02510      ;          ADDI TAC,ERRC2
02520      ;          SKIPG TAC1,@TAC
02530      ;          TLO TAC1,400000
02540      ;          MOVEM TAC1,@TAC
02550      ;          AOS      TAC
02560      ;          MOVE PDP,JOBPDP(PROG)
02570      ;          AOS      TAC
02580      ;          MOVE TAC1,1(PDP)
02590      ;          PUSH PDP,TAC
02600      ;          HLL TAC1,0(PDP)
02610      ;          HRLI TAC1,PROG
02620      ;          MOVEM TAC,@TAC1
02630      ;          JRST UXIT
02640
```

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			02650	
			02660	INTERNAL ILLINP
			02670	
000260	265040	000231'	02680	ILLINP: JSP TAC,ERRPTU
000261	440700	000270'	02690	POINT 7,ILLOT
000262	260140	000155'	02700	PUSHJ PDP,ERNAM
000263	265100	000212'	02710	JSP TAC1,EPCAD0
000264	202070	147234	02720	ASCIZ / CANNOT DO INPUT/
000265	476504	042236		
000266	202231	650252		
000267	520000	000000		
			02730	
			02740	
000270	476532	450252	02750	ILLOT: ASCIZ /OUTPUT /
000271	521000	000000		
			02760	
			02770	INTERN ILLINS
			02780	
000272	265040	000231'	02790	ILLINS: JSP TAC,ERRPTU
000273	440700	000275'	02800	POINT 7,ERRIL
000274	254000	000213'	02810	JRST EPCAD1
			02820	
000275	446311	420222	02830	ERRIL: ASCIZ /ILL INST/
000276	472472	400000		
			02840	
			02850	

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			02860		
			02870		INTERNAL ILLMOD
			02880		
000277	265040	000231'	02890	ILLMOD:	JSP TAC,ERRPTU
000300	440700	000303'	02900		POINT 7,ILLM01
000301	260140	000155'	02910		PUSHJ PDP,ERNAM
000302	254000	000213'	02920		JRST EPCAD1
			02930		
000303	446311	420210	02940	ILLM01:	ASCIZ /ILL DEVICE DATA MODE FOR /
000304	426551	141612			
000305	202110	152202			
000306	202331	742212			
000307	202151	751100			
000310	000000	000000			
			02950		INTERNAL ILLOUT
			02960		
000311	265040	000231'	02970	ILLOUT:	JSP TAC,ERRPTU
000312	440700	000321'	02980		POINT 7,ILLIN
000313	260140	000155'	02990		PUSHJ PDP,ERNAM
000314	265100	000212'	03000		JSP TAC1,EPCAD0
			03010		
000315	202070	147234	03020	ILM3:	ASCIZ / CANNOT DO OUTPUT/
000316	476504	042236			
000317	202372	552240			
000320	526500	000000			
			03030		
			03040		
000321	446352	052650	03050	ILLIN:	ASCIZ /INPUT /
000322	200000	000000			
			03060		
			03070		
			03080	INTERNAL IOIERR	
			03090		
000323	265040	000231'	03100	IOIERR:	JSP TAC, ERRPTU
000324	440700	000326'	03110		POINT 7,IOIER1
000325	254000	000213'	03120		JRST EPCAD1
			03130		
000326	446364	052236	03140	IOIER1:	ASCIZ /IO TO UNASSIGNED CHANNEL/
000327	202531	640646			
000330	516230	747212			
000331	421010	344202			
000332	472350	546000			

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		03150	
		03160	,CALL WITH DEST. POINTER IN DAT
		03170	,SOURCE POINTER IN TAC1
		03180	,MOVES UNTIL A ZERO CHAR. IS FOUND
		03190	
		03200	INTERNAL MESPNT
000333	505100 440700	03210	MESPNT: HRLI TAC1,440700
000334	134040 000002	03220	MES1: ILDB TAC, TAC1
000335	322040 000000	03230	JUMPE TAC,CPOPJ
000336	136040 000005	03240	IDPB TAC, DAT
000337	254000 000334'	03250	JRST MES1
		03260	
		03270	,ANY RADIX PRINT
		03280	, TAC1 = RADIX
		03290	, DAT = BYTE POINTER
		03300	, TAC = NUMBER
		03310	
		03320	INTERNAL OCTPNT, ANYRDX, PCPNT
		03330	EXTERNAL UU00,JOBDP1
		03340	
000340	260140 000333'	03350	MESPC: PUSHJ PDP, MESPNT PRINT LAST USER UUO CALL
000341	550051 000216'	03360	HRRZ TAC,JOBDP1(JDAT)
000342	275040 000001	03370	PCPNT: SUBI TAC,1
000343	405040 777777	03380	ANDI TAC,-1
000344	201100 000010	03390	OCTPNT: MOVEI TAC1,10
000345	261140 000004	03400	ANYRDX: PUSH PDP,ITEM
000346	552100 000004	03410	HRRZM TAC1, ITEM
000347	260140 000352'	03420	PUSHJ PDP,OCTP1
000350	262140 000004	03430	POP PDP,ITEM
000351	263140 000000	03440	POPJ PDP,
		03450	
000352	230040 000004	03460	OCTP1: IDIV TAC,ITEM
000353	506103 000000	03470	HRLM TAC1, (PDP)
000354	322040 000356'	03480	JUMPE TAC, .+2
000355	260140 000352'	03490	PUSHJ PDP, OCTP1
000356	554043 000000	03500	HRRZ TAC, (PDP)
000357	271040 000060	03510	ADDI TAC, "0"
000360	136040 000005	03520	IDPB TAC, DAT
000361	263140 000000	03530	POPJ PDP,
		03540	
		03550	INTERNAL RADX10
		03560	
000362	261140 000002	03570	RADX10: PUSH PDP,TAC1 ;OUTPUT DECIMAL
000363	201100 000012	03580	MOVEI TAC1,12
000364	260140 000345'	03590	PUSHJ PDP,ANYRDX
000365	262140 000002	03600	POP PDP,TAC1
000366	263140 000000	03610	POPJ PDP,
		03620	
		03630	REPEAT 0,<
		03640	PCPNT: SUBI TAC,1
		03650	OCTPNT: HRLZ TAC1,TAC
		03660	MOVSI TAC,-1
		03670	LSHC TAC,3
		03680	TRNN TAC,7
		03690	JUMPN TAC1,.-2
		03700	OCTPN1: ADDI TAC,"0"
		03710	IDPB TAC,DAT

03720	JUMPGE TAC,CPOPJ
03730	HLLZS TAC
03740	LSHC TAC,3
03750	JRST OCTPN1
03760	>

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			03770		
			03780		
000367	135200	000027'	03790	UTBKER:	INTERNAL UTBKER
000370	265040	000232'	03800		LDB ITEM,PJOBN ;JOB NUMBER
000371	440700	000401'	03810		JSP TAC,ERRPNT
000372	200040	000000	03820		POINT 7,UTERM
000373	275047	000000	03830		MOVE TAC,UBUF
000374	260140	000344'	03840		SUBI TAC,(PROG)
000375	201100	000424'	03850		PUSHJ PDP,OCTPNT
000376	260140	000333'	03860		MOVEI TAC1,[ASCII / /]
000377	260140	000155'	03870		PUSHJ PDP,MESPNT
000400	254000	000035'	03880		PUSHJ PDP,ERNAM
			03890		JRST ADRER2
000401	446311	420210	03900	UTERM:	ASCIZ /ILL DT BLOCK NO. , BUFFER AT /
000402	521010	246236			
000403	416264	047236			
000404	271005	420204			
000405	526150	642644			
000406	202032	420000			
			03910		
			03920		
			03930		
			03940		
			03950		INTERNAL UUOERR
			03960		EXTERNAL UUO0
			03970		
000407	265040	000231'	03980	UUOERR:	JSP TAC,ERRPTU
000410	440700	000416'	03990		POINT 7,UUOER1
000411	200040	000000	04000		MOVE TAC, UUO0 ;UUO PC
000412	603040	010000	04010		TLNE TAC, 10000 ;WAS IT FROM USER?
000413	254000	000213'	04020		JRST EPCAD1 ;YES, JUST PRINT LOC OF CALL
000414	260140	000145'	04030		PUSHJ PDP,EPTAD1 ;NO, PRINT BOTH EXEC CALL
000415	254000	000207'	04040		JRST ERSYC1 ;AND USER CALL
			04050		
000416	446311	420240	04060	UUOER1:	ASCIZ /ILL PROG. OP. USED/
000417	512370	727100			
000420	476405	620252			
000421	516130	400000			
			04070		
			04080		
000422	300306	000001	04090	END,	
000423	440623	777777			
000424	200000	000000			

THERE ARE NO ERRORS

PROGRAM BREAK IS 000425

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SYMBOL TABLE

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRCK	000000'	INT
ADRER2	000035'	
ADRERI	000027'	
ADRERR	000014'	INT
AERM1	000023'	
AERM3	000045'	
AL	000001	INT
ANYRDX	000345'	INT
APM1	000070'	
APM2	000073'	
APM3	000106'	
APM4	000134'	
APMSYS	000136'	
APMUSR	000141'	
APRCHL	000144'	EXT
APRCHN	000051'	EXT
APRDMS	000132'	
APRIL1	000062'	
APRILM	000051'	INT
APRJRS	000064'	
APRNXM	000100'	
APRPDL	000111'	
APRRET	000121'	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSB	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CPOPJ	000335'	EXT
CPOPJ1	000253'	EXT
CRLF	000250'	EXT
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

FRRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 18
SYMBOL TABLE

DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVPTR	000010	INT
DEVSER	000003	INT
DGF	000012	INT
DIN	000003	INT
DIRER1	000176'	
DIRERR	000171'	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
EPCAD	000216'	
EPCAD0	000212'	
EPCAD1	000213'	
EPCADR	000215'	
EPOCT	000206'	
EPTAD1	000145'	
EPTADR	000144'	
FRMS1	000225'	
ERNAM	000155'	INT
ERNAM1	000161'	
ERR1	000220'	
ERRDEV	000167'	
ERRIL	000275'	
ERROR	000202'	INT
ERRPD	000240'	
ERRPNT	000232'	INT
ERRPTU	000231'	INT
ERSYC1	000207'	
ERSYCL	000210'	
HOLD	000214'	EXT
HOLDI	000044'	EXT
HOLDI1	000133'	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLIN	000321'	
ILLINP	000260'	INT
ILLINS	000272'	INT
ILLMO1	000303'	

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 19
SYMBOL TABLE

ILLMOD	000277'	INT
ILL0T	000270'	
ILL0UT	000311'	INT
ILM	020000	
ILM3	000315'	
INITB	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
IOIER1	000326'	
IOJERR	000323'	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
I0STRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFA0R	000000	INT
JBFC0R	000002	INT
JBFP0R	000001	INT
JBTADR	000233'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
J1OW	100000	INT
JNA	004000	INT
JOR	000231'	EXT
JORADR	000015'	EXT
JORPD1	000341'	EXT
JORPDL	000236'	EXT
JORPDP	000000	EXT
JORPFI	000006'	EXT
JORREL	000000	EXT
JORTRP	000000	EXT
LOOKB	040000	INT
MES1	000334'	
MESPC	000340'	
MESPNT	000333'	INT
MJOBPD	000235'	EXT
MTW	010000	INT

ERRCON - ERROR HANDLING ROUTINE FOR MONITOR DETECTED ERRORS PAGE 20
 SYMBOL TABLE

NXM	010000	
OBUF8	100000	INT
OCTP1	000352'	
OCTPNT	000344'	INT
OUTP8	004000	INT
PCPNT	000342'	INT
PDLOV	000122'	
PDP	000003	INT
PICHN	000100	INT
PJOBN	000367'	EXT
POVC	400000	
POVF	200000	
PROG	000007	INT
RADX10	000362'	INT
RUN	200000	INT
RUNABL	204000	INT
SYSERR	000254'	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYCTR	000000	EXT
TTYFND	000243'	EXT
TTYSTR	000000	EXT
TTYUSE	010000	INT
UBUF	000372'	EXT
USRM0D	010000	INT
USRPDP	000000	EXT
USRPOV	000115'	EXT
USRREL	000056'	EXT
UTRKER	000367'	INT
UTERM	000401'	
UU0	000014	INT
UU00	000411'	EXT
UU0ER1	000416'	
UU0ERR	000407'	INT
UXIT	000000	EXT
WAIT1	000000	EXT

END OF ASSEMBLY

00010

XLIST

01970

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00030
00040
00050
00060      EXTERNAL BUFCLC,ERROR,IOSETC,IOIERR,BUFCLR
00070      EXTERNAL SETBYT,UINTQ,WAIT1,WSYNC,ADRCK
00080      EXTERNAL UXIT,USRJDA,JOBJDA,ILLMOD,PUUOAC,PIOMOD
00090      EXTERNAL JOB,ASSIN,PJOBN,ADRERR,USRREL,CUXIT1,CUXIT2
00100      EXTERNAL SETIOS
00110
00120      ;FOR PURPOSES OF COMMENTING THIS SUBROUTINE THE
00130      ;TERM BUFFER HEADER SHALL REFER TO THE 3 WORD HEADER
00140      ;WHICH IS USED BY THE USER PROGRAM AND THIS EXEC FOR
00150      ;REFERING TO THE RING BUFFERS.
00160
00170      ;THE CONTENTS OF THE 3 WORD HEADER (AS SET BY THE MONITOR FOR THE USE
00180      ;                                FROM USERS PROGRAM BY AN INPUT OR AN OUTPUT UUD
00190      ;                                BIT 18-35=ADDRESS OF SECOND WORD OF THE
00200      ;                                CURRENT BUFFER IN RING.
00210      ;                                WORD 2:  BYTE POINTER TO CURRENT ITEM.
00220      ;                                WORD 3:  POSITIVE ITEM COUNT (NO. OF ITEMS LEFT ON
00230      ;                                INPUT, NO. OF FREE ITEMS TO GO ON OUTPUT).
00240
00250      ;EACH BUFFER IN THE RING HAS FOLLOWING FORMAT (AS THE USER SEES IT)
00260
00270      ;                                WORD 1:  RESERVED FOR BLOCK NUMBER FOR FIXED ADDRESS DEVIC
00280      ;                                WORD 2:  BIT 0=USE BIT FOR THIS BUFFER
00290      ;                                BIT 1-17=NO. OF WORDS WHICH FOLLOW (LENGTH OF BUF
00300      ;                                BIT 18-35=ADDRESS OF SECOND WORD OF NEXT BUFFER I
00310      ;                                WORD 3:  LH=LINK TO NEXT BLOCK (SET BY MONITOR FOR DECTAPE
00320      ;                                RH=NO. OF WORDS OF DATA WHICH FOLLOW (USUALLY
00330      ;                                SET BY EXEC EXCEPT IF THE USER HAS SPECIFIED
00340      ;                                THAT HE WANTS TO COMPUTE WORD COUNT
00350      ;                                HIMSELF INSTEAD OF HAVING THE MONITOR DO IT
00360      ;                                USING THE BYTE POINTER IN THE 3 WORD HEADER).

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00370
00380 ,H. R. MORSE      2/21/65
00390 ,CALLING SEQUENCE
00400 ,      CLOSE D,
00410 ,      EXIT      ALWAYS RETURNS HERE
00420 , THIS ROUTINES PROCESSES THE CLOSE UUO AND DETERMINES WHETHER THE
00430 , OUTPUT ROUTINE SHOULD BE CALLED IF OUTPUT WERE ACTIVE, CLEARS
00440 , THE INPUT BUFFER AREA IF INPUT WERE ACTIVE, AND CLEARS THE
00450 , ITEM COUNTS OF BOTH INPUT AND OUTPUT HEADERS SERVING TO BOTH
00460 , TERMINATE THE USE OF THE DEVICE AND SET THE I/O ROUTINES TO
00470 , ACCEPT ANOTHER INPUT OR OUTPUT COMMAND IN A CLEAR STATE.
00480 , IN THE CASE OF OUTPUT DEVICES, THE CLOSE ROUTINE OF THE DEVICE HANDL
00490 , ING ROUTINE IS CALLED IN CASE ANY SPECIAL HANDLING IS REQUIRED.
00500 , MONITOR INTERFACE
00510 ,      STORAGE: 30
00520 ,      ROUTINES CALLED: DCL, WAIT1, UXIT
00530 ,      SYMBOLS SET/USED:
00540 ,      ACCUMULATORS:      DAT      S/U      PROG U
00550 ,      DEVDAT      U      TAC S/U
00560 ,      IOS      S/U      TAC1 S/U
00570 ,      PDP      U
00580 ,      DEVICE DATA BLOCK: DEVBUFF U
00590 ,      DEVIOS S/U
00600 ,      DEVSER U
00610 ,      IO STATUS WORD: IOACT S      IODTER S
00620 ,      IOBEG S      IOEND S
00630 ,      IOBKTL S      IOFST S
00640 ,      IODEND S      IOIMPM S
00650 ,      IODERR S      IOSTRT S
00660 ,      IODISC S      IOW S
00670 ,      JOB BUFFER AREA: IOUSE S
00680 ,      JBFCTR S

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			00690	
			00700	INTERNAL CLOSE1
			00710	
000000	663300	002000	00720	CLOSE1: TLOE DEVDAT,CLOSB ;HAS A CLOSE ALREADY BEEN DONE?
000001	254000	000000	00730	JRST UXIT ;YES, FOR THIS CHANNEL
000002	135040	000000	00740	LDB TAC,PUUOAC ;USER DEVICE CHANNEL NO.
000003	502301	000000	00750	HLLM DEVDAT,USRJDA(TAC)
000004	261140	000005	00760	PUSH PDP,DAT
000005	135040	000000	00770	LDB TAC,PIOMOD
000006	305040	000016	00780	CAIGE TAC,DR
000007	254000	000013	00790	JRST UCLS4
000010	200046	000003	00800	MOVE TAC,DEVSER(DEVDAT)
000011	260141	000001	00810	PUSHJ PDP,DCL(TAC)
000012	254000	000060	00820	JRST UCLS3
000013	260140	000000	00830	UCLS4: PUSHJ PDP,WAIT1; WAIT UNTIL DEVICE IS INACTIVE.
000014	606600	000002	00840	TRNN UUO,CLSIN ;SUPPRESS INPUT?
000015	607300	200000	00850	TLNN DEVDAT,IBUFB ;NO, WAS INPUT BUFFER SPECIFIED?
000016	254000	000041	00860	JRST UCLS2 ;NO
000017	550106	000006	00870	HRRZ TAC1,DEVBUF(DEVDAT)
000020	505100	000007	00880	HRLI TAC1,PROG
000021	550260	000002	00890	HRRZ DAT,@TAC1 ;FIRST WORD OF 3 WORD BUFFER HEADER
000022	540120	000002	00900	HRR TAC1,@TAC1 ;REMEMBER CURRENT BUFFER IN TAC1
000023	515040	400000	00910	HRLZI TAC,IOUSE ;USED BOTH FOR HEADER AND EACH BUFFER
000024	322240	000034	00920	JUMPE DAT,UCLS1 ;HAS A RING BEEN SETUP?(NO IF 0)
000025	505240	000007	00930	HRLI DAT,PROG ;YES
000026	540260	000005	00940	UCLS0: HRR DAT,@DAT; ADVANCE CURRENT INPUT BUFFER ADDRESS
			00950	ADRCHK DAT ;IS ADDRESS OK?
000027	260140	000000		PUSHJ PDP,ADRCK
000030	550040	000005		HRRZ TAC,DAT
000031	412060	000005	00960	ANDCAM TAC,@DAT ;YES, CLEAR USE BIT.
000032	312100	000005	00970	CAME TAC1,DAT; DONE?
000033	254000	000026	00980	JRST UCLS0
000034	505240	000007	00990	UCLS1: HRLI DAT,PROG
000035	540246	000006	01000	HRR DAT,DEVBUF(DEVDAT)
000036	436060	000005	01010	IORM TAC,@DAT ;FLAG AS VIRGIN BUFFER IN 3 WORD HEADER
000037	271240	000002	01020	ADDI DAT,2; JBFCTR:=0
000040	402020	000005	01030	SETZM @DAT ;CLEAR INPUT ITEM COUNT.
000041	606600	000001	01040	UCLS2: TRNN UUO,CLSOUT ;SUPPRESS OUTPUT?
000042	607300	100000	01050	TLNN DEVDAT,OBUFF ;NO, WAS OUTPUT BUFFER SPECIFIED?
000043	254000	000060	01060	JRST UCLS3 ;NO
000044	544246	000006	01070	HRLI DAT, DEVBUF(DEVDAT) ;VIRGIN OUBPUT BUFFER?
000045	505240	000007	01080	HRLI DAT, PROG
000046	337020	000005	01090	SKIPG @DAT
000047	254000	000060	01100	JRST UCLS3 ;YES
000050	200046	000003	01110	MOVE TAC,DEVSER(DEVDAT)
000051	260141	000001	01120	PUSHJ PDP,DCL(TAC); CLOSE OUTPUT BUFFER
000052	544246	000006	01130	HRLI DAT,DEVBUF(DEVDAT)
000053	505240	000007	01140	HRLI DAT,PROG
000054	515040	400000	01150	HRLZI TAC,IOUSE
000055	436060	000005	01160	IORM TAC,@DAT
000056	271240	000002	01170	ADDI DAT,2
000057	402020	000005	01180	SETZM @DAT; JBFCTR:=0
000060	260140	000013	01190	UCLS3: PUSHJ PDP,WAIT1
000061	262140	000005	01200	POP PDP,DAT
000062	630000	000473	01210	TDZ IOS,[XWD IOEND,IODEND]
000063	661000	000002	01220	TLO IOS,IOBEG
000064	202006	000002	01230	MOVEM IOS,DEVIOS(DEVDAT); IODISC:=0

000065 254000 000001' 01240

JRST UXIT;

EXIT THIS UUO

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01250
01260 ,DEC 06 00 EX UUO L PT PRE 02 INBUF,OUTBUF
01270 ,H. R. MORSE 64-12-26
01280 ,CALLING SEQUENCE
01290 , INBUF D,N
01300 , EXIT RETURNS HERE IF MEMORY NOT EXCEEDED
01310 ,CALLING SEQUENCE
01320 , OUTBUF D,N
01330 , EXIT RETURNS HERE IF MEMORY NOT EXCEEDED
01340 , SETS UP AN N BUFFER RING FOLLOWING THE USERS PROGRAM FOR DEVICE
01350 , D AND INITIALIZES THE JOB BUFFER AREA HEADER:
01360 , JBFADR0:=1, JBFADR 1-17:=0
01370 , JBFADR 18-35:=ADDRESS OF FIRST BUFFER IN RING
01380 ,INPUT SETS DEVIAD:=ADDRESS OF FIRST BUFFER IN RING
01390 ,OUTPUT SET DEVOAD:=ADDRESS OF FIRST BUFFER IN RING
01400 ,BUFPNT IS RESTORED.
01410 ,MONITOR INTERFACE
01420 , STORAGE:13
01430 , ROUTINES CALLED: BUFCLC, UXIT
01440 , SYMBOLS SET/USED:
01450 , ACCUMULATORS: BUFPNT S/U PROG U
01460 , DEVDAT U TAC S/U
01470 , PDP U TAC1 S/U
01480 , DEVICE DATA BLOCK: DEVBUF U
01490 , DEVIAD S
01500 , DEVOAD S
01510 , JOB BUFFER AREA: JBFADR S

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		01520		
		01530		INTERN UINBF, UOUTBF
		01540		
		01550		
000066	261140 000012	01560	UOUTBF:	PUSH PDP,BUFPNT; SAVE BUFPNT ON STACK
000067	260140 000000	01570		PUSHJ PDP,BUFCLC; SET UP BUFFER RING
000070	544046 000006	01580		HLR TAC,DEVBUF(DEVDAT);TAC:=OUTPUT BUFFER AREA HEADER ADDRE
000071	542506 000010	01590		HRRM BUFPNT,DEVOAD(DEVDAT);DEVOAD:=ADDRESS OF FIRST BUFFER
		01600		IN RING
000072	505040 000007	01610	UOBF1:	HRLI TAC,PROG; RELOCATE BUFFER AREA HEADER ADDRESS
000073	202520 000001	01620		MOVEM BUFPNT,@TAC; JBFADR:=IOUSE,ADDRESS OF FIRST BUFFER
		01630		IN RING
000074	262140 000012	01640		POP PDP,BUFPNT; RESTORE BUFPNT FROM STACK
000075	254000 000065'	01650		JRST UOBF1; EXIT THIS UO
000076	261140 000012	01660	UINBF:	PUSH PDP,BUFPNT; SAVE BUFPNT ON STACK
000077	260140 000067'	01670		PUSHJ PDP,BUFCLC; SET UP BUFFER RING
000100	542506 000007	01680		HRRM BUFPNT,DEVIAD(DEVDAT); DEVIAD:=ADDRESS OF FIRST BUFFER
		01690		IN RING
000101	540046 000006	01700		HRR TAC,DEVBUF(DEVDAT); TAC:=INPUT BUFFER AREA HEADER ADDRE
000102	254000 000072'	01710		JRST UOBF1


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01720
01730
01740 ,DEC 06 00 EX UUO L PT PRE 03 INIT
01750 ,H. R. MORSE AND D. A. WITCRAFT 2/21/65
01760 ,CALLING SEQUENCE
01770 , INIT D,MODUS D=JOB DEVICE CHANNEL
01780 , MODUS=IORDEL,IOCON,IOWC,MODE.
01790 , SIXBIT/NAME/ DEVICE NAME
01800 , XWD OBUF,IBUF BUFFER AREA HEADER ADDRESSES
01810 , EXIT1 DEVICE NOT AVAILABLE
01820 , EXIT2 DEVICE PROPERLY ASSIGNED
01830 ,THE LEFT HALF OF NAME CONTAINS THE THREE LETTER DEVICE MNEMONIC,
01840 , THE RIGHT HALF IS EITHER ZERO (SYSTEM WILL ASSIGN AN ARBITRARY
01850 , UNIT) OR NON-ZERO TO REQUEST A SPECIFIC UNIT (LEFT JUSTIFIED).
01860 ,IF THE SELECTED DEVICE IS NOT AVAILABLE, CONTROL RETURNS TO EXIT1.
01870 ,OTHERWISE, THE DEVICE IS ASSIGNED TO THE USER AND ATTACHED TO HIS
01880 ,CHANNEL D. THE DEVICE IS INITIALIZED IN THE FOLLOWING MANNER AFTER
01890 ,IOACT IS ZERO:
01900 , IOBEG:=1
01910 , DATA MODE:=BITS 32-35 OF AC UUO
01920 , IOCON:=BIT 31 OF AC UUO
01930 , IOWC:=BIT 30 OF AC UUO
01940 , IORDEL:=BIT 29 OF AC UUO
01950 , IOACT:=IODEND:=IOBKTL:=IODTER:=IODERR:=IOIMPM:=0
01960 , JBFADR:=JBFCTR:=0 FOR THE SPECIFIED BUFFERS.
01970 , DEVBUF:=OBUF,IBUF
01980 ,MONITOR INTERFACE
01990 , STORAGE: 20
02000 , ROUTINES CALLED: UINTQ, ASSIGN(UASG1),USEL,UNITZ,UXIT
02010 , SYMBOLS SET/USED:
02020 , ACCUMULATORS: DEVDAT U
02030 , PDP U TAC U
02040 , PROG U TAC1 S/U
02050 , DEVICE DATA BLOCK: DEVBUF S

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			02060		
			02070		
000103	135040	000002'	02080	UNIT:	INTERN UNIT,UNIT1
000104	332301	000003'	02090		LDB TAC,PUUOAC ;USER DEVICE CHANNEL NO.
000105	260140	000430'	02100		SKIPE DEVDAT,USRJDA(TAC) ;IS A DEVICE ALREADY HERE?
000106	200600	000040	02110		PUSHJ PDP,RELEA0 ;YES, RELEASE IT
000107	260140	000000	02120		MOVE UUO,40 ;RESTORE AC UUO FROM LOC 40
000110	350003	000000	02130		PUSHJ PDP,UINTQ ;GET SIXBIT DEVICE NAME FROM USER
000111	200200	000000	02140	UNIT1:	AOS (PDP)
000112	260140	000000	02150		MOVE ITEM,JOB ;CALLED BY SAVGET
000113	254000	000000	02160		PUSHJ PDP,ASSIN; TRY TO ASSIGN DEVICE
000114	135040	000103'	02170		JRST CUXIT1; NOT AVAILABLE
000115	552301	000104'	02180		LDB TAC,PUUOAC
000116	515040	000002	02190		HRRZM DEVDAT,USRJDA(TAC) ;STORE DDB ADR IN DEVICE TABL
000117	202046	000002	02200		HRLZI TAC,I0BEG
000120	260140	000000	02210		MOVEM TAC,DEVIOS(DEVDAT)
			02220		PUSHJ PDP,SETIOS ;SET DDB IOS STATUS WORD
					;FROM RT. HALF OF UUO
000121	260140	000107'	02230		PUSHJ PDP,UINTQ
000122	505300	400000	02240		HRLI DEVDAT, INITB ;SET INIT UUO BIT
000123	607040	777777	02250		TLNN TAC,-1
000124	254000	000127'	02260		JRST UNIT4 ;OUTPUT NOT SPECIFIED
000125	502046	000006	02270		HLLM TAC,DEVBUF(DEVDAT)
000126	661300	100000	02280		TLO DEVDAT,0BUFB ;SET OUTPUT BUFFER SPECIFIED BIT
000127	606040	777777	02290	UNIT4:	TRNN TAC,-1; IS IBUF SPECIFIED?
000130	254000	000133'	02300		JRST UNIT5 ;INPUT BUF NOT SPECIFIED
000131	542046	000006	02310		HRRM TAC,DEVBUF(DEVDAT); DEVBUF 18-35:=IBUF
000132	661300	200000	02320		TLO DEVDAT,IBUFB ;SET INPUT BUFFER SPECIFIED BIT
000133	550100	000001	02330	UNIT5:	HRRZ TAC1,TAC; TAC1:=PROG,IBUF
000134	260140	000142'	02340		PUSHJ PDP,UNITZ; JBFADR:=JBFCTR:=0 FOR IBUF
000135	544100	000001	02350		HLR TAC1,TAC; TAC1:=PROG,0BUF
000136	260140	000142'	02360		PUSHJ PDP,UNITZ; JBFADR:=JBFCTR:=0 FOR 0BUF
000137	135040	000114'	02370		LDB TAC,PUUOAC ;STORE UUO BITS FOR THIS CHANNEL
000140	502301	000115'	02380		HLLM DEVDAT,USRJDA(TAC)
000141	254000	000000	02390		JRST CUXIT2

		02400	
		02410	,DEC 06 00 EX COM L PT PRE 03 UINITZ
		02420	,H. R. MORSE 64-12-26
		02430	,CALLING SEQUENCE
		02440	, PUSHJ PDP,UINITZ
		02450	, EXIT RETURNS HERE IF MEMORY NOT EXCEEDED.
		02460	,SETS JBFADR:=JBFCTR:=0 FOR THE BUFFER AREA HEADER WHOSE ADDRESS
		02470	,IS IN AC TAC1. ALSO,JBFPTR 0-5:=JBFPTR 12-17:=0,JBFPTR 6-11:=BYTE S
		02480	,MONITOR INTERFACE
		02490	, STORAGE:15
		02500	, ROUTINES CALLED: ADRCK, SETBYT
		02510	, SYMBOLS SET/USED:
		02520	, ACCUMULATORS: PDP U TAC S/U
		02530	, TAC1 S/U
		02540	, JOB BUFFER AREA: JBFADR S
		02550	, JBFCTR S
		02560	, JBFPTR S
		02570	INTERN UINITZ
		02580	
000142	606100 777777	02590	UINITZ: TRNN TAC1,-1; IS BUFFER SPECIFIED?
000143	263140 000000	02600	POPJ PDP,;RETURN
000144	505100 000007	02610	HRLI TAC1,PROG
000145	260140 000027	02620	PUSHJ PDP,ADRCK ;CHECK 3 WORD BUFFER HEADER
000146	551042 000002	02630	HRRZI TAC,2(TAC1)
000147	402020 000002	02640	SETZM @TAC1; JBFADR:=0
000150	350000 000002	02650	AOS TAC1
000151	261140 000001	02660	PUSH PDP,TAC
000152	261140 000002	02670	PUSH PDP,TAC1
000153	350000 000002	02680	AOS TAC1
000154	402020 000002	02690	SETZM @TAC1; JBFCTR:=0
000155	260140 000000	02700	PUSHJ PDP,SETBYT; JBFPTR 6-11:=BYTE SIZE
000156	621040 770077	02710	TLZ TAC,770077
000157	262140 000002	02720	POP PDP,TAC1
000160	502060 000002	02730	HLLM TAC,@TAC1
000161	262140 000001	02740	POP PDP,TAC
000162	263140 000000	02750	POPJ PDP,; RETURN

		02760		
		02770		
		02780	INTERNAL IN	
		02790		
000163	603000 000020	02800	IN:	TLNE IOS,IO ;IS THIS DEVICE ALREADY DOING OUTPUT?
000164	260140 000060'	02810		PUSHJ PDP,WAIT1 ;YES,WAIT TILL IT IS FINISHED
000165	135040 000137'	02820		LDB TAC,PUUOAC ;SET BIT THAT SAYS AN INPUT UO0 HAS OCC
000166	661300 010000	02830		TLO DEVDAT,INPB ;FOR THIS DEVICE
000167	502301 000140'	02840		HLLM DEVDAT,USRJDA(TAC) ;IN LH OF CURRENT JOB DEVICE
000170	135040 000005'	02850		LDB TAC,PIOMOD ;IO MODE
000171	301040 000016	02860		CAIL TAC,DR ;IS THE IO MODE DUMP MODE?
000172	254000 000271'	02870		JRST INDMP ;YES
000173	540246 000006	02880	IN1:	HRR JBUF,DEVBUF(DEV DAT) ;NO, GET ADDRESS OF 3 WORD BU
000174	515040 400000	02890		HRLZI TAC,IOUSE ;BUFFER INUSE BIT
000175	505240 000007	02900		HRLI JBUF,PROG ;SET INDEX FIELD FOR RELOCATION USING A
000176	260140 000145'	02910		PUSHJ PDP,ADRCK ;CHECK BUFFER HEADER
000177	551045 000002	02920		HRRZI TAC,2(JBUF) ;END ADDRESS OF 3 WORD HEADER
000200	200120 000005	02930		MOVE TAC1,@JBUF ;GET WORD 1 OF 3 WORD BUFFER HEADER (PO
000201	505100 000007	02940		HRLI TAC1,PROG ;SET INDEX FIELD COR RELOCATION USING A
000202	337020 000005	02950		SKIPG @JBUF ;HAS A BUFFER RING BEEN SET UP (RH NON-
		02960		;WHICH HAS BEEN REFERENCED BY PREVIOUS
000203	254000 000256'	02970		JRST INPUTF ;NO, GO SET UP BUFFER IF NECESSARY AND
		02980		ADRCHK TAC1 ;YES, CHECK ADDRESS TO SEE IF IN BOUNDS
000204	260140 000176'		PUSHJ PDP,ADRCK	
000205	550040 000002		HRRZ TAC,TAC1	
000206	413060 000002	02990		ANDCAB TAC,@TAC1 ;FLAG THIS BUFFER AS BEING FILLED (USE
		03000		;AND GET POINTER TO NEXT BUFFER
000207	542060 000005	03010		HRRM TAC,@JBUF ;SET WORD 1 IN 3 WORD HEADER TO NEXT BU
		03020		ADRCHK TAC ;AND CHECK ITS ADDRESS TO SEE IF IN BOUNDS
000210	260140 000204'		PUSHJ PDP,ADRCK	
000211	550040 000001		HRRZ TAC,TAC	
		03030		
000212	200006 000002	03040	INPUT0:	MOVE IOS,DEVIOS(DEV DAT) ;GET IO STATUS WORD
000213	606000 010000	03050		TRNN IOS,IOACT ;IS THE DEVICE ALREADY ACTIVE (FILLING
000214	254000 000220'	03060		JRST INPT0B ;NO,
000215	606000 000040	03070		TRNN IOS,IOCON ;DOES THE USER WANT TO STOP AFTER EVERY
000216	254000 000224'	03080		JRST INPT0C ;NO, HE WANTS NORMAL CONTINUOUS OVERLAP
000217	260140 000000	03090		PUSHJ PDP,WSYNC ;YES, WAIT TILL DEVICE FINISHES WITH ON
000220	505040 000007	03100	INPT0B:	HRLI TAC,PROG ;SET FOR RELOCATION
000221	540060 000001	03110		HRR TAC,@TAC ;GET POINTER 1 BLOCK AHEAD OF NEXT BBUF
000222	331020 000001	03120		SKIPL @TAC ;IS THE USE BIT SET?
000223	260140 000276'	03130		PUSHJ PDP,CALIN
000224	540120 000002	03140	INPT0C:	HRR TAC1,@TAC1
000225	335020 000002	03150	INPT0A:	SKIPGE @TAC1
000226	254000 000236'	03160		JRST INPUT2
000227	260140 000217'	03170	INPUT1:	PUSHJ PDP,WSYNC
000230	335020 000002	03180		SKIPGE @TAC1
000231	254000 000236'	03190		JRST INPUT2
000232	612000 000474'	03200		TONE IOS,[XWD IOEND,IODERR]
000233	254000 000250'	03210		JRST INEOF
000234	200006 000002	03220		MOVE IOS,DEVIOS(DEV DAT)
000235	254000 000227'	03230		JRST INPUT1
		03240		
000236	271100 000001	03250	INPUT2:	ADDI TAC1,1
000237	550220 000002	03260		HRRZ ITEM,@TAC1
000240	275100 000001	03270		SUBI TAC1,1
000241	261140 000004	03280		PUSH PDP,ITEM ;SAVE WORD COUNT AS STORED BY IO SERVIC

000242	260140	000000	03290
000243	262140	000004	03300
000244	135040	000170'	03310
000245	306040	000010	03320
000246	202220	000005	03330
000247	254000	000075'	03340

PUSHJ PDP,IOSETC
POP PDP,ITEM
LDB TAC,PIOMOD
CAIN TAC, I
MOVEM ITEM,@JBUF
JRST UXIT

;GET DEVICE DATA MODE
;IMAGE MODE?
;YES, STORE WORD COUNT NOT ITEM COUNT

000250	551000	020000	03350		
000251	436006	000002	03360	INEOF:	HRRZI IOS, IODEND
000252	254000	000247	03370		IORM IOS, DEVIOS(DEV DAT)
			03380		JRST UXIT
			03390		
			03400		
			03410		
000253	540100	000014	03420	INPUTA:	HRR TAC1, UUO
000254	412060	000002	03430		ANDCAM TAC, @TAC1
000255	254000	000212	03440		JRST INPUT0
			03450		
			03460		
000256	412060	000005	03470		
000257	540060	000005	03480		
000260	542046	000007	03490		
			03500		
000261	336020	000005	03510		
000262	254000	000265	03520		
000263	260140	000276	03530		
			03540		
000264	254000	000225	03550		
000265	541600	000002	03560		
			03570		
000266	260140	000076	03580		
000267	513000	000014	03590		
000270	254000	000173	03600		
			03610		
			03620		
000271	260140	000227	03630	INDMP:	PUSHJ PDP, WSYNC
000272	200046	000003	03640		MOVE TAC, DEVSER(DEV DAT)
000273	260141	000007	03650		PUSHJ PDP, DDI(TAC)
000274	260140	000164	03660		PUSHJ PDP, WAIT1
000275	254000	000252	03670		JRST UXIT

;HERE ON FIRST INPUT AFTER INIT, INIT & LOOKUP, OR INIT & LOOKUP & IN
 INPUTF: ANDCAM TAC, @JBUF ;MARK THAT BUFFERS HAVE BEEN REFERENCED
 HRR TAC, @JBUF ;PICKUP ADDRESS OF FIRST BUFFER IN RING
 HRRM TAC, DEVIAD(DEV DAT) ;SET CURRENT RING BUFFER ADDR
 ;IN DEVICE DATA BLOCK
 SKIPN @JBUF ;HAS A RING BEEN SET UP YET?
 JRST INPUT3 ;NO. GO SET UP A 2 BUFFER RING
 PUSHJ PDP, CALIN ;YES. GO START IO SERVICE ROUTINE
 ;FILLING BUFFER
 JRST INPT0A
 INPUT3: HRRI UUO, 2 ;BUFFERS NOT SETUP YET.
 ;SET UP 2
 PUSHJ PDP, UINBF
 HLLZS UUO ;CLEAR RIGHT HALF
 JRST IN1

			03680	
			03690	
			03700	
			03710	
000276	603000	000040	03720	CALIN: TLNE IOS,IOEND
000277	263140	000000	03730	POPJ PDP,
000300	260140	000271	03740	PUSHJ PDP,WSYNC
000301	261140	000002	03750	PUSH PDP,TAC1
000302	200046	000003	03760	MOVE TAC,DEVSER(DEVDAT)
000303	260141	000003	03770	PUSHJ PDP,DIN(TAC)
000304	262140	000002	03780	POP PDP,TAC1
000305	263140	000000	03790	POPJ PDP,
			03800	
			03810	

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03820
03830 ,DEC 06 00 EX COM L PT PRE 03 OUTPUT
03840 ,H.R. MORSE 2/21/65
03850 ,CALLING SEQUENCE
03860 , OUTPUT D,
03870 , EXIT
03880 ,OR
03890 , OUTPUT D, ADR
03900 , EXIT
03910
03920 ,IF INPUT IS ACTIVE, WAIT FOR IT TO COMPLETE.
03930 ,IF DUMP MODE WAS SELECTED BY THE LAST INIT UO, THEN A CHECK IS MADE
03940 , TO SEE IF DUMP FILES ARE LEGAL FOR THIS DEVICE. IF DUMP FILES AR
03950 , NOT LEGAL, (IORET=0) AN ERROR MESSAGE IS PRINTED ON THE TTY AND
03960 , CONTROL IS TRANSFERRED TO THE COMMAND INPUT ROUTINE.
03970 , OTHERWISE,THE PROGRAM WAITS UNTIL THE DEVICE IS INACTIVE AND THEN
03980 , WRITES THE DUMPFIL AND RETURNS CONTROL TO THE USERS PROGRAM
03990 ,IF THE MODE IS NOT DUMP, THEN
04000 ,1) IF ADR IS NOT ZERO, WAIT FOR DEVICE TO BECOME INACTIVE THEN SET T
04010 , CURRENT BUFFER ADDRESS EQUAL TO ADR AND AN INDICATOR (JBFADR0)
04020 , SPECIFYING THAT THIS BUFFER RING HAS NEVER BEEN REFERENCED FROM T
04030 , USERS PROGRAM BY AN INPUT OR AN OUTPUT UO. OTHERWISE, GO TO
04040 , 2) DIRECTLY.
04050
04060 ,2) IF THE BUFFER RING HAS NEVER BEEN REFERENCED (JBFADR0=1), THE
04070 , BUFFER IS CLEARED, IOUSE SET TO ZERO AND
04080 , IF THE CURRENT BUFFER ADDRESS IS ZERO, A TWO BUFFER RING IS SE
04090 , THEN GO TO 8
04100 ,
04110 ,3) IF THE BUFFER RING HAS BEEN REFERENCED (JBFADR0=0 ,THEN A C
04120 , MADE TO DETERMINE IF THE WORD COUNT IS TO BE COMPUTED.
04130 , IF THE WORD COUNT IS TO BE COMPUTED (IOWC=0), IT IS SET EQUAL
04140 , TO THE ADDRESS FOR THE LAST DATA WORD MINUS THE ADDRESS OF THE
04150 , BUFFER MINUS ONE.
04160
04170 ,4) IOUSE IS SET TO ONE, INDICATING THAT THE BUFFER IS FULL OR BEING
04180 , EMPTIED, AND THE CURRENT BUFFER ADDRESS IS ADVANCED.
04190
04200 ,5) IF THE DEVICE IS NOT ACTIVE (IOACT=0), OUTPUT IS STARTED.
04210 ,6) IF THE CURRENT BUFFER IS FULL OR BEING EMPTIED (IOUSE=1),
04220 , THE PROGRAM WAITS UNTIL THE DEVICE IS INACTIVE.
04230 ,7) THE CURRENT BUFFER IS CLEARED.
04240 ,8) THE ITEM POINTER IS INITIATED TO THE CURRENT BUFFER ADDRESS+1
04250 , AND THE ITEM COUNT IS SET TO THE PRODUCT OF THE BUFFER SIZE
04260 , MINUS ONE AND THE INTEGER PART OF 36/BYTE SIZE.
04270 ,9) RETURN TO THE USERS PROGRAM

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04280
04290 ,MONITOR INTERFACE
04300 , STORAGE: 54
04310 , ROUTINES CALLED: ADRCK, BUFCLR, CALOUT, INOUT, IOSETC, OUTA,
04320 , OUTBUF, UXIT, WSYNC,
04330 , SYMBOLS SET/USED:
04340 , ACCUMULATORS: DEVDAT U PROG U
04350 , IOS U TAC S/U
04360 , ITEM S/U TAC1 S/U
04370 , JBUF S/U UUO S
04380 , PDP U
04390 , DEVICE DATA BLOCK: DEVBUF U DEVOAD S
04400 , IO STATUS WORD: IOACT U
04410 , IOWC U
04420 , JOB BUFFER AREA: JBFADR S/U
04430 , JBFCTR S
04440 , JBFPTR S/U
04450 , BUFFER SIZE U
04460 , IOUSE S/U
04470 , WORD COUNT S
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			04480			
			04490			
			04500		INTERN OUT	
			04510			
000306	607000	000020	04520	OUT:	TLNN IOS,IO	;IS THIS DEVICE ALREADY DOING INPUT?
000307	260140	000274	04530		PUSHJ PDP,WAIT1	;YES, WAIT TILL IT BECOMES INACTIVE
000310	135040	000165	04540		LDB TAC,PUUOAC	
000311	661300	004000	04550		TLO DEVDAT,OUTPB	
000312	502301	000167	04560		HLLM DEVDAT,USRJDA(TAC)	
000313	135040	000244	04570		LDB TAC,PIOMOD	
000314	301040	000016	04580		CAIL TAC,DR	
000315	254000	000402	04590		JRST OUTDMP	
000316	260140	000407	04600		PUSHJ PDP,OUTA	
000317	544246	000006	04610	OUT1:	HLR JBUF,DEVBUF(DEVDAT)	
000320	260140	000210	04620		PUSHJ PDP,ADRCK	;CHECK END OF 3 WORD HEADER
000321	551045	000002	04630		HRRZI TAC,2(JBUF)	
000322	505240	000007	04640		HRLI JBUF,PROG	
000323	515040	400000	04650		HRLZI TAC, IOUSE	
000324	337120	000005	04660		SKIPG TAC1, @JBUF	;HAS THIS BUFFER EVER BEEN
			04670			;REFERENCED?(JBFADR0=0?)
000325	254000	000361	04680		JRST OUTF	
000326	350000	000005	04690		AOS JBUF	
000327	550060	000005	04700		HRRZ TAC, @JBUF	
000330	271100	000001	04710		ADDI TAC1, 1	
000331	274040	000002	04720		SUB TAC, TAC1	
000332	505100	000007	04730		HRLI TAC1,PROG	
000333	602000	000020	04740		TRNE IOS, IOWC	;COMPUTE WORD COUNT?(IOWC=0?)
000334	254000	000340	04750		JRST OUT2	
			04760		ADRCHK TAC1	;PROCEED IF ADDRESS OF WORD COUNT
000335	260140	000320		PUSHJ PDP,ADRCK		
000336	550040	000002		HRRZ TAC,TAC1		
			04770			;<PROTECTION ADDRESS
000337	542060	000002	04780		HRRM TAC, @TAC1	;WORD COUNT:=C(JBFPTR18-35)
			04790			; -C(JBFADR18-35)-
000340	275240	000001	04800	OUT2:	SUBI JBUF,1	
000341	275100	000001	04810		SUBI TAC1,1	
000342	515040	400000	04820		HRLZI TAC, IOUSE	
000343	437060	000002	04830		IORB TAC, @TAC1	;IOUSE:=1
			04840		ADRCHK TAC1	
000344	260140	000335		PUSHJ PDP,ADRCK		
000345	550040	000002		HRRZ TAC,TAC1		
000346	542060	000005	04850		HRRM TAC,@JBUF	;ADVANCE CURRENT BUFFER ADDRE
000347	200006	000002	04860		MOVE IOS,DEVIOS (DEVDAT)	
000350	606000	010000	04870		TRNN IOS,IOACT	
000351	260140	000421	04880		PUSHJ PDP, CALOUT	;START OUTPUT
000352	544246	000006	04890		HLR JBUF,DEVBUF(DEVDAT)	
000353	505240	000007	04900		HRLI JBUF,PROG	
000354	200120	000005	04910		MOVE TAC1,@JBUF	
000355	505100	000007	04920		HRLI TAC1,PROG	
000356	337020	000002	04930		SKIPG @TAC1	;IOUSE=1?
000357	260140	000300	04940		PUSHJ PDP, WSYNC	;WAIT FOR DEVICE TO BECOME IN
000360	254000	000372	04950		JRST OUTS	

000361	332120	000005	04960		
000362	254000	000367'	04970	OUTF:	SKIPE TAC1,@JBUF
000363	541600	000002	04980		JRST OUTF1
000364	260140	000066'	04990		HRR1 UU0,2
000365	544246	000006	05000		PUSHJ PDP,UOUTBF
000366	505240	000007	05010		HLR JBUF,DEVBUF(DEVDAT)
000367	515040	400000	05020		HRLI JBUF,PROG
000370	413060	000005	05030	OUTF1:	HRLZI TAC, IOUSE
000371	542046	000010	05040		ANDCAB TAC, @JBUF ;IOUSE:=0
000372	550060	000005	05050		HRRM TAC,DEVOAD(DEVDAT)
000373	260140	000000	05060	OUTS:	HRRZ TAC,@JBUF
000374	540120	000005	05070		PUSHJ PDP,BUFCLR
000375	505100	000007	05080		HRR TAC1,@JBUF
000376	135200	000475'	05090		HRLI TAC1,PROG
000377	275200	000001	05100		LDB ITEM,[POINT 17,@TAC1,17]
000400	260140	000242'	05110		SUBI ITEM,1
			05120		PUSHJ PDP,IOSETC ;JBFCTR18-35:=CURRENT BUFFER
			05130		;ADDRESS+1
			05140		;JBFCTR:=(BUFFER SIZE-1)*[36/BYTE
			05150		;SIZE]
000401	254000	000275'	05160		JRST UXIT ;RETURN TO USERS PROGRAM
			05170		
000402	260140	000357'	05180	OUTDMP:	PUSHJ PDP,WSYNC
000403	200046	000003	05190		MOVE TAC,DEVSER(DEVDAT)
000404	260141	000006	05200		PUSHJ PDP,DDO(TAC)
000405	260140	000307'	05210		PUSHJ PDP,WAIT1
000406	254000	000401'	05220		JRST UXIT

05230			
05240			
05250		,DEC 06 00 EX COM L PT PRE 01 OUTA	
05260		,H.R. MORSE	64-12-26
05270			
05280		,CALLING SEQUENCE:	
05290		, PUSHJ PDP,OUTA	
05300		, EXIT	ALWAYS RETURNS HERE
05310		,IF THE ADDRESS FIELD OF AC UUO IS ZERO,EXIT. OTHERWISE,CHECK IOACT.	
05320		,IF IOACT=1, WAIT FOR IOACT=0.	
05330		,SET JBFADR18-35:=ADDRESS FIELD OF AC UUO. JBFADR0:=1 AND EXIT.	
05340			
05350		,MONITOR INTERFACE	
05360		, STORAGE:13	
05370		, ROUTINES CALLED:	WSYNC
05380		, SYMBOLS SET/USED:	
05390		, ACCUMULATORS:	DEV DAT U
05400			IOS U
05410			PROG U
05420			JBUF S/U
05430			TAC S/U
05440			PDP S/U
05450			UUO S/U
05460			DEV BUF U
05470			
05480			
05490		OUTA:	INTERN OUTA
05500			TRNN UUO, 777777 ;IS BUFFER ADDRESS SPECIFIED?
05510			POPJ PDP, ;NO
05520			PUSHJ PDP, WAIT1
05530			HLR JBUF, DEV BUF (DEV DAT)
05540			HRLI JBUF, PROG
05550			HRRM UUO, @JBUF
05560			HRRM UUO, DEV OAD (DEV DAT)
05570			HRLZI TAC, IOUSE
05580			ANDCAM TAC, @JBUF
			POPJ PDP, ;RETURN

000407	606600	777777	05490
000410	263140	000000	05500
000411	260140	000405	05510
000412	544246	000006	05520
000413	505240	000007	05530
000414	542620	000005	05540
000415	542606	000010	05550
000416	515040	400000	05560
000417	412060	000005	05570
000420	263140	000000	05580

		05590	
		05600	
		05610	,DEC 06 00 EX COM L PT PRE 03 CALOUT
		05620	,H.R. MORSE 2/21/65
		05630	
		05640	,CALLING SEQUENCE
		05650	, PUSHJ PDP,CALOUT
		05660	, EXIT
		05670	
		05680	,DISPATCH TO DEVICE SERVICE ROUTINE DOU TO INITIATE OUTPUT.
		05690	
		05700	,MONITOR INTERFACE
		05710	, STORAGE:2
		05720	, SYMBOLS SET/USED:
		05730	, ACCUMULATORS: DEVDAT U
		05740	, TAC U
		05750	, DEVICE DATA BLOCK: DEVSER U
		05760	
		05770	INTERN CALOUT
000421	606000 010000	05780	CALOUT: TRNN IOS,IOACT
000422	254000 000426'	05790	JRST CALOU1
000423	606000 000040	05800	TRNN IOS,IOCON
000424	263140 000000	05810	POPJ PDP,
000425	260140 000402'	05820	PUSHJ PDP,WSYNC
000426	200046 000003	05830	CALOU1: MOVE TAC,DEVSER(DEVDAT)
000427	254001 000002	05840	JRST DOU(TAC)

			05850	
			05860	,RELEASE A DEVICE
			05870	
			05880	INTERNAL RELEA1,RELEA2,RELEA3,RELEA5
			05890	
000430	200006	000002	05900	RELEA0: MOVE IOS,DEVIOS(DEVDAT) ;CALLED FROM INIT
			05910	RELEA2:RELEA3:
000431	620600	777777	05920	RELEA1: TRZ UUO,-1 ;CLOSE BOTH INPUT AND OUTPUT
000432	260140	000000'	05930	PUSHJ PDP,CLOSE1
000433	260140	000411'	05940	PUSHJ PDP,WAIT1 ;WAIT FOR DEVICE TO BECOME INACTIVE
000434	200046	000003	05950	RELEA5: MOVE TAC, DEVSER(DEVDAT) ;RELEASE WITHOUT WAITING
000435	260141	000000	05960	PUSHJ PDP, DRL (TAC)
000436	135040	000310'	05970	LDB TAC,PUUOAC
000437	402001	000312'	05980	SETZM USRJDA(TAC)
000440	201040	000017	05990	MOVEI TAC,17 ;IS THE DEVICE ON AONTER USER CHANNEL?
000441	550101	000437'	06000	RELEA4: HRRZ TAC1,USRJDA(TAC)
000442	302106	000000	06010	CAIE TAC1,(DEVDAT)
000443	365040	000441'	06020	SOJGE TAC,RELEA4
000444	325040	000406'	06030	JUMPGE TAC,UXIT ;EXIT IF ON ANOTHER CHANNEL
000445	201100	200000	06040	MOVEI TAC1,ASSPRG ;OTHERWISE CLEAR ASSIGNED BY PROG. BIT
000446	413106	000004	06050	ANDCAB TAC1,DEVMOD(DEVDAT)
000447	616100	000476'	06060	TDNN TAC1,[XWD TTYUSE,ASSCON] ;ASSIGNED BY CONSOLE OR TTY I
000450	137600	000000	06070	DPB UUO,PJOBN ;NO, CLEAR JOB NUMBER
000451	254000	000444'	06080	JRST UXIT
			06090	

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06100
06110
06120 ,DEC 06 00 EX UUO L PT PRE 01 STATO
06130 ,H.R. MORSE 64-12-26
06140
06150 ,CALLING SEQUENCE
06160 , STATO D,MASK
06170 , EXIT1 ALL SELECTED BITS ARE 0
06180 , EXIT2 SOME SELECTED BITS ARE 1
06190 ,TESTS BITS OF I/O STATUS WORD OF DEVICE ON USERS CHANNEL D WHICH
06200 ,ARE SELECTED BY MASK.
06210
06220 ,MONITOR INTERFACE
06230 , STORAGE: 3
06240 , ROUTINES CALLED: UXIT
06250 , SYMBOLS SET/USED:
06260 , ACCUMULATORS: IOS U
06270 , PDP U
06280 , UUO U
06290
06300 INTERN USTATO
06310
000452 602014 000000 06320 USTATO: TRNE IOS,(UUO) ;SKIP IF ANY INDICATED BITS ARE ONE
000453 350003 000000 06330 AOS (PDP)
000454 254000 000451' 06340 JRST UXIT

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		06350	
		06360	
		06370	,DEC 06 00 EX UUO L PT PRE 01 STATUS
		06380	,H.R. MORSE 64-12-26
		06390	
		06400	,CALLING SEQUENCE
		06410	, STATUS D,ADR
		06420	, EXIT ALWAYS RETURNS HERE
		06430	,STORES I/O STATUS WORD OF DEVICE ON CHANNEL D IN LOCATION ADR.
		06440	
		06450	,MONITOR INTERFACE
		06460	, STORAGE: 3
		06470	, ROUTINES CALLED: UXIT
		06480	, SYMBOLS SET/USED:
		06490	, ACCUMULATORS: IOS U
		06500	, PROG U
		06510	, UUO U
		06520	
		06530	INTERN USTATS
		06540	EXTERNAL ADRERR,USRREL
		06550	
		06560	
000455	200040 000000	06570	USTATS: MOVE TAC,USRREL ;CHECK TO SEE IF IN BOUNDS
000456	307054 000000	06580	CAIG TAC,(UUO)
000457	260140 000000	06590	PUSHJ PDP,ADRERR
000460	505600 000007	06600	HRLI UUO,PROG ;LOAD STATUS INTO INDICATED ADDRESS.
000461	552020 000014	06610	HRRZM IOS,@UUO
000462	254000 000454'	06620	JRST UXIT

		06630	
		06640	
		06650	,CALLING SEQUENCE
		06660	, SETSTS D,BITS
		06670	, EXIT ALWAYS RETURN HERE
		06680	
		06690	INTERNAL USETST
		06700	EXTERNAL WAIT1,SETIOS
		06710	
000463	260140 000433'	06720	USETST: PUSHJ PDP,WAIT1 ;WAIT TILL DEVICE INACTIVE
000464	205000 000002	06730	MOVSI IOS, IOREG
000465	436006 000002	06740	IORM IOS,DEVIOS(DEVDAT)
000466	542606 000002	06750	HRRM UUO,DEVIOS(DEVDAT)
000467	254000 000462'	06760	JRST UEXIT

```

06770
06780
06790      ,DEC 06 00 EX UUO L PT PRE 01 STATZ
06800      ,H.R. MORSE      64-12-26
06810
06820      ,CALLING SEQUENCE
06830      ,          STATZ D,MASK
06840      ,          EXIT1          SOME SELECTED BITS ARE 1
06850      ,          EXIT2          ALL SELECTED BITS ARE 0
06860
06870      ,TESTS BITS OF I/O STATUS WORD OF DEVICE ON USERS
06880      ,CHANNEL D WHICH ARE SELECTED BY MASK.
06890
06900
06910      ,MONITOR INTERFACE
06920      ,          STORAGE:          3
06930      ,          ROUTINES CALLED: UXIT
06940      ,          SYMBOLS SET/USED:
06950      ,          ACCUMULATORS:    IOS U
06960      ,                               PDP U
06970      ,                               UUO U
06980
06990
07000
07010      INTERN USTATZ
07020
07030      USTATZ:  TRNN IOS,(UUO)      ;SKIP IF ALL INDICATED BITS ARE ZERO
07040      AOS (PDP)
07050      JRST UXIT
07060
07070
07080
07090      END,

000470  606014 000000
000471  350003 000000
000472  254000 000467'

000473  000040 020000
000474  000040 200000
000475  222120 000002
000476  010000 400000

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000477

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRCK	000344'	EXT
ADRERR	000457'	EXT
AL	000001	INT
ASSCON	400000	INT
ASSIN	000112'	EXT
ASSPRG	200000	INT
R	000014	INT
BUFCLC	000077'	EXT
BUFCLR	000373'	EXT
BUFPNT	000012	INT
BUFWRD	000013	INT
CALIN	000276'	
CALOU1	000426'	
CALOUT	000421'	INT
CLOSB	002000	INT
CLOSE1	000000'	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CUXIT1	000113'	EXT
CUXIT2	000141'	EXT
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
ORL	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
ERROR	000000	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLMOD	000000	EXT
IN	000163'	INT
IN1	000173'	
INDMP	000271'	
INFOF	000250'	
INITB	400000	INT
INPB	010000	INT
INPT0A	000225'	
INPT0B	000220'	
INPT0C	000224'	
INPUT0	000212'	
INPUT1	000227'	
INPUT2	000236'	
INPUT3	000265'	
INPUTA	000253'	
INPUTF	000256'	
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	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
IOIERR	000000	EXT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSETC	000400'	EXT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT

JBFAOR	000000	INT
JBFCTR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOR	000111'	EXT
JOBJDA	000000	EXT
LOOKR	040000	INT
MTW	010000	INT
OBUEB	100000	INT
OUT	000306'	INT
OUT1	000317'	
OUT2	000340'	
OUTA	000407'	INT
OUTDMP	000402'	
OUTF	000361'	
OUTF1	000367'	
OUTPB	004000	INT
OUTS	000372'	
PDP	000003	INT
PICHN	000100	INT
PIOMOD	000313'	EXT
PJOBH	000450'	EXT
PROG	000007	INT
PUUOAC	000436'	EXT
RELEA0	000430'	
RELEA1	000431'	INT
RELEA2	000431'	INT
RELEA3	000431'	INT
RELEA4	000441'	
RELEA5	000434'	INT
RUN	200000	INT
RUNARL	204000	INT
SETBYT	000155'	EXT
SETIOS	000120'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
UCLS0	000026'	
UCLS1	000034'	
UCLS2	000041'	
UCLS3	000060'	
UCLS4	000013'	
UINBF	000076'	INT
UINIT	000103'	INT
UINIT1	000111'	INT
UINIT4	000127'	
UINIT5	000133'	
UINITZ	000142'	INT
UINTQ	000121'	EXT

UORF1	000072'
UOUTBF	000066' INT
USETST	000463' INT
USRJDA	000441' EXT
USRMOD	010000 INT
USRREL	000455' EXT
USTATO	000452' INT
USTATS	000455' INT
USTATZ	000470' INT
UUO	000014 INT
UXIT	000472' EXT
WAIT1	000463' EXT
WSYNC	000425' EXT

END OF ASSEMBLY

00010

XLIST

01970

00030
00040
00050
00060
00070

EXTERNAL CLOSE1,DEVLST,ERROR,JBTADR
EXTERNAL JOB,JOBFF,RELEA1,USRJDA,WAIT1,CLDS,CLEN
EXTERNAL PJOBN,CPOPJ1,PIOMOD,CPOPJ,CPOPJ2
EXTERNAL SCNOFF,SCNON

000000	260140	000000	00080	
000001	550046	000010	00090	,DEC 06 00 EX COM L PT PRE 01 ADVBFE
000002	515040	400000	00100	,H. R. MORSE 64-12-26
000003	413066	000010	00110	,CALLING SEQUENCE
000004	542046	000010	00120	, PUSHJ PDP,ADVBFE
000005	335026	000010	00130	, EXIT1 RETURN IF NEXT BUFFER IS EMPTY
000006	350003	000000	00140	, EXIT2 RETURN IF NEXT BUFFER IS FULL
000007	263140	000000	00150	,CLEARS THE USE BIT (IOUSE:=0) OF THE BUFFER POINTED TO BY THE
			00160	,OUTPUT BUFFER ADDRESS (DEVOAD) OF THE CURRENT DEVICE DATA BLOCK
			00170	,AND ADVANCES THE BUFFER ADDRESS TO THE NEXT BUFFER IN THE RING.
			00180	,UPON RETURN, SKIPS IF THE NEXT BUFFER IS FULL.
			00190	,MONITOR INTERFACE
			00200	, STORAGE: 6
			00210	, SYMBOLS SET/USED:
			00220	, ACCUMULATORS: DEVDAT U
			00230	, PDP S/U
			00240	, TAC S/U
			00250	, DEVICE DATA BLOCK: DEVOAD S/U
			00260	, JOB BUFFER HEADER: IOUSE S/U
			00270	INTERN ADVBFE
			00280	ADVBFE: ADRCHK DEVOAD(DEVDAT)
				PUSHJ PDP,ADRCK
				HRRZ TAC,DEVOAD(DEVDAT)
			00290	HRLZI TAC,IOUSE; IOUSE:=0
			00300	ANDCAB TAC,@DEVOAD(DEVDAT)
			00310	HRRM TAC,DEVOAD(DEVDAT); DEVOAD 18-35:=NEXT BUFFER ADDRESS
			00320	SKIPGE @DEVOAD(DEVDAT); IS IOUSE=0?
			00330	AOS (PDP); EXIT2. BUFFER IS FULL
			00340	POPJ PDP,; EXIT1. BUFFER IS EMPTY

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00350
00360 ,DEC 06 00 EX COM L PT PRE 01 ADVBFF
00370 ,H. R. MORSE 64-12-26
00380 ,CALLING SEQUENCE
00390 , PUSHJ PDP,ADVBFF
00400 , EXIT1 RETURN IF NEXT BUFFER IS FULL
00410 , EXIT2 RETURN IF NEXT BUFFER IS EMPTY
00420 ,SETS THE USE BIT (IOUSE:=1) OF THE BUFFER POINTED TO BY THE
00430 ,INPUT BUFFER ADDRESS (DEVIAD) OF THE CURRENT DEVICE DATA BLOCK
00440 ,AND ADVANCES THE BUFFER ADDRESS TO THE NEXT BUFFER IN THE RING.
00450 ,UPON RETURN, SKIPS IF THE NEXT BUFFER IS EMPTY.
00460 ,MONITOR INTERFACE
00470 , STORAGE: 6
00480 , SYMBOLS SET/USED:
00490 , ACCUMULATORS: DEVDAT U
00500 , PDP S/U
00510 , TAC S/U
00520 , DEVICE DATA BLOCK: DEVIAD S/U
00530 , JOB BUFFER HEADER: IOUSE S/U
00540 , INTERN ADVBFF
00550 ADVBFF: ADRCHK DEVIAD(DEVDAT)
000010 260140 000000' PUSHJ PDP,ADRCK
000011 550046 000007 HRRZ TAC,DEVIAD(DEVDAT)
000012 515040 400000 00560 HRLZI TAC,IOUSE; IOUSE:=1
000013 437066 000007 00570 IORB TAC,@DEVIAD(DEVDAT)
000014 542046 000007 00580 HRRM TAC,DEVIAD(DEVDAT); DEVIAD:=NEXT BUFFER ADDRESS
000015 331026 000007 00590 SKIPL @DEVIAD(DEVDAT); IOUSE=1?
000016 350003 000000 00600 AOS (PDP); EXIT2. NEXT BUFFER IS EMPTY
000017 263140 000000 00610 POPJ PDP,; EXIT1. NEXT BUFFER IS FULL

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00620
00630 ,DEC 06 00 EX COM L PT PRE 01 ASCIA
00640 ,C. FRAZIER AND W. SEGAL      64-12-26
00650 ,CALLING SEQUENCE
00660 ,      PUSHJ PDP,ASCIA
00670 ,      EXIT                      ALWAYS RETURNS HERE
00680 ,ADDS THE ASCII INCREMENT (RIGHT JUSTIFIED) IN AC TAC1 TO THE FIVE
00690 ,DIGIT ASCII NUMBER (LEFT JUSTIFIED) IN AC TAC AND LEAVES THE
00700 ,RESULT (LEFT JUSTIFIED) IN AC TAC.  TAC1 IS RESTORED.
00710 ,MONITOR INTERFACE
00720 ,      STORAGE:  21
00730 ,      SYMBOLS SET/USED:
00740 ,      ACCUMULATORS:  PDP  U
00750 ,                      TAC  S/U
00760 ,                      TAC1 S/U

```

00770			
00780	;	INTERN ASCIA	
00790	;ASCIA:	PUSH PDP,TAC1;	SAVE TAC1 = ASCII INCREMENT (RIGHT JUST
00800	;	AND TAC1,K2;	CLEAR MOST SIGNIFICANT 3 BITS OF
00810	;;		EACH CHARACTER
00820	;	LSH TAC,-1;	TAC=FIVE DIGIT ASCII NO.(RIGHT JUST.)
00830	;	IOR TAC,K4;	SET SECOND AND THIRD MOST SIGNIFICANT
00840	;;		BITS OF EACH CHARACTER TO ONES.
00850	;	TLZN TAC,400000	
00860	;	ADD TAC,K1	
00870	;	ADD TAC1,TAC	
00880	;	AND TAC1,K3	
00890	;	MOVE TAC,K4	
00900	;	AND TAC,TAC1	
00910	;	ASH TAC,-3	
00920	;	SUBM TAC1,TAC	
00930	;	IOR TAC,K4	
00940	;	LSH TAC,1	
00950	;	TRO TAC,1	
00960	;	POP PDP,TAC1;	RESTORE TAC1
00970	;	POPJ PDP,;	RETURN
00980	;K1:	OCT 215064321506;	CHARACTER MASK: 1000110
00990	;K2:	OCT 036170743617;	CHARACTER MASK: 0001111
01000	;K3:	OCT 176773757677;	CHARACTER MASK: 0111111
01010	;K4:	OCT 140603014060;	CHARACTER MASK: 0110000

		01020	
		01030	INTERNAL ASSIN,ASSASG
		01040	
000020	260140 000041'	01050	ASSIN: PUSHJ PDP,DEVSRG ;SEARCH FOR DEVICE
000021	263140 000000	01060	POPJ PDP, ;DEVICE NOT FOUND
000022	201100 200000	01070	MOVEI TAC1, ASSPRG ;DEVICE FOUND, FLAG AS ASSIGNED BY PROG
		01080	
		01090	;ASSIGN DEVICE IF UNASSIGNED
		01100	;CALL: MOVE ITEM, JOB NUMBER
		01110	; MOVE DEVDAT, ADDR. OF DDB
		01120	; MOVEI TAC1, EITHER ASSPRG OR ASSCON
		01130	; PUSHJ PDP, ASSASG
		01140	; CANT ASSIGN RETURN
		01150	; ASSIGNED RETURN
		01160	
000023	700200 000000	01170	ASSASG: CONO APR,CLDS ;DISABLE CLOCK
000024	135040 000000	01180	LDB TAC,PJOBN ;GET JOB NUMBER IN DEV DATA BLOCK
000025	316040 000004	01190	CAMN TAC,ITEM ;IS IT ALREADY ASSIGNED TO THIS JOB
000026	254000 000035'	01200	JRST ASSAS1 ;YES
000027	201040 600000	01210	MOVEI TAC, ASSPRG+ASSCON ;NO, IS IT ASSIGNED TO ANOTHE
000030	700600 000000	01220	CONO PI, SCNOFF ;TURN SCANNER OFF
000031	612046 000004	01230	TDNE TAC, DEVMOD(DEVDAT) ;ARE EITHER ASSIGNED BITS SET
000032	254000 000036'	01240	JRST ASSAS2 ;YES
000033	436106 000004	01250	IORM TAC1, DEVMOD(DEVDAT) ;NO, SET ONE OF THEM
000034	137200 000024'	01260	DPB ITEM,PJOBN ;AND STORE JOB NUMBER
000035	350003 000000	01270	ASSAS1: AOS (PDP)
000036	700600 000000	01280	ASSAS2: CONO PI, SCNON ;TURN SCANNER BACK ON
000037	700200 000000	01290	CONO APR,CLEN ;RENABLE CLOCK
000040	263140 000000	01300	POPJ PDP,

		01310	
		01320	;ROUTINE TO SEARCH FOR A DEVICE
		01330	;CALL: HRR ITEM, JOB NUMBER
		01340	; MOVE TAC, [SIXBIT .DEVICE NAME.]
		01350	; PUSHJ PDP, DEVSRC
		01360	; NOT FOUND
		01370	; FOUND
		01380	
		01390	INTERNAL DEVLG, DEVSRC, DEVPHY
		01400	EXTERNAL SYSTAP, DEVOPR
		01410	
000041	260140	000044'	01420 DEVSRC: PUSHJ PDP, DEVLG ;SEARCH LOGICAL NAMES FIRST
000042	254000	000056'	01430 JRST DEVPHY ;NOT FOUND, SEARCH PHYSICAL NAMES
000043	254000	000000	01440 JRST CPOPJ1 ;FOUND
		01450	
		01460	;SEARCH LOGICAL NAMES
		01470	
000044	554300	000000	01480 DEVLG: HLRZ DEVDAT, DEVLST ;BEGINNING OF DDB CHAIN
000045	322040	000000	01490 JUMPE TAC, CPOPJ ;0 CANNOT BE A LOGICAL NAME
000046	312046	000005	01500 DEVLPO: CAME TAC, DEVLOG(DEVDAT) ;COMAPRE WITH LOGICAL NAME
000047	254000	000053'	01510 JRST DEV0 ;NO MATCH
000050	135100	000034'	01520 LDB TAC1, PJOBN ;DOES THE LOGICAL NAME BELONG TO THIS J
000051	316100	000004	01530 CAMN TAC1, ITEM
000052	254000	000043'	01540 JRST CPOPJ1 ;YES
000053	554306	000003	01550 DEV0: HLRZ DEVDAT, DEVSER(DEVDAT) ;NO, KEEP LOOKING
000054	326300	000046'	01560 JUMPN DEVDAT, DEVLPO
000055	263140	000000	01570 POPJ PDP, ;FINISHED AND NOT FOUND
		01580	
		01590	;SEARCH PHYSICAL NAMES
		01600	
000056	322040	000045'	01610 DEVPHY: JUMPE TAC, CPOPJ ;ZERO CANNOT BE A LOGICAL NAME
000057	316040	000370'	01620 CAMN TAC, [SIXBIT /OPR/] ;IS IT "OPR"?
000060	200040	000000	01630 MOVE TAC, DEVOPR ;YES, CHANGE TO OPERATORS TTY
000061	316040	000371'	01640 CAMN TAC, [SIXBIT /SYS/] ;IS IT "SYS"?
000062	200040	000000	01650 MOVE TAC, SYSTAP ;YES, CHANGE TO TO SYSTEM TAPE NAME
000063	554300	000044'	01660 HLRZ DEVDAT, DEVLST ;SEARCH DEVICE DATA BLOCKS
000064	316046	000000	01670 DEVLPI: CAMN TAC, DEVNAM(DEVDAT)
000065	254000	000052'	01680 JRST CPOPJ1 ;FOUND
000066	554306	000003	01690 HLRZ DEVDAT, DEVSER(DEVDAT)
000067	326300	000064'	01700 JUMPN DEVDAT, DEVLPI
000070	263140	000000	01710 POPJ PDP, ;NOT FOUND

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01720
01730 ,DEC 06 00 EX COM L PT PRE 01 BUFCLC
01740 ,H. R. MORSE 64-12-26
01750 ,CALLING SEQUENCE
01760 , PUSHJ PDP,BUFCLC
01770 , EXIT RETURNS HERE IF MEMORY NOT EXCEEDED
01780 , SETS UP AN N BUFFER RING FOLLOWING THE USERS PROGRAM, WHERE N
01790 , IS IN THE ADDRESS FIELD OF AC UUO.
01800 , THE BUFFER RING FORMAT IS AS FOLLOWS:
01810 , LOCATION LH CONTENTS RH
01820 , C(JOBFF) + 1 BUFFER C(JOBFF) + 1
01830 , + 0(BUFFER SIZE+2) SIZE + 1(BUFFER SIZE+2)
01840 , C(JOBFF) + 1 BUFFER C(JOBFF) + 1
01850 , + 1(BUFFER SIZE+2) SIZE + 2(BUFFER SIZE+2)
01860 , .
01870 , .
01880 , .
01890 , C(JOBFF) + 1 BUFFER C(JOBFF) + 1
01900 , + (N-2)(BUFFER SIZE+2) SIZE +(N-1)(BUFFER SIZE+2)
01910 , C(JOBFF) + 1 BUFFER C(JOBFF) + 1
01920 , + (N-1)(BUFFER SIZE+2) SIZE
01930 , THEN SET BUFPNT:=IOUSE,C(JOBFF) + 1
01940 , AND JOBFF:=C(JOBFF) + 1 + N(BUFFER SIZE + 2)
01950 , BUFWRD IS RESTORED.
01960 , MONITOR INTERFACE
01970 , STORAGE: 20
01980 , ROUTINES CALLED: ADRCK
01990 , SYMBOLS SET/USED:
02000 , ACCUMULATORS: BUFPNT S/U PROG U
02010 , BUFWRD S/U TAC S/U
02020 , DEVDAT U TAC1 S/U
02030 , PDP S/U UUO U
02040 , DEVICE DATA BLOCK: DEVCHR U
02050 , JOB AREA: JOBFF S/U
02060 , JOB BUFFER HEADER: IOUSE U

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			02070		
			02080		
000071	261140	000013	02090	BUFCLC:	INTERN BUFCLC
000072	135040	000372'	02100		PUSH PDP,BUFWRD; SAVE BUFWRD ON STACK
000073	550507	000000	02110		LDB TAC,[POINT 12,DEVCHR(DEVDAT),35];TAC:=BUFFER SIZE
000074	271500	000001	02120		HRRZ BUFPNT,JOBFF(PROG);BUFPNT:=FIRST FREE LOCATION + 1
000075	550540	000012	02130		ADDI BUFPNT,1
000076	505500	000007	02140		HRRZ BUFWRD,BUFPNT
000077	504540	000001	02150		HRLI BUFPNT,PROG
000100	271040	000002	02160		HRL BUFWRD,TAC; BUFWRD:=BUFFER SIZE,FIRST FREE LOC + 1
000101	550100	000014	02170		ADDI TAC,2; TAC:=BUFFER SIZE + 2
000102	270540	000001	02180	BUFC1:	HRRZ TAC1,UUO; TAC1:=N=ADDRESS FIELD OF AC UUO
			02190		ADD BUFWRD,TAC; BUFWRD:=C(BUFWRD) + C(TAC)
000103	260140	000010'			ADCHK BUFPNT; CHECK BUFFER FOR MEMORY BOUND
000104	550040	000012		PUSHJ PDP,ADRCK	
000105	202560	000012	02200		HRRZ TAC,BUFPNT
000106	540500	000013	02210		MOVEM BUFWRD,@BUFPNT; BUFFER HEADER+1:=C(BUFWRD)
000107	367100	000102'	02220		HRR BUFPNT,BUFWRD; BUFPNT 18-35:=C(BUFWRD 18-35)
000110	540547	000073'	02230		SOJG TAC1,BUFC1; N:=N-1. IS N>0?
000111	271540	000001	02240		HRR BUFWRD,JOBFF(PROG)
000112	260140	000103'	02250		ADDI BUFWRD,1
000113	551052	777776	02260		PUSHJ PDP,ADRCK ;CHECK LAST ADR. OF HEADER
000114	274500	000001	02270		HRRZI TAC,-2(BUFPNT)
000115	202560	000012	02280		SUB BUFPNT,TAC
000116	270500	000001	02290		MOVEM BUFWRD,@BUFPNT;LINK LAST BUFFER TO FIRST BUFFER
000117	542507	000110'	02300		ADD BUFPNT,TAC
000120	540500	000013	02310		HRRM BUFPNT,JOBFF(PROG);JOBFF:=C(JOBFF)+1+N(BUFFER SIZE+2)
			02320		HRR BUFPNT,BUFWRD; BUFPNT:=IOUSE,ADDRESS OF FIRST BUFFER
000121	505500	400000	02330		IN RING.
000122	262140	000013	02340		HRLI BUFPNT,IOUSE
000123	263140	000000	02350		POP PDP,BUFWRD; RESTORE BUFWRD FROM STACK.
					POPJ PDP,; RETURN

		02360		
		02370	,DEC 06 00 EX COM L PT PRE 01 BUFCLR	
		02380	,H. R. MORSE	64-12-26
		02390	,CALLING SEQUENCE	
		02400	, PUSHJ PDP,BUFCLR	
		02410	, EXIT	RETURNS HERE IF MEMORY NOT EXCEEDED
		02420	, CLEARS THE WORD COUNT AND DATA AREA OF THE BUFFER WHOSE ADDRESS	
		02430	, IS IN TAC 18-35.	
		02440	,MONITOR INTERFACE	
		02450	, STORAGE: 13	
		02460	, ROUTINES CALLED:	ADRCK
		02470	, SYMBOLS SET/USED:	
		02480	, ACCUMULATORS:	PDP U TAC S/U
		02490	, PROG U TAC1 S/U	
		02500	INTERN BUFCLR	
000124	505040 000007	02510	BUFCLR: HRLI TAC,PROG	
		02520	ADRCHK TAC;	PROCEED IF CURRENT BUFFER ADDRESS
000125	260140 000112'	PUSHJ	PDP,ADRCK	
000126	550040 000001		HRRZ TAC,TAC	
		02530	,	< PROTECTION ADDRESS.
000127	554120 000001	02540	HLRZ TAC1,@TAC;	TAC1 18-35=SIZE
000130	620100 400000	02550	TRZ TAC1,400000	
000131	270100 000001	02560	ADD TAC1,TAC;	TAC1:=CURRENT BUFFER ADDRESS + SIZE
		02570	ADRCHK TAC1;	PROCEED IF CURRENT BUFFER ADDRESS
000132	260140 000125'	PUSHJ	PDP,ADRCK	
000133	550040 000002		HRRZ TAC,TAC1	
		02580	,	+ SIZE < PROTECTION ADDRESS.
000134	201060 000001	02590	MOVEI TAC,@TAC;	TAC:=CURRENT BUFFER ADDRESS+1,
		02600	,	CURRENT BUFFER ADDRESS+1
000135	504040 000001	02610	HRL TAC,TAC	
000136	253040 000137'	02620	A0BJN TAC,.,+1	
000137	402001 000000	02630	CLEARM 0(TAC);	WORD COUNT:=0
000140	350000 000001	02640	AOS TAC	TAC:=CURRENT BUFFER ADDRESS+1,
		02650	,	CURRENT BUFFER ADDRESS+2
000141	251060 000002	02660	BLT TAC,@TAC1;	CLEAR BUFFER
000142	263140 000000	02670	POPJ PDP,;	RETURN

02680

```

02700
02710 ,CALLING SEQUENCE
02720 ,      PUSHJ PDP,CKS12
02730 ,      EXIT                                ALWAYS RETURNS HERE
02740 ,CALCULATES FOLDED 12 BIT CHECKSUMS OF THE DATA WORDS IN THE
02750 ,BUFFER WHOSE ADDRESS IS IN AC TAC1. TWO ALGORITHMS ARE USED.
02760 ,ON RETURN, THE LEFT HALF OF AC TAC CONTAINS A CHECKSUM OBTAINED
02770 ,BY ACCUMULATING, IN ONES COMPLEMENT, THE DATA WORDS AND FOLDING IT.
02780 ,THE LEFT HALF OF AC DAT CONTAINS A CHECKSUM OBTAINED BY ACCUMULATING
02790 ,IN TWOS COMPLEMENT, THE DATA WORDS AND FOLDING IT. AC TAC1
02800 ,CONTAINS A 1.
02810 ,MONITOR INTERFACE
02820 ,      STORAGE: 20
02830 ,      ROUTINES CALLED: FOLD
02840 ,      SYMBOLS SET/USED:
02850 ,      ACCUMULATORS:  DAT  S/U          SUB  S
02860 ,                      PDP  U           TAC  S/U
02870 ,                      PROG U           TAC1 S/U

```

			02880
			02890
000143	270100	000007	02900
000144	350000	000002	02910
000145	550042	000000	02920
000146	213000	000001	02930
000147	350000	000002	02940
000150	504100	000001	02950
000151	402000	000001	02960
000152	270042	000000	02970
000153	253100	000152	02980
000154	246040	777750	02990
000155	242100	777764	03000
000156	270040	000002	03010
000157	246040	777764	03020
000160	242100	777750	03030
000161	270040	000002	03040
000162	622040	770000	03050
000163	350000	000001	03060
000164	517000	000001	03070
000165	201100	000001	03080
000166	263140	000000	03090

	INTERN CKS12	
CKS12:	ADD TAC1,PROG;	TAC1:=-WORD COUNT,ADDRESS OF FIRST DATA
	AOS TAC1	
	HRRZ TAC,0(TAC1)	
	MOVNS TAC	
	AOS TAC1	
	HRL TAC1,TAC	
	CLEAR TAC;	INITIALIZE TWOS COMPLEMENT SUM
CKS12A:	ADD TAC,0(TAC1);	TWOS COMPLEMENT ADD
	AOBJN TAC1,CKS12A;	DONE?
FOLD:	LSHC TAC,-30	
	LSH TAC1,-14	
	ADD TAC,TAC1	
	LSHC TAC,-14	
	LSH TAC1,-30	
	ADD TAC,TAC1	
	TRZE TAC,770000	
	AOS TAC	
	HRLZS TAC	
	MOVEI TAC1,1	;TAC1:=1
	POPJ PDP,	

		03100	
		03110	,DEC 06 00 EX COM L PT PRE 01 CLRBYT
		03120	,H. R. MORSE 64-12-26
		03130	,CALLING SEQUENCE
		03140	, PUSHJ PDP,CLRBYT
		03150	, EXIT ALWAYS RETURNS HERE
		03160	,CALLED WITH A BYTE POINTER IN AC TAC, IT CLEARS THE REST OF THE
		03170	,WORD POINTED TO BY THE BYTE POINTER.
		03180	,MONITOR INTERFACE
		03190	, STORAGE: 7
		03200	, SYMBOLS SET/USED:
		03210	, ACCUMULATORS: PDP U
		03220	, TAC U
		03230	, TAC1 S/U
		03240	INTERN CLRBYT
000167	135100 000373'	03250	CLRBYT: LDB TAC1,[POINT 6,TAC,5]; TAC1:=P
000170	137100 000374'	03260	DPB TAC1,[POINT 12,TAC,11]; TAC 0-5:=0,TAC 6-12:=P
000171	402000 000002	03270	SETZM TAC1
000172	137100 000001	03280	DPB TAC1,TAC; CLEAR BITS 36-P THROUGH 35
000173	263140 000000	03290	POPJ PDP,; RETURN

		03300	
		03310	;ROUTINE TO RELEASE ALL DEVICES ASSIGNED TO JOB
		03320	
		03330	INTERNAL IORELS
		03340	EXTERNAL PUUOAC,RELEA3
		03350	
		03360	
000174	201040 000000	03370	IORELS: MOVEI TAC,RELEA3 ;RELEASE ALL IO DEVICES(DONT CLOSE)
		03380	
		03390	;ROUTINE TO DO IO FOR ALL DEVICES ASSIGNED TO JOB
		03400	;CALL MOVEI TAC,ADR. OF IO SUB.
		03410	; PUSHJ PDP,IOALL
		03420	
		03430	INTERNAL IOALL
		03440	
000175	261140 000001	03450	IOALL: PUSH PDP,TAC ;SAVE ADR. FO SUB.
000176	515240 777760	03460	HRLZI DAT, -20
000177	200305 000000	03470	IOALL1: MOVE DEVDAT, USRJDA(DAT)
000200	200006 000002	03480	MOVE IOS,DEVIOS(DEVDAT)
000201	201600 000000	03490	MOVEI UUO,0
000202	137240 000000	03500	DPB DAT,PUUOAC
000203	332000 000006	03510	SKIPE DEVDAT
000204	260163 000000	03520	PUSHJ PDP,@(PDP) ;CALL THE SUB.
000205	253240 000177	03530	A0BJN DAT, IOALL1
000206	262140 000001	03540	POP PDP,TAC
000207	263140 000000	03550	POPJ PDP,
		03560	
		03570	;KILL ALL DEVICES(RELEASE WITHOUT WAITING FOR DEVICE INACTIVE)
		03580	
		03590	INTERNAL IOKILL
		03600	EXTERNAL RELEA5
		03610	
000210	201040 000000	03620	IOKILL: MOVEI TAC,RELEA5
000211	254000 000175	03630	JRST IOALL

```

03640
03650 ,DEC 06 00 EX COM L PT PRE 01 IOSET
03660 ,H. R. MORSE 64-12-26
03670 ,CALLING SEQUENCE
03680 , PUSHJ PDP,IOSET
03690 , EXIT ALWAYS RETURNS HERE
03700 ,THIS PROGRAM IS CALLED FROM AN INTERRUPT SERVICE ROUTINE.
03710 ,IT PUTS THE ADDRESS OF THE DATA AREA OF THE JOB (C(JBTADR18-35))
03720 ,CONNECTED TO THE DEVICE SPECIFIED BY AC DEVDAT IN AC PROG AND
03730 ,PUTS THE ITEM POINTER (C(DEVCTR)) IN AC ITEM.
03740 ,MONITOR INTERFACE
03750 , STORAGE: 5
03760 , SYMBOLS SET/USED:
03770 , ACCUMULATORS: DEVDAT U PDP U
03780 , ITEM S PROG S/U
03790 , DEVICE DATA BLOCK: DEVCHR U
03800 , DEVCTR U
03810 , SYSTEM ADDRESSES: JBTADR U
03820 INTERN IOSET
03830
000212 135340 000050' 03840 IOSET: LDB PROG,PJOBN
000213 200206 000011 03850 MOVE ITEM,DEVCTR(DEVDAT); ITEM:=ITEM POINTER=C(DEVCTR)
000214 550347 000000 03860 HRRZ PROG,JBTADR(PROG); PROG:=C(JBTADR 18-35)
000215 263140 000000 03870 POPJ PDP,; RETURN

```



```

03880
03890 ,6-CSS-DEC-IOSETC-PL-PRE1
03900 ,H.R. MORSE 17-11-64
03910
03920 ,CALLING SEQUENCE
03930 , PUSHJ PDP,IOSETC
03940 , EXIT ALWAYS RETURNS HERE
03950
03960 ,SETS JBFPTR18-35:=C(TAC1 18-35)
03970 , JBFCTR:=C(ITEM)*[WORD LENGTH/BYTE SIZE]
03980 ,WHERE WORD LENGTH:=36 DECIMAL
03990 , BYTE SIZE:=C(JBFPTR6-11)
04000 , [X]:= INTEGER PART OF X
04010
04020 ,MONITOR INTERFACE
04030 , STORAGE: 11
04040 , ROUTINES CALLED: ITMCT1
04050 , SYMBOLS SET/USED:
04060 , ACCUMULATORS: JBUF S/U TAC S/U
04070 , ITEM S/U TAC1 S/U
04080 , PDP U
04090
04100 INTERN IOSETC
04110
04120
000216 271240 000001 04130 IOSETC: ADDI JBUF,1 ;JBFPTR12-18:=0
000217 515040 007777 04140 HRLZI TAC,7777 ;JBFPTR18-35:=C(TAC1 18-35)+1
000220 406060 000005 04150 ANDM TAC,@JBUF
000221 542120 000005 04160 HRRM TAC1,@JBUF
000222 350020 000005 04170 AOS @JBUF
000223 135100 000375' 04180 LDB TAC1,[POINT 6,@JBUF,11] ;TAC1:=BYTE SIZE
000224 260140 000233' 04190 PUSHJ PDP,ITMCT1 ;JBFCTR:=C(ITEM)*[36/BYTE SIZE]
000225 271240 000001 04200 ADDI JBUF,1
000226 202220 000005 04210 MOVEM ITEM,@JBUF
000227 263140 000000 04220 POPJ PDP, ;EXIT

```

```

04230
04240 ,DEC 06 00 EX COM L PT PRE 01 ITMSET, ITMCNT, ITMCT1
04250 ,H.R. MORSE 64-12-26
04260
04270 ,CALLING SEQUENCE
04280 ,      PUSHJ PDP,ITMSET
04290 ,      EXIT                      ALWAYS RETURNS HERE
04300 ,SETS AC ITEM:=(BUFFER SIZE-1)*[WORD LENGTH/BYTE SIZE]
04310 ,WHERE BUFFER SIZE:=BITS 1-17 OF THE BUFFER HEADER WORD POINTED TO
04320 ,      BY C(DEVADR)
04330 ,      WORD LENGTH:=36 DECIMAL
04340 ,      BYTE SIZE:=INTEGER PART OF X.
04350
04360 ,CALLING SEQUENCE
04370 ,      PUSHJ PDP,ITMCNT
04380 ,      EXIT                      ALWAYS RETURNS HERE
04390 ,SETS AC ITEM:=C(ITEM)*[WORD LENGHT/BYTE SIZE]
04400
04410 ,CALLING SEQUENCE
04420 ,      PUSHJ PDP,ITMCT1
04430 ,      EXIT                      ALWAYS RETURNS HERE
04440 ,SETS AC ITEM:=C(ITEM)*[WORD LENGHT/C(TAC1)]
04450
04460 ,MONITOR INTERFACE
04470 ,      STORAGE: 7
04480 ,      SYMBOLS SET/USED:
04490 ,      ACCUMULATORS:  DEVDAT U  TAC S/U
04500 ,                      ITEM S/U  TAC1 S/U
04510 ,                      PDP U
04520 ,      DEVICE DATA BLOCK:  DEVADR U
04530 ,                      DEVPTR U

```

			04540
			04550
000230	135200	000376'	04560
000231	275200	000001	04570
000232	135100	000377'	04580
000233	201040	000044	04590
000234	230040	000002	04600
000235	220200	000001	04610
000236	263140	000000	04620

```

INTERN ITMSET,ITMCNT,ITMCT1
ITMSET:  LDB ITEM,[POINT 17,@DEVADR(DEVDAT),17];ITEM:=BUFFER SIZE-1
          SUBI ITEM,1
ITMCNT:  LDB TAC1,[POINT 6,DEVPTR(DEVDAT),11];TAC1:=BYTE SIZE
ITMCT1:  MOVEI TAC,44          ;ITEM:=C(ITEM)*[WORD LENGTH/C(TAC1)]
          IDIV TAC,TAC1
          IMUL ITEM,TAC
          POPJ PDP,

```

		04630	
		04640	;ROUTINE TO SET DEVICE STATUS WORD FROM UUO
		04650	
		04660	INTERNAL SETIOS
		04670	EXTERNAL ILLMOD
		04680	
000237	135100 000400'	04690	SETIOS: LDB TAC1,[POINT 4,UUO,35] ;GET DEVICE DATA MODE
000240	201040 000001	04700	MOVEI TAC,1 ;AND CHECK FOR LEGALITY
000241	242042 000000	04710	LSH TAC,(TAC1)
000242	616046 000004	04720	TDNN TAC,DEVMOD(DEVDAT)
000243	254000 000000	04730	JRST ILLMOD ;ILLEGAL MODE
000244	620600 010000	04740	TRZ UUO,IOACT ;LET USER SET ALL BITS EXCEPT IOACT
000245	542606 000002	04750	HRRM UUO,DEVIOS(DEVDAT)
000246	263140 000000	04760	POPJ PDP,

```

04770
04780 ,DEC 06 00 EX COM L PT PRE 01 NEWBUF, BPNSET
04790 ,H. R. MORSE 64-12-26
04800 ,CALLING SEQUENCE
04810 , PUSHJ PDP,NEWBUF
04820 , EXIT ALWAYS RETURNS HERE
04830 ,CLEARS THE BUFFER CURRENTLY POINTED TO BY THE INPUT BUFFER
04840 ,ADDRESS (DEVDR) OF THE CURRENT DEVICE. SETS UP THE BYTE
04850 ,POINTER (DEVPTR), AND THE ITEM COUNT (DEVCTR) AND RETURNS.
04860 ,CALLING SEQUENCE
04870 , PUSHJ PDP,BPNSET
04880 , EXIT ALWAYS RETURNS HERE
04890 ,SETS UP THE BYTE POINTER (DEVPTR) AND THE ITEM COUNT (DEVCTR)
04900 ,OF THE CURRENT DEVICE AND RETURNS.
04910 ,MONITOR INTERFACE
04920 , STORAGE: 10
04930 , ROUTINES CALLED: BUFCLR, ITMSET
04940 , SYMBOLS SET/USED:
04950 , ACCUMULATORS: DEVDAT U PDP U
04960 , ITEM U TAC S/U
04970 , DEVICE DATA BLOCK: DEVADR U
04980 , DEVCTR S
04990 , DEVPTR S/U

```

			05000
			05010
			05020
000247	550046	000007	05030
000250	260140	000124	05040
000251	540046	000007	05050
000252	515040	007737	05060
000253	404046	000010	05070
000254	540046	000007	05080
000255	350000	000001	05090
000256	202046	000010	05100
000257	260140	000230	05110
000260	202206	000011	05120
000261	263140	000000	05130

```

INTERN BPNSET,NEWBUF

NEWBUF:  HRRZ TAC,DEVADR(DEVDAT); TAC:=INPUT BUFFER HEADER ADDRESS
        PUSHJ PDP,BUFCLR;  CLEAR INPUT BUFFER.

BPNSET:  HRR TAC,DEVADR(DEVDAT)
        HRLZI TAC,7737
        AND TAC,DEVPTR(DEVDAT); DEVPTR 0-5:=0, DEVPTR 12:=0
        HRR TAC,DEVADR(DEVDAT); DEVPTR 18-35:=C(DEVADR 18-35) + 1
        AOS TAC
        MOVEM TAC,DEVPTR(DEVDAT)
        PUSHJ PDP,ITMSET;  ITEM:=(BUFFER SIZE-1)*[36/BYTE SIZE]
        MOVEM ITEM,DEVCTR(DEVDAT); DEVCTR:=ITEM COUNT
        POPJ PDP,;  RETURN

```

05140				
05150				,DEC 06 00 EX COM L PT PRE 02 SETBYT
05160				,H. R. MORSE 64-12-26
05170				,CALLING SEQUENCE
05180				, PUSHJ PDP,SETBYT
05190				, EXIT ALWAYS RETURNS HERE
05200				,SETS TAC 0-5:=0
05210				, TAC 6-11:=S
05220				, TAC 12-13:=0
05230				, TAC 14-17:=PROG
05240				,WHERE S=36 IF DATA MODE (IOS 32-25) IS BINARY (B)
05250				, S=8 IF DATA MODE IS IMAGE (I)
05260				, S=7 IF DATA MODE IS ASCII PACKED (A)
05270				, ASCII LINE (AL)
05280				, ASCII SEQUENCED (AS)
05290				, ASCII SEQUENCED LINE (ASL)
05300				, OR ALTERNATE MODE BREAK (AM)
05310				,MONITOR INTERFACE
05320				, STORAGE: 12
05330				, SYMBOLS SET/USED:
05340				, ACCUMULATORS: PROG U TAC S
05350				, PDP U TAC1 S/U
05360				, DEVICE DATA BLOCK: DEVIOS U
05370				INTERN SETBYT
000262	200106	000002	05380	SETBYT: MOVE TAC1,DEVIOS(DEVDAT); FETCH DATA MODE, BITS 32-35 0
000263	405100	000017	05390	ANDI TAC1,17
000264	302100	000013	05400	CAIE TAC1,IB ;DATA MODE IMAGE BINARY?
000265	306100	000014	05410	CAIN TAC1,B; IS DATA MODE=BINARY?
000266	505040	004407	05420	HRLI TAC,4400+PROG; SET BYTE SIZE TO 36.
000267	306100	000010	05430	CAIN TAC1,I; IS DATA MODE=IMAGE?
000270	254000	000275	05440	JRST SETBY1
000271	602100	000014	05450	TRNE TAC1,14; IS DATA MODE=ASCII PACKED,ASCII LINE,
000272	254000	000274	05460	JRST .+2; ASCII SEQUENCED,OR ASCII SEQUENCED LINE
000273	505040	000707	05470	HRLI TAC,700+PROG; SET BYTE SIZE TO 7.
000274	263140	000000	05480	POPJ PDP,; RETURN
			05490	
000275	510046	000004	05500	SETBY1: HLLZ TAC,DEVMOD(DEVDAT)
000276	621040	770077	05510	TLZ TAC,770077
000277	661040	000007	05520	TLO TAC,PROG
000300	263140	000000	05530	POPJ PDP,

```

05540
05550 ,DEC 06 00 EX COM L PT PRE 01 STORE ITEM
05560 ,H.R. MORSE 64-12-26
05570 ,CALLING SEQUENCE
05580 , PUSHJ PDP,STODAT
05590 , EXIT1 CHECKSUM ERROR
05600 , EXIT2 BLOCK FULL OR BLOCK COMPLETE
05610 , EXIT3 DATA STORED CORRECTLY
05620 ,CALLED FROM AN INPUT SERVICE ROUTINE WITH A DATA ITEM IN AC DAT.
05630 ,STORES THE DATA ITEM IN THE BUFFER, CHECKING TO SEE IF IT WERE
05640 ,THE FIRST ITEM ON THE BUFFER AND SETTING UP THE POINTER AND
05650 ,WORD COUNT APPROPRIATELY CHECKING THE MODE TO SEE IF ANY SPECIAL
05660 ,PROCESSING NEED BE DONE. FOR EXAMPLE, GENERATION OF SEQUENCE
05670 ,NUMBERS PRECEDING EACH LINE IN SEQUENCE MODE, OR THE TERMINATION
05680 ,OF A BUFFER ON CERTAIN CHARACTERS IN OTHER MODES, OR IF THE BUFFER
05690 ,IS FULL. THERE ARE THREE RETURNS FROM THIS ROUTINE: THE FIRST
05700 ,RETURN OCCURS ON AN ERROR CONDITION, THE SECOND RETURN OCCURS
05710 ,ON A BLOCK FULL CONDITION OR BLOCK COMPLETE CONDITION, THE THIRD
05720 ,RETURN OCCURS ON THE DATA STORED CORRECTLY CONDITION. THIS
05730 ,ROUTINE ALSO DOES SOME CHECKING ON INPUT OF BINARY RECORD,
05740 ,PAPER TAPE OR CARDS.
05750 ,CALLING SEQUENCE
05760 , PUSHJ PDP,STOSQD
05770 , XXXX ALWAYS SKIPS
05780 , EXIT ALWAYS RETURNS HERE
05790 ,STORES THE WORD COUNT:=C(DEVPTR 18-35) -C(DEVIAD 18-35) -- 1
05800 ,IN THE BUFFER.
05810 ,MONITOR INTERFACE
05820 , STORAGE: 69
05830 , ROUTINES CALLED: ASCIA, CKS12, ITMSET, NEWBUF
05840 , SYMBOLS SET/USED:
05850 , ACCUMULATORS: DAT U PDP U
05860 , DEVDAT U TAC S/U
05870 , IOS S/U TAC1 S/U
05880 , ITEM S/U
05890 , DEVICE DATA BLOCK: DEVCTR U DEVPTR S/
05900 , DEVIAD U DEVSEQ S/
05910 , IO STATUS WORD: A U I U
05920 , AS U IOBKTL S
05930 , ASL U IODTER S
05940 , B U IOFST S/
05950 , JOB BUFFER AREA: WORD COUNT S

```


			05960
			05970
			05980
000301	603000	000004	05990
			06000
000302	260140	000247	06010
			06020
000303	135100	000000	06030
000304	306100	000014	06040
000305	254000	000344	06050
000306	621000	000004	06060
000307	136246	000010	06070
000310	302100	000000	06080
000311	306100	000010	06090
000312	254000	000324	06100
000313	306100	000014	06110
000314	254000	000324	06120
000315	307240	000214	06130
000316	305240	000212	06140
000317	254000	000321	06150
000320	254000	000336	06160
000321	365200	000000	06170
000322	660000	040000	06180
000323	254000	000056	06190
000324	367200	000321	06200
000325	306100	000000	06210
000326	254000	000336	06220
000327	306100	000014	06230
000330	254000	000354	06240
000331	260140	000230	06250
			06260
000332	274206	000011	06270
000333	550106	000007	06280
000334	271200	000001	06290
000335	344100	000342	06300

```

INTERN STODAT, STOSQD

STODAT:  TLNE IOS, IOFST;      WILL THE NEXT ITEM BE THE FIRST ITEM
,          OF A BUFFER?
          PUSHJ PDP, NEWBUF;   SET UP A NEW BUFFER. ITEM:=(BUFFER
,          SIZE - 1)*[36/BYTE SIZE]

          LDB TAC1, PIOMOD;     TAC1:=DATA MODE
          CAIN TAC1, B;         MODE=BINARY?
          JRST STOBIN
          TLZ IOS, IOFST

STO1:     DPBI DAT, DEVPTR(DEVDAT); STORE DATA IN BUFFER.
          CAIE TAC1, A;         MODE=ASCII, IMAGE, OR BINARY?
          CAIN TAC1, I
          JRST STOAIB
          CAIN TAC1, B
          JRST STOAIB
          CAIG DAT, 214         ;LINE FEED, FORM FEED, OR VERTICAL TAB?
          CAIGE DAT, 212
          JRST .+2 ;NO
          JRST STOSQD          ;YES
          SOJGE ITEM, CPOPJ2;   ITEM:=C(ITEM)-1. IS C(ITEM)>0?
          TRO IOS, IOBKTL      ;IOBKTL:=1
          JRST CPOPJ

STOAIB:   SOJG ITEM, CPOPJ2;    ITEM:=C(ITEM)-1. IS C(ITEM)>0?
          CAIN TAC1, A;         MODE=ASCII?
          JRST STOSQD
          CAIN TAC1, B;         MODE=BINARY?
          JRST STOBND

STOI:     PUSHJ PDP, ITMSET;    ITEM:=(BUFFER SIZE-1)*[36/BYTE SIZE]
,          - C(DEVCTR)

          SUB ITEM, DEVCTR(DEVDAT)
          HRRZ TAC1, DEVIAD(DEVDAT) ;STORE ITEM COUNT INSTEAD OF
          ADDI ITEM, 1          ;IN FIRST WORD OF BUFFER
          AOJA TAC1, STOSQE

```

*STOSQD: TLZE IOS, IOFST
PUSHJ PDP, NEWBUF*

000336	200106	000007	06310
000337	350000	000002	06320
000340	550206	000010	06330
			06340
			06350
000341	274200	000002	06360
000342	542220	000002	06370
000343	254000	000065'	06380
000344	627000	000004	06390
000345	254000	000307'	06400
000346	550040	000005	06410
000347	313040	000004	06420
000350	254000	000322'	06430
000351	200200	000001	06440
000352	202266	000010	06450
000353	254000	000324'	06460
000354	550106	000007	06470
000355	260140	000143'	06480
000356	270106	000007	06490
000357	510120	000002	06500
000360	316040	000002	06510
000361	254000	000343'	06520
000362	660000	100000	06530
000363	254000	000323'	06540
			06550

```

STOSQ:  MOVE TAC1,DEVIAD(DEVDAT); TAC1:=ADDRESS OF WORD COUNT
        AOS TAC1
        HRRZ ITEM,DEVPTR(DEVDAT); ITEM:=C(DEVPTR 18-35) --
        C(DEVIAD 18-35) -1
        ,
STOSQE:  SUB ITEM,TAC1
        HRRM ITEM,@TAC1      ;WORD COUNT TO FIRST WORD IN BUFFER
        JRST CPOPJ1;         EXIT2. BLOCK COMPLETE
STOBIN:  TLZN IOS,IOFST;     WILL THE NEXT ITEM BE THE FIRST ITEM
        JRST ST01;          OF A BUFFER? IOFST:=0
        HRRZ TAC,DAT
        CAMLE TAC,ITEM;      IS WORD COUNT <OR= (BUFFER SIZE-1)*
        JRST ST0E1;          [36/BYTE SIZE]?
        MOVE ITEM,TAC;       ITEM:=WORD COUNT
        MOVEM DAT,@DEVPTR(DEVDAT); STORE WORD COUNT IN BUFFER
        JRST CPOPJ2;         EXIT3. DATA STORED CORRECTLY.
STOBND:  HRRZ TAC1,DEVIAD(DEVDAT)
        PUSHJ PDP,CKS12;     COMPUTE CHECKSUM
        ADD TAC1, DEVIAD(DEVDAT)
        HLLZ TAC1,@TAC1;    DATA CHECKSUM=COMPUTED CHECKSUM?
        CAMN TAC,TAC1
        JRST CPOPJ1;         EXIT2. BLOCK COMPLETE
        TRO IOS,IODTER;     IODTER:=1
        JRST CPOPJ;         EXIT1. CHECKSUM ERROR

```

		06560		
		06570	,DEC 06 00 EX COM L PT PRE 01 UINTQ	
		06580	,H.R. MORSE 64-12-26	
		06590	,CALLING SEQUENCE	
		06600	, PUSHJ PDP, UINTQ	
		06610	, EXIT ALWAYS RETURNS HERE	
		06620	,TAC:=CONTENTS OF WORD FOLLOWING UUO CALL	
		06630	,FROM USERS AREA.	
		06640	,MONITOR INTERFACE	
		06650	, STORAGE: 4	
		06660	, SYMBOLS SET/USED:	
		06670	, ACCUMULATORS: PDP U TAC S/U	
		06680	, PROG U	
		06690	INTERN UINTQ	
000364	200043 777777	06700	UINTQ: MOVE TAC, -1(PDP)	;TAC:=ADDRESS FOLLOWING UUO C
000365	505040 000007	06710	HRLI TAC, PROG	;RELOCATE ADDRESS
000366	200060 000001	06720	MOVE TAC, @TAC	;TAC:=CONTENTS OF WORD FOLLOW
		06730		;UUO CALL FROM USERS AREA
000367	263140 000000	06740	POPJ PDP,	;RETURN
		06750		
000370	576062 000000	06760	END,	
000371	637163 000000			
000372	001406 000001			
000373	360600 000001			
000374	301400 000001			
000375	300620 000005			
000376	222126 000007			
000377	300606 000010			
000400	000400 000014			

THERE ARE NO ERRORS

PROGRAM BREAK IS 000401

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRCK	000132'	EXT
ADVBFE	000000'	INT
ADVBFF	000010'	INT
AL	000001	INT
ASSAS1	000035'	
ASSAS2	000036'	
ASSASG	000023'	INT
ASSCON	400000	INT
ASSIN	000020'	INT
ASSPRG	200000	INT
B	000014	INT
BPNSSET	000251'	INT
BUFC1	000102'	
BUFC1C	000071'	INT
BUFC1R	000124'	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CKS12	000143'	INT
CKS12A	000152'	
CLDS	000023'	EXT
CLEN	000037'	EXT
CLOSB	002000	INT
CLOSE1	000000	EXT
CLRBYT	000167'	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CPOPJ	000363'	EXT
CPOPJ1	000361'	EXT
CPOPJ2	000353'	EXT
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
DEV0	000053'	
DEVADR	000007	INT
DEVBUF	000006	INT
DEVCHR	000001	INT
DEVCTR	000011	INT
DEVDAT	000006	INT
DEVIAD	000007	INT
DEVIOS	000002	INT
DEVLG	000044'	INT
DEVLOG	000005	INT
DEVLP0	000046'	
DEVLP1	000064'	
DEVLST	000063'	EXT

DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVOPR	000060'	EXT
DEVPHY	000056'	INT
DEVPTR	000010	INT
DEVSER	000003	INT
DEVSRC	000041'	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
DVTY	000010	INT
ENTRB	020000	INT
ERROR	000000	EXT
FOLD	000154'	
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLMOD	000243'	EXT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOALL	000175'	INT
IOALL1	000177'	
IOREG	000002	INT
IORCTL	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
IOKILL	000210'	INT
IONRCK	000100	INT
IOREL	000100	INT
IORELS	000174'	INT
IORET	000020	INT

IOS	000000	INT
IOSET	000212'	INT
IOSETC	000216'	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
ITMCNT	000232'	INT
ITMCT1	000233'	INT
ITMSET	000230'	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBTADR	000214'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOB	000000	EXT
JORFF	000117'	EXT
LOOKB	040000	INT
MTW	010000	INT
NEWBUF	000247'	INT
OBUIB	100000	INT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOMOD	000303'	EXT
PJOB N	000212'	EXT
PROG	000007	INT
PUUOAC	000202'	EXT
RELEA1	000000	EXT
RELEA3	000174'	EXT
RELEA5	000210'	EXT
RUN	200000	INT
RUNABL	204000	INT
SCNOFF	000030'	EXT
SCNON	000036'	EXT
SETBY1	000275'	
SETBYT	000262'	INT
SETIOS	000237'	INT
ST01	000307'	
STOAIB	000324'	
STOBIN	000344'	
STOBND	000354'	
STODAT	000301'	INT
STOE1	000322'	
STOI	000331'	
STOSQD	000336'	INT
STOSQE	000342'	
SYSTAP	000062'	EXT
TAC	000001	INT

TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
UINTQ	000364'	INT
USRJDA	000177'	EXT
USRMOD	010000	INT
UUO	000014	INT
WAIT1	000000	EXT

END OF ASSEMBLY

00010

XLIST


```
01970
00010 ;SOME MACROS FOR DEFINING CONFIGURATION
00020
00030 DEFINE NAME (A)
00040 <DEFINE NAME1
00050 <CONFIG: ASCIZ /A/
00060 INTERNAL CONFIG
00070 >
00080 XP A,0
00090 SUBTTL A CONFIGURATION
00100 >
00110
00120 DEFINE DATE (A)
00130 <DEFINE DATE1
00140 <SYSDAT: ASCIZ /A/
00150 INTERNAL SYSDAT
00160 >>
00170
00180 DEFINE VERSION (A,B)
00190 <DEFINE VERS1
00200 <SYSDAT: XWD +D'A,+D'B
00210 XP SYSMOD,+D'A
00220 XP SYSVER,+D'B
00230 INTERNAL SYSDAT
00240 >>
00250
00260 DEFINE CUSPTAPE (A)
00270 <DEFINE CUSP1
00280 <SYSTAP: SIXBIT /A/
00290 INTERNAL SYSTAP
00300 >>
00310
00320 DEFINE ACPDL (J,CHJN,CHJPDN)
00330 < CH'J'N=CHJN
00340 CH'J'PDN=CHJPDN
00350 >
```

00360
00370

NAME <MINIMAL>

```

00380          DATE <8-16-65>
00390          VERSION 1,4
00400          CUSPTAPE DTA0
00410
00420      ;DEFINE THE IO PART OF THE SYSTEM
00430      ;THAT IS:
00440      ;          DEFINE INTERRUPT SERVICE ROUTINES TO BE USED
00450      ;          ASSIGN DEVICES TO PI CHANNELS
00460
00470      DEFINE SYSTEM
00480      <
00490          ASSOC APR,6,<>
00500          ASSOC CTY,3,<>
00510          ASSOC SCN,3,<TTY0,TTY1>
00520          ASSOC DTC,4,<DTA0>
00530      >
00540
00550
00560      DTSIZ=1      ;MULTIPLE DECTAPE DIRECTORIES
00570
00580      SCNLIN=1
00590
00600      ;DEFINE HIGHEST AC TO SAVE AND LENGTH OF PD LIST FOR EACH PI CHANNEL
00610
00620      ACPDL (1,0,0)
00630      ACPDL (2,0,0)
00640      ACPDL (3,11,20)
00650      ACPDL (4,11,20)
00660      ACPDL (5,0,0)
00670      ACPDL (6,17,20)
00680      ACPDL (7,0,0)
00020          NAME1
000000 466231 644632  CONFIG:  ASCIIZ /MINIMAL/
000001 406300 000000
000002 341326 133132  SYSDAT:  ASCIIZ /8-16-65/
000003 331520 000000
000004 000001 000004  SYSNUM:  XWD +D1,+D4
000050          CUSP1
000005 446441 200000  SYSTAP:  SIXBIT /DTA0/
00060
00070      ;CONFIGURATION INDEPENDANT PART OF IOINIT FOLLOWS:
00080
00090      EXTERNAL ERROR
00100
00110      ;SETUP CHANNEL SAVE AND RESTORE ROUTINES
00120
00130      CHANU1=0
00140      CHANU2=0
00150      CHANU3=0
00160      CHANU4=0
00170      CHANU5=0
00180      CHANU6=0
00190      CHANU7=0
00200
00210      DEFINE ASSOC(A,NO,D)

```

```

00220 <IFE CHANU'NO,<
00230 CHANU'NO=1
00240 INTERNAL CH'NO'SAV,CH'NO',CH'NO'XIT,CH'NO'SAC
00250
00260 CH'NO'SAV: 0
00270 MOVEM CH'NO'N, CH'NO'SAC+CH'NO'N
00280 MOVEI CH'NO'N, CH'NO'SAC
00290 BLT CH'NO'N,CH'NO'SAC+CH'NO'N-1 ;DO ONLY ONCE FOR EACH CHANNE
00300 MOVE PDP, CH'NO'CJ
00310 JRST @CH'NO'SAV
00320
00330
00340 CH'NO'SAC: REPEAT CH'NO'N+1,<EXP 0> ;SPACE TO SAVE SOME AC'S
00350 EXP CH'NO'XIT ;FIRST ENTRY IN PD LIST(CHAN. EXIT)
00360 REPEAT CH'NO'PDN-1,<EXP 0> ;REST OF PD LIST
00370
00380 CH'NO'XIT: MOVSI CH'NO'N, CH'NO'SAC
00390 BLT CH'NO'N, CH'NO'N
00400 JEN @CH'NO
00410
00420 CH'NO'CJ: XWD -CH'NO'PDN+1,CH'NO'SAC+CH'NO'N+1 ;INIT. SETTING OF P
00430
00440 CH'NO': 0 ;PC STORED HERE BY JSR
00450 JRST .+1 ;INSTR. AT END OF SERVICE CHAIN
00460 AOS CH'NO'ERR ;SPURIOUS INTERRUPT, ADD TO COUNT
00470 JEN @CH'NO ;AND DISMISS
00480 >
00490 >
00500 ;GENERATE THE SAVE AND RESTORE ROUTINES
00510
00520 SYSTEM

```

000042	000000	000000	EXP 0	
000043	000000	000000	EXP 0	
000044	000000	000000	EXP 0	
000045	000000	000000	EXP 0	
000046	000000	000000	EXP 0	
000047	000000	000000	EXP 0	
000050	000000	000000	EXP 0	
000051	000000	000000	EXP 0	
000052	000000	000000	EXP 0	
000053	000000	000000	EXP 0	;REST OF PD LIST
000054	205740	000014'	CH6XIT:	MOVSI CH6N, CH6SAC
000055	251740	000017		BLT CH6N, CH6N
000056	254520	000060'		JEN @CH6
000057	777761	000034'	CH6CJ:	XWD -CH6PDN+1,CH6SAC+CH6N+1 ;INIT. SETTING OF PD POINTER(PDP)
000060	000000	000000	CH6:	0 ;PC STORED HERE BY JSR
000061	254000	000062'		JRST .+1 ;INSTR. AT END OF SERVICE CHAIN
000062	350000	000317'		AOS CH6ERR ;SPURIOUS INTERRUPT, ADD TO COUNT
000063	254520	000060'		JEN @CH6 ;AND DISMISS
				ASSOC CTY,3,<>
000064	000000	000000	CH3SAV:	0
000065	202440	000103'		MOVEM CH3N, CH3SAC+CH3N
000066	201440	000072'		MOVEI CH3N, CH3SAC
000067	251440	000102'		BLT CH3N,CH3SAC+CH3N-1 ;DO ONLY ONCE FOR EACH CHANNEL
000070	200140	000127'		MOVE PDP, CH3CJ
000071	254020	000064'		JRST @CH3SAV
000072	000000	000000	EXP 0	
000073	000000	000000	EXP 0	
000074	000000	000000	EXP 0	
000075	000000	000000	EXP 0	
000076	000000	000000	EXP 0	
000077	000000	000000	EXP 0	
000100	000000	000000	EXP 0	
000101	000000	000000	EXP 0	
000102	000000	000000	EXP 0	
000103	000000	000000	EXP 0	;SPACE TO SAVE SOME ACS
000104	000000	000124'		EXP CH3XIT ;FIRST ENTRY IN PD LIST(CHAN. EXIT)
000105	000000	000000	EXP 0	
000106	000000	000000	EXP 0	
000107	000000	000000	EXP 0	
000110	000000	000000	EXP 0	
000111	000000	000000	EXP 0	
000112	000000	000000	EXP 0	
000113	000000	000000	EXP 0	
000114	000000	000000	EXP 0	
000115	000000	000000	EXP 0	
000116	000000	000000	EXP 0	
000117	000000	000000	EXP 0	
000120	000000	000000	EXP 0	
000121	000000	000000	EXP 0	
000122	000000	000000	EXP 0	
000123	000000	000000	EXP 0	;REST OF PD LIST
000124	205440	000072'	CH3XIT:	MOVSI CH3N, CH3SAC
000125	251440	000011		BLT CH3N, CH3N
000126	254520	000130'		JEN @CH3
000127	777761	000104'	CH3CJ:	XWD -CH3PDN+1,CH3SAC+CH3N+1 ;INIT. SETTING OF PD POINTER(PDP)
000130	000000	000000	CH3:	0 ;PC STORED HERE BY JSR
000131	254000	000132'		JRST .+1 ;INSTR. AT END OF SERVICE CHAIN
000132	350000	000314'		AOS CH3ERR ;SPURIOUS INTERRUPT, ADD TO COUNT
000133	254520	000130'		JEN @CH3 ;AND DISMISS
				ASSOC SCN,3,<TTY0,TTY1>

000134	000000	000000	CH4SAV:	ASSOC DTC,4,<DTA0>	
000135	202440	000153'		0	
000136	201440	000142'		MOVEM CH4N, CH4SAC+CH4N	
000137	251440	000152'		MOVEI CH4N, CH4SAC	
000140	200140	000177'		BLT CH4N,CH4SAC+CH4N-1	;DO ONLY ONCE FOR EACH CHANNEL
000141	254020	000134'		MOVE PDP, CH4CJ	
000142	000000	000000		JRST @CH4SAV	
000143	000000	000000	EXP 0		
000144	000000	000000	EXP 0		
000145	000000	000000	EXP 0		
000146	000000	000000	EXP 0		
000147	000000	000000	EXP 0		
000150	000000	000000	EXP 0		
000151	000000	000000	EXP 0		
000152	000000	000000	EXP 0		
000153	000000	000000	EXP 0	;SPACE TO SAVE SOME ACS	
000154	000000	000174'		EXP CH4XIT	;FIRST ENTRY IN PD LIST(CHAN. EXIT)
000155	000000	000000	EXP 0		
000156	000000	000000	EXP 0		
000157	000000	000000	EXP 0		
000160	000000	000000	EXP 0		
000161	000000	000000	EXP 0		
000162	000000	000000	EXP 0		
000163	000000	000000	EXP 0		
000164	000000	000000	EXP 0		
000165	000000	000000	EXP 0		
000166	000000	000000	EXP 0		
000167	000000	000000	EXP 0		
000170	000000	000000	EXP 0		
000171	000000	000000	EXP 0		
000172	000000	000000	EXP 0		
000173	000000	000000	EXP 0	;REST OF PD LIST	
000174	205440	000142'	CH4XIT:	MOVSI CH4N, CH4SAC	
000175	251440	000011		BLT CH4N, CH4N	
000176	254520	000200'		JEN @CH4	
000177	777761	000154'	CH4CJ:	XWD -CH4PDN+1,CH4SAC+CH4N+1	;INIT. SETTING OF PD POINTER(PDP)
000200	000000	000000	CH4:	0	;PC STORED HERE BY JSR
000201	254000	000202'		JRST .+1	;INSTR. AT END OF SERVICE CHAIN
000202	350000	000315'		AOS CH4ERR	;SPURIOUS INTERRUPT, ADD TO COUNT
000203	254520	000200'		JEN @CH4	;AND DISMISS
		00530			
		00540		;SET UP NULL CHANNEL ROUTINES FOR UNUSED CHANNELS	
		00550			
		00560		DEFINE NULCHN(J)	
		00570		<	
		00580		INTERNAL CH'J,CH'J'XIT	
		00590		CH'J: 0	
		00600		CH'J'XIT: AOS CH'J'ERR	
		00610		JEN @CH'J	
		00620		>	
		00630			
		00640		IFE CHANU1,<NULCHN(1)>	
		NULCHN(1)			
000204	000000	000000	CH1:	0	
000205	350000	000312'	CH1XIT:	AOS CH1ERR	
000206	254520	000204'		JEN @CH1	
		00650		IFE CHANU2,<NULCHN(2)>	
		NULCHN(2)			
000207	000000	000000	CH2:	0	

000210	350000	000313'	CH2XIT:	AOS CH2ERR	
000211	254520	000207'		JEN @CH2	
			00660		IFE CHANU3,<NULCHN(3)>
			00670		IFE CHANU4,<NULCHN(4)>
			00680		IFE CHANU5,<NULCHN(5)>
			NULCHN(5)		
000212	000000	000000	CH5:	0	
000213	350000	000316'	CH5XIT:	AOS CH5ERR	
000214	254520	000212'		JEN @CH5	
			00690		IFE CHANU6,<NULCHN(6)>
			00700		IFE CHANU7,<NULCHN(7)>
			NULCHN(7)		
000215	000000	000000	CH7:	0	
000216	350000	000320'	CH7XIT:	AOS CH7ERR	
000217	254520	000215'		JEN @CH7	
			00710		

```

00720
00730 ;ASSIGN DEVICE TO CHANNELS AND SETUP CORESPONDENCE TABLE
00740 ;OF CHANNELS TO SERVICE ROUTINES
00750
00760 DEFINE ASSOC (A,N,D)
00770 <      A'RET=CH'N'XIT
00780      A'SAV=CH'N'SAV
00790      A'SAC=CH'N'SAC
00800      A'CHL=CH'N
00810      A'CHN=N
00820      A'BIT=1
00830      REPEAT 7-N,<A'BIT=A'BIT*2>
00840      A'OFF=1000+A'BIT ;CONO PI, A'OFF WILL TURN CHANNEL OFF
00850      A'ON=2000+A'BIT  ;TURN BACK ON
00860      A'ACT=4000+A'BIT ;FORCE INTERRUPT ON CHAN.
00870      INTERN A'RET, A'SAV, A'CHL, A'CHN, A'SAC
00880      INTERNAL A'OFF,A'ON,A'ACT,A'BIT
00890      XWD A'CHL,A'INT
00900      EXTERNAL A'INT
00910 >
00920
00930 INTERNAL DEVINT
00940 DEVINT:  SYSTEM
          ASSOC APR,6,<>
          XWD APRCHL,APRINT
          ASSOC CTY,3,<>
          XWD CTYCHL,CTYINT
          ASSOC SCN,3,<TTY0,TTY1>
          XWD SCNCHL,SCNINT
          ASSOC DTC,4,<DTA0>
          XWD DTCCHL,DTCINT
00950 NDEV=-DEVINT ;NO. OF DEVICE INTERUPT SERVICE ROUTINES
00960 NDEVM1=NDEV-1 ;(USED BY ONCE)
00970 INTERNAL NDEVM1
00980
00990
000220 000060'000000
000221 000130'000000
000222 000130'000000
000223 000200'000000

```



```

01000
01010 ;INITIALIZE SOME IO DEVICES
01020 ;IOINI CALLED BY A PUSHJ PDP, FROM SYSINI AT SYSTEM INITIALIZATION
01030
01040 DEFINE IOINIT (A)
01050 <IRP A
01060 <      EXTERNAL A'INI
01070   PUSHJ PDP,A'INI
01080 >>
01090
01100 DEFINE ASSOC (A,B,C)
01110 <      IFIDN <A><MTC>,< IOINIT MTC>
01120   IFIDN <A><DTC>,< IOINIT DTC>
01130   IFIDN <A><LPT>,< IOINIT LPT>
01140   IFIDN <A><SCN>,< IOINIT SCN>
01150   IFIDN <A><PTP>,<IOINIT PTP>
01160   IFIDN <A><PTR>,<IOINIT PTR>
01170 >
01180
01190 INTERNAL IOINI
01200
01210 IOINI:      SYSTEM
ASSOC APR,6,<>
ASSOC CTY,3,<>
ASSOC SCN,3,<TTY0,TTY1>
PUSHJ PDP,SCNINI
ASSOC DTC,4,<DTA0>
PUSHJ PDP,DTCINI
01220           JRST CLKINI           ;ALWAYS INIT. CLOCK
01230
01240 EXTERNAL CLKINI

```

000224 260140 000000

000225 260140 000000

000226 254000 000000

		01250	
		01260	;CLOCK CONTROL PARAMETERS
		01270	
		01280	CLDS=4000+APRCHN ;CLOCK DISABLE
		01290	CLEN=2000+APRCHN ;CLOCK ENABLE
		01300	
		01310	INTERNAL CLDS,CLEN
		01320	
		01330	
		01340	;BYTE POINTERS
		01350	
000227	270400 000014	01360	PUUOAC: POINT 4,UUO,12 ;UUO AC FIELD
000230	000400 000000	01370	PIOMOD: POINT 4,IOS,35 ;MODE BITS
000231	331106 000001	01380	PJOBN: POINT 9,DEVCHR(DEVDAT),8 ;DEVICE JOB ASSIGNMENT
000232	220406 000001	01390	PJDCHN: POINT 4,DEVCHR(DEVDAT),17 ;JOB DEVICE CHANNEL NO.
000233	140606 000001	01400	PUNIT: POINT 6,DEVCHR(DEVDAT),23 ;DEVICE UNIT NO.
		01410	
		01420	INTERNAL PUUOAC,PIOMOD,PJOBN,PJDCHN,PUNIT
		01430	
		01440	;COMMON SUBROUTINE RETURNS
		01450	
000234	350003 000000	01460	CPOPJ2: AOS (PDP)
000235	350003 000000	01470	CPOPJ1: AOS (PDP)
000236	263140 000000	01480	CPOPJ: POPJ PDP,
		01490	
		01500	INTERNAL CPOPJ,CPOPJ1,CPOPJ2

```

01510
01520 ,SYSTEM DATA STORAGE
01530
01540
01550 INTERNAL JOB,JOBADR,JBTADR,JBTSTS,USRREL,USRINF,USRJDA
01560 INTERNAL USRPDP,JOB DAT,USRDDT,USRS AV,USRXT,USRLO,USRHI
01570 INTERNAL COMCNT,I OCOMP,USRPOV,STOPU,SCHEDF,TIME,JBTAD1
01580 INTERNAL MTAV AL,DCAVAL,DTAVAL,MTREQ,DCREQ,DTREQ,TTYTAB,CORTAB
01590 INTERNAL CH1ERR,CH2ERR,CH3ERR,CH4ERR,CH5ERR,CH6ERR,CH7ERR
01600 INTERNAL CORLST,CORTAB,CORTAL,SYSEND,SYSBEG,DEVOPR
01610
01620 JOBN=0 ;DEFINE NO. OF JOBS (0 THRU JOBN-1)
01630 ;THERE MUST BE MORE TTY DEVICE DATA BLOCKS THAN JOBS.
01640
01650 DEFINE ASSOC (A,N,D)
01660 <IRP D,<IFIDN <A><SCN>,<JOBN=JOBN+1>>>
01670 SYSTEM
ASSOC APR,6,<>
ASSOC CTY,3,<>
ASSOC SCN,3,<TTY0,TTY1>
ASSOC DTC,4,<DTA0>
01680 MJOBN=-JOBN
01690 INTERNAL JOBN,MJOBN
01700
01710
01720 SYSBEG: ;FIRST LOC IN SYSTEM DATA AREA
01730 XP SYSBG1,SYSBEG+1 ;FIRST LOC+1
01740 JOB: 0 ;CURRENT JOB NUMBER EXCEPT WHEN SCHEDF IS NON-ZERO
01750 JOBADR: 0 ;CONTAINS ADDRESS OF JOB CURRENTLY RUNNING
01760 JOB DAT: 0 ;CONTAINS ADDRESS OF JOB DATA AREA
01770
01780 JBTADR: BLOCK JOBN ;C(LH)=PROTECT, C(RH)=RELOCATION
01790 XP JBTAD1,JBTADR+1 ;ADDRESS OF JOB 1(USED BY SYSMK)
01800 JBTSTS: BLOCK JOBN ;CONTAINS STATUS INFORMATION FOR EACH J
01810
01820 USRPDP: 0 ;USER PUSH DOWN POINTER
01830 USRREL: 0 ;LH=0, RH CONTAINS CONTENTS OF PROTECTION REGISTE
01840 USRLO: ;FIRST LOC CLEARED BY SETUSR SUBROUTINE
01850 USRXT: 0 ;UNUSED, JOBXT USED TO SAVE UO PC(UU00)
01860 USRLEV: 0 ;UNUSED, JOBLEV USED TO SAVE LOC. 40
01870 USRS AV: 0 ;TEMPORARY STORAGE FOR UO HANDLER
01880 USRPOV: 0 ;PUSH DOWN OVERFLOW TRAP
01890 BLOCK 2
01900 USRINF: 0 ;UN LAYED OUT USER INFORMATION
01910 USRJDA: BLOCK 20 ;RH=JOB DEVICE ASSIGNMENTS FOR THIS USER,LH=UOUS
01920 XP USRHI,.-1 ;LAST LOC CLEARED BY SETUSR ROUTINE
01930 XP USRPFI,.-1 ;LAST LOC PROTECTED FROM IO SERVICE
01940 XP USRPFU,. ;LAST LOC PROTECTED FROM USER PROGRAM
01950 USRDDT: 0 ;STARTING ADDR OF USER DDT
01960
000237 000000 000000
000240 000000 000000
000241 000000 000000
000246 000000 000000
000247 000000 000000
000250 000000 000000
000251 000000 000000
000252 000000 000000
000253 000000 000000
000256 000000 000000
000277 000000 000000

```

		01970		
		01980		
000300	000000 000000	01990	;DEVICE JUST BECOME AVAILABLE FLAGS	
000301	000000 000000	02000	MTAVAL: 0	;MAGNETIC TAPE
000302	000000 000000	02010	DCAVAL: 0	;DATA CONTROL
		02020	DTAVAL: 0	;DECTAPE
		02030	;NUMBER OF JOBS WAITING FOR BUSY DEVICES(-1=NONE, 0=1 USING, 1=1 USIN	
000303	777777 777777	02040	MTREQ: -1	;MAGNETIC TAPE
000304	777777 777777	02050	DCREQ: -1	;DATA CONTROL
000305	777777 777777	02060	DTREQ: -1	;DECTAPE
000306	000000 000000	02070	IOCOMP: 0	;NUMBER OF USERS IN IO WAIT STATE
000307	000000 000000	02080	COMCNT: 0	;NUMBER OF COMMANDS TYPED-IN BUT NOT DECODED
000310	000000 000000	02090	STOPU: 0	;NON-ZERO WHEN CLOCK INTERRUPT FORCED TO STOP USE
000311	000000 000000	02100	SCHEDF: 0	;NON-ZERO WHEN CLOCK ROUTINE IS SCHEDULING
		02110		
000312	000000 000000	02120	CH1ERR: 0	;SPURIOUS INTERRUPT COUNTS FOR EACH CHANNEL
000313	000000 000000	02130	CH2ERR: 0	
000314	000000 000000	02140	CH3ERR: 0	
000315	000000 000000	02150	CH4ERR: 0	
000316	000000 000000	02160	CH5ERR: 0	
000317	000000 000000	02170	CH6ERR: 0	
000320	000000 000000	02180	CH7ERR: 0	
		02190		
		02200	USRL01=USRL0+1	
		02210	INTERNAL USRL01	

```

000321 000000 000000 02220
                                02230
                                02240
                                02250
                                02260
                                02270
                                02280
                                02290
                                02300
000324 000000 000000 02310
                                02320
                                02330
                                02340
                                02350
                                02360
000335 000000 000000 02370
000336 000000 000000 02380
                                02390
                                02400
                                02410
                                02420
                                02430
                                02440
000337 000000 000000 02450

```

```

TIME:      0                ;TIME SYSTEM HAS RUN IN 60THS OF A SECO

XP TTYLEN,SCNLIN+1 ;LENGTH OF TTY TRANSLATOR TABLE(INCLUDING CTY)
TTYTAB:    BLOCK TTYLEN    ;TTY TRANSLATOR TABLE
                                ;SIGN BIT = 1 IF COMMAND JUST TYPED
                                ;BITS 1 - 9, JOB CONSOLE IS ATTACHED TO
                                ;BITS 18-35, THE DEVICE DATA BLOCK FOR

DEVOPR:    0                ;SIXBIT PHYSICAL NAME OF OPERATORS
                                ;CONSOLE SET BY SCNSER TO FIRST ACTIVE TTY.

;LOCATIONS FOR CORE ALLOCATION
XP CORBLK,+D256    ;NO. OF 1K BLOCKS POSSIBLE
CORTAB:    BLOCK <CORBLK>/+D36+1    ;1K BLOCK USE BIT TABLE
                                ;A 1 MEANS BLOCK IS IN USE

CORLST:    0                ;1 BIT BYTE POINTER TO LAST FREE BLOCK POSSIBLE
CORTAL:    0                ;TOTAL NO. OF FREE CORE BLOCKS LEFT
;CORLST AND CORTAL ARE SET UP AT SYSTEM INITIALIZATION

SYSEND=.-1        ;LAST LOC. CLEARED BY SYSINI

INTERNAL SYSSIZ
EXTERNAL SYSFIN
SYSSIZ:    EXP SYSFIN        ;SIZE OF MONITOR(LAST LOC. USED)

```

IOINI1 - IO INITIALIZATION PART 1
MINIMAL CONFIGURATION

PAGE 11

02460
02470
02480

END.

THERE ARE NO ERRORS

PROGRAM BREAK IS 000340

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRACT	004002	INT
APRBIT	000002	INT
APRCHL	000060'	INT
APRCHN	000006	INT
APRINT	000220'	EXT
APROFF	001002	INT
APRON	002002	INT
APRRET	000054'	INT
APRSAC	000014'	INT
APRSAV	000006'	INT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CH1	000204'	INT
CH1ERR	000312'	INT
CH1N	000000	
CH1PDN	000000	
CH1XIT	000205'	INT
CH2	000207'	INT
CH2ERR	000313'	INT
CH2N	000000	
CH2PDN	000000	
CH2XIT	000210'	INT
CH3	000130'	INT
CH3CJ	000127'	
CH3ERR	000314'	INT
CH3N	000011	
CH3PDN	000020	
CH3SAC	000072'	INT
CH3SAV	000064'	INT
CH3XIT	000124'	INT
CH4	000200'	INT
CH4CJ	000177'	
CH4ERR	000315'	INT
CH4N	000011	
CH4PDN	000020	
CH4SAC	000142'	INT
CH4SAV	000134'	INT
CH4XIT	000174'	INT
CH5	000212'	INT
CH5ERR	000316'	INT
CH5N	000000	
CH5PDN	000000	
CH5XIT	000213'	INT
CH6	000060'	INT
CH6CJ	000057'	
CH6ERR	000317'	INT
CH6N	000017	

CH6PDN	000020	
CH6SAC	000014'	INT
CH6SAV	000006'	INT
CH6XIT	000054'	INT
CH7	000215'	INT
CH7ERR	000320'	INT
CH7N	000000	
CH7PDN	000000	
CH7XIT	000216'	INT
CHANU1	000000	
CHANU2	000000	
CHANU3	000001	
CHANU4	000001	
CHANU5	000000	
CHANU6	000001	
CHANU7	000000	
CLDS	004006	INT
CLFN	002006	INT
CLKINI	000226'	EXT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
COMCNT	000307'	INT
CONFIG	000000'	INT
CORBLK	000400	INT
CORLST	000335'	INT
CORTAB	000325'	INT
CORTAL	000336'	INT
CPOPJ	000236'	INT
CPOPJ1	000235'	INT
CPOPJ2	000234'	INT
CTYACT	004020	INT
CTYBIT	000020	INT
CTYCHL	000130'	INT
CTYCHN	000003	INT
CTYINT	000221'	EXT
CTYOFF	001020	INT
CTYON	002020	INT
CTYRET	000124'	INT
CTYSAC	000072'	INT
CTYSAV	000064'	INT
D	000017	INT
DAT	000005	INT
DCAVAL	000301'	INT
DCL	000001	INT
DCREQ	000304'	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
DEV DAT	000006	INT
DEVIAD	000007	INT
DEVINT	000220'	INT
DEVIOS	000002	INT
DEVLOG	000005	INT
DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVOPR	000324'	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
DTAVAL	000302'	INT
DTC ACT	004010	INT
DTCBIT	000010	INT
DTCCHL	000200'	INT
DTCCHN	000004	INT
DTCINI	000225'	EXT
DTCINT	000223'	EXT
DTCOFF	001010	INT
DTCON	002010	INT
DTCRET	000174'	INT
DTCSAC	000142'	INT
DTCSAV	000134'	INT
DTREQ	000305'	INT
DTsiz	000001	
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
DVTY	000010	INT
ENTRB	020000	INT
ERROR	000000	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	040000	INT

IOCOMP	000306'	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
IOINI	000224'	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTAD1	000243'	INT
JBTADR	000242'	INT
JBTSTS	000244'	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOB	000237'	INT
JORADR	000240'	INT
JORDAT	000241'	INT
JORN	000002	INT
LOOKB	040000	INT
MINIMA	000000	INT
MJOB	777777777776	INT
MTAVAL	000300'	INT
MTREQ	000303'	INT
MTW	010000	INT
NDEV	000004	
NDEVM1	000003	INT
OBUFF	100000	INT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOMOD	000230'	INT
PJDCHN	000232'	INT
PJOB	000231'	INT
PROG	000007	INT
PUNIT	000233'	INT
PUUOAC	000227'	INT
RUN	200000	INT

RUNABL	204000	INT
SCHEDF	000311'	INT
SCNACT	004020	INT
SCNBIT	000020	INT
SCNCHL	000130'	INT
SCNCHN	000003	INT
SCNINI	000224'	EXT
SCNINT	000222'	EXT
SCNLIN	000001	
SCNOFF	001020	INT
SCNON	002020	INT
SCNRET	000124'	INT
SCNSAC	000072'	INT
SCNSAV	000064'	INT
STOPU	000310'	INT
SYSBEG	000237'	INT
SYSBG1	000240'	INT
SYSDAT	000002'	INT
SYSEND	000336'	INT
SYSFIN	000337'	EXT
SYSMOD	000001	INT
SYSNUM	000004'	INT
SYSSIZ	000337'	INT
SYSTAP	000005'	INT
SYSVER	000004	INT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TIME	000321'	INT
TTYATC	020000	INT
TTYLEN	000002	INT
TTYTAB	000322'	INT
TTYUSE	010000	INT
USRDDT	000277'	INT
USRHI	000276'	INT
USRINF	000256'	INT
USRJDA	000257'	INT
USRLEV	000251'	
USRLO	000250'	INT
USRLO1	000251'	INT
USRMOD	010000	INT
USRPDP	000246'	INT
USRPFI	000276'	INT
USRPFU	000277'	INT
USRPOV	000253'	INT
USRREL	000247'	INT
USRSV	000252'	INT
USRXT	000250'	INT
UUO	000014	INT

END OF ASSEMBLY

00010

XLIST

```
01970
00010 ;SOME MACROS FOR DEFINING CONFIGURATION
00020
00030 DEFINE NAME (A)
00040 <DEFINE NAME1
00050 <CONFIG: ASCIZ /A/
00060 INTERNAL CONFIG
00070 >
00080 XP A,0
00090 SUBTTL A CONFIGURATION
00100 >
00110
00120 DEFINE DATE (A)
00130 <DEFINE DATE1
00140 <SYSDAT: ASCIZ /A/
00150 INTERNAL SYSDAT
00160 >>
00170
00180 DEFINE VERSION (A,B)
00190 <DEFINE VERS1
00200 <SYSNUM: XWD +D'A,+D'B
00210 XP SYSMOD,+D'A
00220 XP SYSVER,+D'B
00230 INTERNAL SYSNUM
00240 >>
00250
00260 DEFINE CUSPTAPE (A)
00270 <DEFINE CUSP1
00280 <SYSTAP: SIXBIT /A/
00290 INTERNAL SYSTAP
00300 >>
00310
00320 DEFINE ACPDL (J,CHJN,CHJPDN)
00330 < CH'J'N=CHJN
00340 CH'J'PDN=CHJPDN
00350 >
```

00360
00370

NAME <MINIMAL>

```

00380          DATE <8-16-65>
00390          VERSION 1,4
00400          CUSPTAPE DTA0
00410
00420      ;DEFINE THE IO PART OF THE SYSTEM
00430      ;THAT IS:
00440      ;          DEFINE INTERRUPT SERVICE ROUTINES TO BE USED
00450      ;          ASSIGN DEVICES TO PI CHANNELS
00460
00470      DEFINE SYSTEM
00480      <
00490          ASSOC APR,6,<>
00500          ASSOC CTY,3,<>
00510          ASSOC SCN,3,<TTY0,TTY1>
00520          ASSOC DTC,4,<DTA0>
00530      >
00540
00550
00560      DTSIZ=1      ;MULTIPLE DECTAPE DIRECTORIES
00570
00580      SCNLIN=1
00590
00600      ;DEFINE HIGHEST AC TO SAVE AND LENGTH OF PD LIST FOR EACH PI CHANNEL
00610
00620      ACPDL (1,0,0)
00630      ACPDL (2,0,0)
00640      ACPDL (3,11,20)
00650      ACPDL (4,11,20)
00660      ACPDL (5,0,0)
00670      ACPDL (6,17,20)
00680      ACPDL (7,0,0)
00020
00030      ;DEFINITIONS OF DEVCHN AND DEVBIT
00040      ;THESE ALSO OCCUR IN IOINI1
00050
00060      DEFINE ASSOC (A,N,D)
00070      <
00080          A'CHN=N
00090      >
00100
00110          SYSTEM
          ASSOC APR,6,<>
          ASSOC CTY,3,<>
          ASSOC SCN,3,<TTY0,TTY1>
          ASSOC DTC,4,<DTA0>
00120

```

00130

```
00140
00150      ;APR PI BITS
00160
00170      APRBIT=1
00180      REPEAT 7-APRCHN,<APRBIT=APRBIT*2>
APRBIT=APRBIT*2
00190      XP PION,200      ;CONO PI,PION TURNS PI SYSTEM ON
00200      XP PIOFF,400     ;TURN IT OFF
00210      XP PICLK,PION+1824+APRBIT      ;TURN PI ON, AND FORCE CLOCK INT.
00220      XP CLKOFF,1000+APRCHN      ;CONO APR,CLKOFF TURNS CLOCK FLAG OFF
```


ER

```

00230
00240 ;ASSEMBLE ALL DEVICE DATA BLOCKS AND LINK THEM TOGETHER
00250

00270
00280 DEFINE SCNDDDB (A,B,C)
00290 < INTERNAL C'DB
00300 C'DB: ZZ=.
00310 SIXBIT /C/
00320 XWD A'CHN*PICHN,STTYBF+1 ;LONG ENOUGH FOR PRINTING
00330 ;SEQUENCED CARD IMAGE.
00340 ;USER BUFFERS ARE 2 WORDS
00350 ;LONGER THAN THE MONITORY TTY BUFFERS.
00360 0
00370 EXTERNAL TTYDSP
00380 XWD C,TTYDSP
00390 XWD DVTTY+DVIN+DVOUT,3
00400 0
00410 0
00420 XWD PROG,0
00430 XWD PROG,0
00440 XP TTYPTR,.-ZZ
00450 0
00460 XP TTYCTR,.-ZZ
00470 0
00480 XP TTYSAV,.-ZZ
00490 0
00500 XP TTYBUF,.-ZZ
00510 XP TTYBM1,TTYBUF-1
00520 XP STTYBF,20
00530 XP STTYB1,STTYBF+1 ;LENGTH+1
00540 BLOCK STTYBF
00550 XP TTYBFE,.-ZZ-1
00560
00570
00580 ;LINE NO. PARAMETERS
00590 XP TTYLEN,SCNLIN+1 ;LENGTH OF TTY TRANSLATOR TABLE(INCLUDING TTY)
00600 XP TSCNLN,SCNLIN-1 ;HIGHEST TTY LINE NO.(NOT COUNTING CTY)
00610 XP TCONLN,TSCNLN+1 ;CTY LINE NUMBER
00620 XP MTTYLN,-TTYLEN ;NEGATIVE LENGTH OF TRANSLATOR TABLE
00630 XP FSNCHN,SCNCHN*101 ;CHANNEL ASSIGN, FOR FULL DUPLEX SCN.
00640 XP TTYLST,TTY0DB ;FIRST TTY DEVICE DATA BLOCK
00650 >
00660
00670 ;NEG. NO. OF TELTYPE DEVICE DATA BLOCKS
00680
00690 MLTTYL=0
00700 DEFINE ASSOC (A,N,D)
00710 <IRP D,<IFIDN <A>,<SCN>,<MLTTYL=MLTTYL-1>>>
00720
00730
00740 SYSTEM
ASSOC APR,6,<>
ASSOC CTY,3,<>
ASSOC SCN,3,<TTY0,TTY1>
ASSOC DTC,4,<DTA0>

00750

```

00760
00770

INTERNAL MLTTYL

```
00780
00790      ;MAG TAPE DEVICE DATA BLOCK
00800
00810      MTCNUM=0
00820
00830      DEFINE MTCDDDB (A,B,C)
00840      <          INTERNAL C'DB
00850      C'DB:      SIXBIT /C/
00860      MTCNUM=MTCNUM+1
00870      XWD IORET+A'CHN*PICHN,<MTCNUM-1>*10000+201
00880
00890      0
00900      XWD C,MTDISP
00910      EXTERNAL MTDISP
00920      XWD 4400+DVMTA+DVIN+DVOUT,154403
00930      0
00940      0
00950      XWD PROG,0
00960      XWD PROG,0
00970      >
```

```

00980
00990 ;DECTAPE DEVICE DATA BLOCKS
01000
01010 DTCNUM=0
01020
01030 DEFINE DTCDDB (A,B,C)
01040 < INTERNAL C'DB
01050 C'DB: ZZ=.
01060 SIXBIT /C/
01070 DTCNUM=DTCNUM+1
01080 XWD IORET+A'CHN*PICHN,<DTCNUM-1>*10000+200
01090 0
01100 XWD C,UTDSP
01110 EXTERNAL UTDSP
01120 XWD 4400+DVDIR+DVIN+DVOUT,154403
01130 0
01140 0
01150 0
01160 0
01170 XP UFREE,.-ZZ ;NEXT FREE BLOCK NO.
01180 0
01190 XP UDIR,.-ZZ ;LINK TO DIRECTORY IN DATA BLOCK
01200 IFE DTSIZ,< EXP DIRBUF
01210 >
01220 IFN DTSIZ,< EXP DTDIR+200*<DTCNUM-1>
01230 >
01240 >
01250 >

```

```
01260
01270 ;LINE PRINTER DEVICE DTA BLOCK
01280
01290 DEFINE LPTDDB (A,B,C)
01300 <INTERNAL LPTDB,LPTDAT,LPTCHR,LPTIOS,LPTSER,LPTMOD
01310 INTERNAL LPTBUF,LPTPTR,LPTADR,LPTSV1
01320 EXTERNAL LPTDSP
01330
01340 LPTDB:
01350 LPTDAT: SIXBIT /LPT/
01360 LPTCHR: XWD A'CHN*PICHN,32
01370 LPTIOS: 0
01380 LPTSER: XWD C,LPTDSP
01390 LPTMOD: XWD 0+DVOUT,3
01400 0
01410 LPTBUF: 0
01420 LPTPTR: 0
01430 LPTADR: XWD PROG,0
01440 LPTSV1: 0
01450
01460 XP LPTCLB,LPTCHN+200 ;PI CHANNEL AND BUSY FLAG
01470 XP LPTCHB,11*LPTCHN ;LINE PRINTER ERROR AND DATA CHANNELS
01480 >
```

```
01490
01500 ;CARD READER DEVICE DATA BLOCK
01510
01520 DEFINE CDRDDB (A,B,C)
01530 <INTERNAL CDRDB,CDRDAT,CRDIS
01540 EXTERNAL CDRDSP
01550
01560 CDRDB:
01570 CDRDAT: SIXBIT /CDR/
01580 XWD A'CHN*PICHN,34 ;LONG ENOUGH FOR BINARY CARDS
01590 0
01600 XWD C,CDRDSP
01610 XWD DVCDR+1400+DVIN,14403
01620 0
01630 0
01640 XWD PROG,0
01650 0
01660 0
01670 CRDIS: JRST .
01680 >
```

```
01690
01700      ;PAPER TAPE READER DEVICE DATA BLOCK
01710
01720      DEFINE PTRDDB (A,B,C)
01730      <INTERNAL PTRDB,PTRDAT,PTRCHR,PTRIOS,PTRSER
01740      INTERNAL PTRMOD,PTRBUF,PTRADR,PTRPTR,PTRCTR,PTR SVC,PTRSV1
01750      EXTERNAL PTRDSP
01760
01770      PTRDB:
01780      PTRDAT:  SIXBIT /PTR/
01790      PTRCHR:  XWD A'CHN*PICHN,41
01800      PTRIOS:  0
01810      PTRSER:  XWD C,PTRDSP
01820      PTRMOD:  XWD 1000+DVIN,14403
01830      0
01840      PTRBUF:  0
01850      PTRADR:  XWD PROG,0
01860      PTRPTR:  0
01870      PTRCTR:  0
01880      PTR SVC:  0
01890      PTRSV1:  0
01900      >
```

```
01910
01920      ;PAPER TAPE PUNCH DEVICE DATA BLOCK
01930
01940      DEFINE PTPDDB (A,B,C)
01950      <INTERNAL PTPDB,PTPDAT,PTPCHR,PTPIOS,PTPSER,PTPMOD,PTPBUF
01960      INTERNAL PTPPTR,PTPADR,PTPCTR,PTPCNT,PTPCHA,PTPSIO
01970      EXTERNAL PTPDSP
01980
01990      PTPDB:
02000      PTPDAT:  SIXBIT /PTP/
02010      PTPCHR:  XWD A'CHN*PICHN,41
02020      PTPIOS:  0
02030      PTPSER:  XWD C,PTPDSP
02040      PTPMOD:  XWD 1000+DVOUT,14403
02050      0
02060      PTPBUF:  0
02070      PTPPTR:  0
02080      PTPADR:  XWD PROG,0
02090      PTPCTR:  0
02100      PTPCNT:  0
02110      PTPCHA:  0
02120      PTPSIO:  0
02130      >
```


000000	000001'000000	02140	
		02150	;GENERATE DEVICE DATA BLOCKS NEEDED FOR THIS CONFIGURATION
		02160	
		02170	DEFINE ASSOC (A,B,C)
		02180	<
		02190	IRP C,<
		02200	;DEFINE FORWARD LINL SYMBOL
		02210	LINK
		02220	;
		02230	;
		02240	;
		02250	A'DDB A,B,C
		02260	
		02270	C=0 ;SET LINK TO 0(IN CASE THIS IS LAST DDB)
		02280	DEFINE LINK
		02290	<C=.>
		02300	>
		02310	>
		02320	
		02330	INTERNAL DEVLST
		02340	
		02350	DEVLST: XWD FIRDB,0 ;BEGINNING OF DEVICE DATA BLOCK CHAIN
		02360	
		02370	DEFINE LINK
		02380	<FIRDB=.>
		02390	
		02400	
			SYSTEM
			ASSOC APR,6,<>
			ASSOC CTY,3,<>
			ASSOC SCN,3,<TTY0,TTY1>
			SIXBIT /TTY0/
			XWD SCNCHN*PICHN,STTYBF+1 ;LONG ENOUGH FOR PRINTING
			0
			XWD TTY0,TTYDSP
			XWD DVTTY+DVIN+DVOUT,3
			0
			0
			XWD PROG,0
			XWD PROG,0
			0
			0
			0
			SIXBIT /TTY1/
			XWD SCNCHN*PICHN,STTYBF+1 ;LONG ENOUGH FOR PRINTING
			0
			XWD TTY1,TTYDSP
			XWD DVTTY+DVIN+DVOUT,3
			0
			0
			XWD PROG,0
			XWD PROG,0
			0
			0
			0
			ASSOC DTC,4,<DTA0>
			SIXBIT /DTA0/
			XWD IORET+DTCCHN*PICHN,<DTCNUM-1>*10000+200
000001	646471 200000		
000002	000300 000021		
000003	000000 000000		
000004	000035'000000		
000005	000013 000003		
000006	000000 000000		
000007	000000 000000		
000010	000007 000000		
000011	000007 000000		
000012	000000 000000		
000013	000000 000000		
000014	000000 000000		
000035	646471 210000		
000036	000300 000021		
000037	000000 000000		
000040	000071'000004'		
000041	000013 000003		
000042	000000 000000		
000043	000000 000000		
000044	000007 000000		
000045	000007 000000		
000046	000000 000000		
000047	000000 000000		
000050	000000 000000		
000071	446441 200000		
000072	000420 000200		

000073 000000 000000
000074 000000 000000
000075 004407 154403
000076 000000 000000
000077 000000 000000
000100 000000 000000
000101 000000 000000
000102 000000 000000
000103 000000 000104'

0
XWD DTA0,UTDSP
XWD 4400+DVDIR+DVIN+DVOUT,154403
0
0
0
0
0
EXP DTDIR+200*<DTCNUM-1>

```
02410
02420          LIT
02430
02440          IFE DTSIZ,<          DIRBUF:  BLOCK 200
02450      INTERNAL DIRBUF
02460      >

02470      IFN DTSIZ,<DTDIR:  BLOCK DTCNUM*200
02480      INTERNAL DTDIR
02490      >
DTDIR:  BLOCK DTCNUM*200
INTERNAL DTDIR

02500
02510          END,
```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000304

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRBIT	000002	
APRCHN	000006	
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CH1N	000000	
CH1PDN	000000	
CH2N	000000	
CH2PDN	000000	
CH3N	000011	
CH3PDN	000020	
CH4N	000011	
CH4PDN	000020	
CH5N	000000	
CH5PDN	000000	
CH6N	000017	
CH6PDN	000020	
CH7N	000000	
CH7PDN	000000	
CLKOFF	001006	INT
CLOSB	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CTYCHN	000003	
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
DEVLST	000000	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
DTA0	000000	
DTA0DB	000071'	INT
DTCCHN	000004	
DTCNUM	000001	
DTDIR	000104'	INT
DTSIZ	000001	
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
DVTY	000010	INT
ENTRB	020000	INT
FIRDB	000001'	
FSNCHN	000303	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INIR	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IOBKTL	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
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFA DR	000000	INT

JBFCR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JLOW	100000	INT
JNA	004000	INT
LOOKR	040000	INT
MINIMA	000000	INT
MLTTYL	777777777776	INT
MTCNUM	000000	
MTTYLN	777777777776	INT
MTW	010000	INT
OBUEB	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PICLN	000100	INT
PICLK	004202	INT
PIOFF	000400	INT
PION	000200	INT
PROG	000007	INT
RUN	200000	INT
RUNABL	204000	INT
SCNCHN	000003	
SCNLIN	000001	
STTYB1	000021	INT
STTYRF	000020	INT
TAC	000001	INT
TAC1	000002	INT
TCONLN	000001	INT
TEM	000010	INT
TSCNLN	000000	INT
TTY0	000035'	
TTY0DB	000001'	INT
TTY1	000071'	
TTY1DB	000035'	INT
TTYATC	020000	INT
TTYBFE	000033	INT
TTYBM1	000013	INT
TTYBUF	000014	INT
TTYCTR	000012	INT
TTYDSP	000040'	EXT
TTYLEN	000002	INT
TTYLST	000001'	INT
TTYPTR	000011	INT
TTYSAV	000013	INT
TTYUSE	010000	INT
UDIR	000012	INT
UFREE	000011	INT
USRMOD	010000	INT
UTDSP	000074'	EXT
UUO	000014	INT
ZZ	000071'	

END OF ASSEMBLY

```

00030
00040             DEFINE BLK (A,B)
00050             <JOBPRO=R
00060             A=0
00070             ENTRY A
00080             DEFINE BLK (C,D)
00090             <C=JOBPRO
00100             JOBPRO=JOBPRO+D
00110             ENTRY C>>
00120
00130             BLK JOBAC,20             ;SYSTEM USE AC STORAGE
00140             BLK JOBDAC,20           ;USER'S AC STORAGE WHILE JOB IS INACTIV
00150             JOBDHI=JOBDAC+17       ;HIGHEST AC SAVED WHILE INACTIVE
00160             BLK JOBUUO,1           ;UUO SAVE AND TRAP LOCATIONS
00170             BLK JOB41,1           ;UUO JSR LOCATION
00180             BLK JOBPC,1           ;BITS 0-5=APR FLAGS, C(RH)=PC
00190             BLK JOBPDP,1          ;PUSH DOWN POINTER FOR SYSTEM USE
00200             JOBPRT=JOBPDP          ;FIRST LOC PROTECTED FROM INTERRUPT SER
00210             JOBPRI=JOBPRT+1       ;FIRST LOC+1
00220             BLK JOBREL,1          ;C(LH)=0, C(RH)=RELOCATION ADDRESS
00230             BLK JOBUXT,1          ;EXIT FROM UUO AT BREAK
00240             BLK JOBLEV,1          ;C(40) WHEN INACTIVE
00250             BLK JOBSAV,1          ;TEMPROARY STORAGE FOR UUO HANDLER
00260             BLK JOBPOV,1          ;PUSH DOWN OVERFLOW TRAP
00270             BLK JOBTM,1           ;(UNUSED)TEMPORARY SYSTEM STORAGE
00280             BLK JOBTM1,1          ;"
00290             BLK JOBINF,1          ;UNUSED
00300             BLK JOBJDA,20         ;JOB IO DEVICE CHANNEL ASSIGNMENTS
00310             BLK JOBDDT,1          ;ADDRESS OF USER'S DDT
00320             JOBPFI=JOBDDT-1       ;LAST LOC PROTECTED FROM IO SERVICE
00330             JOBPFU=JOBDDT         ;LAST LOC PROTECTED FROM USER
00340             BLK JOBCDP,1          ;(UNUSED)POINTER TO COMMAND STRING
00350             BLK JOBTRP,20          ;(UNUSED)TRAP LOCATIONS
00360             BLK JOBSYM,1          ;SYMBOL TABLE POINTER
00370             BLK JOBUSY,1          ;(UNUSED)POINTER TO UNDEFINED SYMBOL TA
00380             BLK JOBSA,1           ;C(RH)=STARTING ADDRESS
00390             ;C(LH)=HIGHEST LOCATION USED
00400             BLK JOBFF,1           ;FIRST FREE LOCATION
00410             JOBDAT=140            ;LENGTH OF JOB DATA AREA
00420             JOBHGH=JOBDAT-1       ;HIGHEST LOC IN JOB DATA AREA
00430             JOBPDL=JOBPRO-1       ;FIRST LOC. -1 OF PD LIST
00440             JOBPD1=JOBPDL+1       ;FIRST LOC. IN PD LIST
00450             MJOBPD=JOBPDL-JOBHGH  ;- LENGTH OF PD LIST
00460             JOBS41=JOBPRO         ;PLACE WAHERE SAVE-GET SAVES USER LOC 4
00470             JOBDA=JOBDAT
00480             ENTRY JOBPFI,JOBPFU,JOBPDL,JOBPRO,MJOBPD,JOBHGH
00490             ENTRY JOBDHI,JOBPRT,JOBPRI,JOBDA,JOBS41,JOBPD1
00500
00510             END,

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000000

JORDAT - JOB DATA AREA ASSIGNMENTS
SYMROL TABLE

PAGE 2

JOR41	000041	INT
JORAC	000000	INT
JORCDP	000075	INT
JORDA	000140	INT
JORDAC	000020	INT
JORDAT	000140	
JORDDT	000074	INT
JORDHI	000037	INT
JORFF	000121	INT
JORHGH	000137	INT
JORINF	000053	INT
JORJDA	000054	INT
JORLEV	000046	INT
JORPC	000042	INT
JORPD1	000122	INT
JORPDL	000121	INT
JORPDP	000043	INT
JORPFI	000073	INT
JORPFU	000074	INT
JOBPOV	000050	INT
JORPR1	000044	INT
JORPRO	000122	INT
JORPRT	000043	INT
JORREL	000044	INT
JORS41	000122	INT
JORSA	000120	INT
JORSAV	000047	INT
JORSYM	000116	INT
JORTEM	000051	INT
JORTM1	000052	INT
JORTRP	000076	INT
JORUSY	000117	INT
JORUU0	000040	INT
JORUXT	000045	INT
MJOBPD	777777777762	INT

END OF ASSEMBLY

00010

XLIST

01900

```
00030
00040      INTERNAL LPTINT,LPTINI
00050      EXTERNAL LPTCHN, LPTCHL, LPTRET, OUT, WAIT1, LPTSAV, IOSET
00060      EXTERNAL ADVBFE, SETIOD,ILLINP,LPTCHB,LPTCLB
00070
00080      ;DEVICE DATA BLOCK LINKAGE
00090      EXTERNAL LPTDAT,LPTCHR,LPTIOS,LPTSER,LPTMOD,LPTBUF,LPTPTR
00100      EXTERNAL LPTADR,LPTSV1
00110      ENTRY LPTDSP
```

```

00120
00130 ,LPT PARAMETER ASSIGNMENTS
00140
00150
00160 , LPT CONTROL REGISTER
00170 LPTCLR=2000 ;CLEAR BUFFER
00180 LPTDON=100 ;DONE FLAG
00190 LPTERR=400 ;ERROR FLAG
00200 LPTLOV=1000 ;LINE OVERFLOW
00210
00220 , SPECIAL IO STATUS WORD ASSIGNMENTS
00230 LPTADV=100000
00240
00250 REPEAT 0,<
00260 , LPT DATABLOCK
00270
00280 LPTDAT: SIXBIT .LPT.
00290 LPTCHR: 32
00300 LPTIOS: 0
00310 LPTSER: EXP LPTDSP
00320 LPTMOD: XWD 0,3
00330 0
00340 LPTBUF: 0
00350 LPTPTR: 0
00360 LPTADR: XWD PROG,0
00370 LPTSV1: 0
00380 >

00390
00400 , LPT SERVICE DISPATCH TABLE
00410
00420 LPTDSP: JRST LPTINI ;RELEASE
00430 JRST LPTCLS ;CLOSE
00440 JRST LPTOUT ;OUTPUT
00450 JRST ILLINP ;INPUT
00460
00470 LPTINI: CONO LPT,LPTCLR ;LPT INITIALIZE
00480 HLLZS LPTINT
00490 POPJ PDP,

000000 254000 000004'
000001 254000 000007'
000002 254000 000013'
000003 254000 000000
000004 712600 002000
000005 513000 000034'
000006 263140 000000

```

```

000007 260140 000000 00500
000010 260140 000000 00510
000011 712540 000126' 00520
000012 263140 000000 00530
00540
00550
00560
00570
00580
000013 660000 010000 00590
000014 621000 400000 00600
000015 661000 000020 00610
000016 603000 000002 00620
000017 254000 000024' 00630
000020 260140 000127' 00640
000021 202000 000000 00650
000022 201040 000100 00660
000023 254000 000030' 00670
00680
000024 661000 400000 00690
000025 202000 000021' 00700
000026 260140 000127' 00710
000027 201040 002000 00720
000030 201100 001500 00730
000031 542100 000034' 00740
000032 712601 000000 00750
000033 263140 000000 00760

```

```

LPTCLS:  PUSHJ PDP,OUT      ;PRINT REMAINING BUFFERS
          PUSHJ PDP, WAIT1   ;WAIT FOR IOACT=0
          DATAO LPT,LPTTOP  ;PRINT CARRIAGE RETURN, FORM FEED
          POPJ PDP,          ;CLOSE RETURN

LPTOUT:   TRO IOS,IOACT      ;IOACT=1
          TLZ IOS,IODISC     ;IODISC:=0
          TLO IOS,IO        ;IO:=1
          TLNE IOS,IOBEG     ;VIRGIN DEVICE? IOBEG:=0
          JRST LPTBEG        ;YES
          PUSHJ PDP,LPTSET
          MOVEM IOS,LPTIOS    ;C(LPTIOS):=C(IOS)
          MOVEI TAC,LPTDON
          JRST LPTBG1

LPTBEG:   TLO IOS,IODISC
          MOVEM IOS,LPTIOS    ;C(LPTIOS):=C(IOS)
          PUSHJ PDP,LPTSET
          MOVEI TAC, LPTCLR
LPTBG1:   MOVEI TAC1,LPTLOV+LPTERR+LPTDON
          HRRM TAC1,LPTINT
          CONO LPT, LPTCHB(TAC) ;CLEAR BUFFER AND ASSIGN PI C
          POPJ PDP,          ;RETURN

```

```

00770
00780
00790
00800
000034 712740 001500 00810
000035 254000 000034' 00820
000036 712700 000070 00830
000037 712740 000100 00840
000040 254000 000102' 00850
000041 335000 000025' 00860
000042 254000 000053' 00870
000043 712500 000000 00880
000044 334000 000000 00890
000045 254520 000000 00900
000046 202040 000000 00910
000047 515040 400000 00920
000050 436040 000041' 00930
000051 200040 000046' 00940
000052 254520 000045' 00950
00960
000053 264000 000000 00970
000054 201300 000000 00980
000055 260140 000000 00990
000056 200000 000050' 01000
000057 623000 000002 01010
000060 254000 000077' 01020
000061 260140 000000 01030
000062 254000 000073' 01040
000063 602000 000040 01050
000064 254000 000073' 01060
000065 621000 400000 01070
000066 260140 000127' 01080
01090
000067 623000 000001 01100
000070 260140 000000 01110
000071 202000 000056' 01120
000072 254000 000000 01130
01140
000073 620000 010000 01150
000074 712600 000000 01160
000075 513000 000034' 01170
000076 254000 000067' 01180
01190
000077 712540 000126' 01200
000100 621000 400000 01210
000101 254000 000071' 01220

```

, LINE PRINTER INTERRUPT SERVICE

```

LPTINT:  CONSO LPT,LPTLOV+LPTERR+LPTDON;LINE OVERFLOW, ERROR OR DONE
          JRST LPTINT          ;IF LPT IS IN FLAG LIST, GO TO ERROR, E
          CONSZ LPT,70
          CONSO LPT,LPTDON
          JRST LPTERR          ;YES
LPTIN1:  SKIPGE LPTIOS          ;IODISC=1?
          JRST LPTDSC          ;YES
          BLKO LPT,LPTPTR      ;PRINT
          SKIPA                ;BUFFER EMPTY
          JEN @LPTCHL          ;DISMISS INTERRUPT AND RETURN
          MOVEM TAC,LPTSV1      ;SAVE TAC
          HRLZI TAC,IODISC      ;IODISC:=1
          IORM TAC,LPTIOS
LPTERRX: MOVE TAC,LPTSV1      ;RESTORE TAC
          JEN @LPTCHL          ;DISMISS INTERRUPT AND RETURN
          ;DISMISS INTERRUPT AND RETURN

LPTDSC:  JSR LPTSAV            ;SAVE ACCUMULATORS AND ESTABL
          MOVEI DEVDAT,LPTDAT   ;DEVDAT:=LPTDAT
          PUSHJ PDP,IOSET       ;PROG:=C(JBTADR18-35),ITEM:=C(DEVPTR)
          MOVE IOS,LPTIOS
          TLZE IOS,IOBEG
          JRST LPTBG            ;PUT OUT CR-FF
          PUSHJ PDP,ADVRFE      ;ADVANCE BUFFER
          JRST LPTOFF           ;NEXT BUFFER EMPTY
          TRNE IOS,IOCON        ;CONTINUOUS? (IOCON=0?)
          JRST LPTOFF           ;NO
          TLZ IOS,IODISC
          PUSHJ PDP,LPTSET      ;SET LPTPTR

LPTINX:  TLZE IOS,IOW          ;IN A WAIT? IOW:=0
          PUSHJ PDP,SETIOD      ;YES. IOWS:=1
LPTXIT:  MOVEM IOS,LPTIOS      ;C(LPTIOS):=C(IOS)
          JRST LPTRET          ;RESTORE ACCUMULATORS AND DIS

LPTOFF:  TRZ IOS,IOACT
          CONO LPT,0
          HLLZS LPTINT          ;TURN LPT OFF
          JRST LPTINX

LPTBG:   DATAO LPT,LPTTOP     ;SEND OUT CR-FF
          TLZ IOS,IODISC        ;WHEN IODISC=1
          JRST LPTXIT

```

		01230	
		01240	;HERE ON EITHER OVERFLOW OR ERROR(OFFLINE) OR ERROR CHANNEL
		01250	;NOT ASSIGNED.
		01260	
000102	202040 000051'	01270	LPTER1: MOVEM TAC,LPTSV1 SAVE TAC
000103	712740 001000	01280	CONSO LPT,LPTLOV ;LINE OVERFLOW?
000104	254000 000111'	01290	JRST LPTER1 ;NO
000105	210040 000137'	01300	MOVN TAC,[EXP 1000001] ;YES, DECREMENT POINTER
000106	272040 000043'	01310	ADDM TAC,LPTPTR
000107	712540 000140'	01320	DATAO LPT,[EXP 15B6+12B13] ;PRINT CARRIAGE RETURN, LINE
000110	254000 000051'	01330	JRST LPTERX
		01340	
000111	712740 000070	01350	LPTER1: CONSO LPT,70 ;ERROR INTERRUPT ASSIGNED?
000112	254000 000117'	01360	JRST LPTER2 ;NO
000113	712600 000000	01370	CONO LPT,LPTCLB ;YES, DEASSIGN IT,SET BUSY,CLEAR REST
000114	201040 000100	01380	MOVEI TAC,LPTDON ;ENABLE FOR DONE FLAG ONLY
000115	542040 000034'	01390	LPTERA: HRRM TAC,LPTINT
000116	254000 000051'	01400	JRST LPTERX
		01410	
000117	712640 000001	01420	LPTER2: CONI LPT,TAC
000120	405040 000300	01430	ANDI TAC,300
000121	712601 000032'	01440	CONO LPT,LPTCHB(TAC)
000122	201040 001500	01450	MOVEI TAC,LPTDON+LPTERR+LPTLOV
000123	542040 000034'	01460	HRRM TAC,LPTINT
000124	200040 000102'	01470	MOVE TAC,LPTSV1
000125	254000 000041'	01480	JRST LPTIN1
000126	064300 000000	01490	LPTTOP: EXP 15B6+14B13 ;CARRIAGE RETURN, FORM FEED

			01500
			01510
			01520
			01530
			01540
000127	201060	000000	01550
000130	210101	000001	01560
000131	504040	000002	01570
000132	343040	000134	01580
000133	561040	000135	01590
000134	202040	000106	01600
000135	263140	000000	01610
			01620
000136	000000	000000	01630
			01640
000137	000001	000001	01650
000140	064240	000000	

,SET UP PRINTER COUNTER AND POINTER

```
LPTSET:  MOVEI TAC,@LPTADR    ;LPTPTR:=- (WORD COUNT+1), BUFFER ADDRES
          MOVN TAC1,1(TAC)
          HRL TAC,TAC1
          AOJLE TAC,.,+2      ;C(LPTPTR0-17)<0?
          HRROI TAC,LPTNUL-1
          MOVEM TAC,LPTPTR
          POPJ PDP,           ;RETURN
```

```
LPTNUL:  0
          END,
```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000141

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADVBFE	000061	EXT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
RUFNT	000012	INT
RUFWRD	000013	INT
CLOS8	002000	INT
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
ORL	000000	INT
DSI	000011	INT
DSO	000010	INT
DTW	040000	INT
DVAVAL	000040	INT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT

ILLINP	000003'	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
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSET	000055'	EXT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAOR	000000	INT
JBFCOR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
LOOKB	040000	INT
LPTADR	000127'	EXT
LPTADV	100000	
LPTBEG	000024'	
LPTBG	000077'	
LPTBG1	000030'	
LPTBUF	000000	EXT
LPTCHB	000121'	EXT
LPTCHL	000052'	EXT
LPTCHN	000000	EXT
LPTCHR	000000	EXT
LPTCLB	000113'	EXT
LPTCLR	002000	
LPTCLS	000007'	
LPTDAT	000054'	EXT
LPTDON	000100	
LPTDSC	000053'	
LPTDSP	000000'	INT
LPTER1	000111'	
LPTER2	000117'	

LPTERA	000115'	
LPTERI	000102'	
LPTERR	000400	
LPTERX	000051'	
LPTINI	000041'	
LPTINI	000004'	INT
LPTINT	000034'	INT
LPTINX	000067'	
LPTIOS	000071'	EXT
LPTLOV	001000	
LPTMOD	000000	EXT
LPTNUL	000136'	
LPTOFF	000073'	
LPTOUT	000013'	
LPTPTR	000134'	EXT
LPTRET	000072'	EXT
LPTSAV	000053'	EXT
LPTSER	000000	EXT
LPTSET	000127'	
LPTSV1	000124'	EXT
LPTTOP	000126'	
LPTXIT	000071'	
MTW	010000	INT
OBUFB	100000	INT
OUT	000007'	EXT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RUN	200000	INT
RUNARL	204000	INT
SETIOD	000070'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT
WAIT1	000010'	EXT

END OF ASSEMBLY

00010

XLIST

01970

THE INDICATED PATCHES ARE THOSE PUT IN BY HASTINGS AND CLEMENTS
AT BNL,

DAW 3-3-66

```

000000 260140 000000 00030
000001 551000 776000 00040
000002 413006 000002 00050
000003 201214 000000 00060
000004 260140 000007 00070
000005 254000 000000 00080
000006 260140 000000 00090
000007 621000 010000 00100
000010 660000 010000 00110
000011 260140 000064 00120
000012 242200 000010 00130
000013 405200 007400 00140
000014 306200 004000 00150
000015 254000 000437 00160
000016 302200 000400 00170
000017 254000 000022 00180
000020 722700 004000 00190
000021 254000 000521 00200
000022 201040 000001 00210
000023 542040 000045 00220
000024 542040 000212 00230
000025 135040 000000 00240
000026 137040 000540 00250
000027 135040 000541 00260
000030 431040 000005 00270
000031 137040 000542 00280
000032 201044 000000 00290
000033 722600 000000 00300
000034 660040 000200 00310
000035 722201 000000 00320
000036 402000 000535 00330
000037 542300 000534 00340
000040 506040 000534 00350
000041 603000 010000 00360
000042 700600 002100 00370
000043 201040 000226 00380
000044 542040 000223 00390
000045 722600 000005 00400
000046 263140 000000 00410
000047 621000 000020 00420
000050 260140 000057 00430
000051 460066 000007 00440
000052 541066 000007 00450
000053 270040 000543 00460
000054 201200 002400 00470
000055 200100 000544 00480
000056 254000 000133 00490

```

T=ITEM
; MAG TAPE SERVICE SUBROUTINES

MTAPE1: PUSHJ PDP, WAIT1
HRRZI IOS, 776000
ANDCAB IOS, DEVIOS(DEV DAT)
MOVEI T, (UUO)
PUSHJ PDP, MTAPE+1
JRST UXIT

MTAPE: PUSHJ PDP, WAIT1
TLZ IOS, IODT
TRO IOS, IOACT
PUSHJ PDP, MTCHK2
LSH T, +DB ; MOVE TO FUNCTION
ANDI T, 7400 ; MODE BITS
CAIN T, 4000 ; LOGICAL EOT?
JRST MTLEOT
CAIE T, 400 ; RWD?
JRST .+3
CONSZ 224, 4000 ; AT LOAD POINT?

MTGO1: MOVEI TAC, TCF ; LOOK FOR TAPE CONTROL FREE 0
HRRM TAC, MTCONO

MTGO1A: HRRM TAC, MTCINT
LDB TAC, PUNIT ; UNIT
DPB TAC, [POINT 3, T, 31] ; UNIT
LDB TAC, [POINT 3, IOS, 28] ; DENSITY PARITY
XORI TAC, 5 ; ODD, 556
DPB TAC, [POINT 3, T, 23]
MOVEI TAC, MTCCHN(T) ; CHANNEL

MTGO: CONO 224, 0 ; DISABLE ALL INTERRUPTS
TRO TAC, 200 ; INHIBIT RETURN TO POOL
CONO 220, (TAC) ; COMMAND
SETZM MTEOFF# ; CLEAR EOF FLAG
HRRM DEV DAT, MTDEV# ; COMMAND, DVDB

HRLM TAC, MTDEV
TLNE IOS, IODT
CONO PI, 2000+DCB
MOVEI TAC, MTPDUN
HRRM TAC, MTIDSP
MTCONO: CONO 224, TCF+ERF ; ENABLE FLAGS
POPJ PDP,

; READ

MTIN: TLZ IOS, IO ; READING
PUSHJ PDP, MTCHK ; IS SYSTEM AVAILABLE?

MTIN1: SETCM TAC, @DEVIAD(DEV DAT) ; -SIZE-1
HRRI TAC, @DEVIAD(DEV DAT) ; BUFFER ADDRESS, PROG INCLUDE
ADD TAC, [XWD 2, 1] ; -SIZE+1, BUFFER+1

MTIN2: MOVEI T, 2400 ; READ
MOVE TAC1, [BLKI DC, 4000+DCN+MTDC*10]
JRST MTINDC

MOVEI TAC, DEVMOD(DEV DAT)
TLZ TAC, DVMTA
POPJ PDP JRST UXIT

TRNN T, SETSLI
JRST +4
TLZ IOS, IOSLI1
TRNE T, SLEVEL
TRO IOS, IOSLI1
; SET ACTIVE
; CHECK IF MAG TAPE CONTROL AV

TWE IOS, PSLI1
TRO T, 1000000

000057	660000	010000	00590		
000060	661000	010000	00600		
000061	202006	000002	00610	;IS SYSTEM AVAILABLE	
000062	352000	000000	00620	MTCHK: TRO IOS, IOACT	;SET ACTIVE
000063	260140	000000	00630	TLO IOS, IODT	;SET FOR DATA TRANSFER
000064	621000	004002	00640	MOVEM IOS, DEVIOS(DEVDAT)	
000065	202006	000002	00650	MTCHK1: AOSE DCREQ	
000066	352000	000000	00660	PUSHJ PDP,DCWAIT	
000067	260140	000000	00670	MTCHK2: TLZ IOS, IOSEOF(IOBEG)	;CLEAR SPACE TO EOF
000070	256000	000025	00680	MOVEM IOS, DEVIOS(DEVDAT)	;STORE BITS
000071	241040	000004	00690	AOSE MTREQ	
000072	722201	000200	00700	PUSHJ PDP,MTWAIT	
000073	722600	000002	00710	~~TLZ IOS, IOBEG~~ ~~XGT MTG01A LDB TAC, PUNIT~~	
000074	722700	000002	00720	ROT TAC, 4	;UNIT
000075	263140	000000	00730	CONO 220, 200(TAC) ;HAS UNIT ONLY	;PUT IN UNIT POSITION
000076	241040	777774	00740	CONO 224, SEL	;JAM UNIT INTO COMMAND BUFFER
000077	542301	000427	00750	~~CONSZ 224, SEL~~	;UNIT NOT READY?
000100	200100	000545	00760	POPJ PDP, 0	;EXIT
000101	137040	000546	00770	ROT TAC, -4	;UNIT IN TAC
000102	506101	000427	00780	HRRM DEVDAT, MTSTAK(TAC)	;PUT IN STACK
000103	700600	000400	00790	MOVE TAC1, [XWD MTCLOK,+D32]	;HALF SECOND
000104	136100	000000	00800	DPB TAC, [POINT 3,TAC1,23]	;STORE UNIT NUMBER
000105	700600	000200	00810	HRLM TAC1, MTSTAK(TAC)	;SAVE ACTUAL CLOCK REQUEST
000106	371000	000066	00820	CONO PI, 400	;TURN OFF PI
000107	476000	000000	00830	IDPB TAC1, CLOCK	;REQUEST CLOCK RETURN TO MTCL
000110	607000	010000	00840	CONO PI, 200	;TURN PI ON
000111	254000	000114	00850	SOSL MTREQ	;DECREMENT REQUEST COUNT, ANYONE LEFT W
000112	371000	000062	00860	SETOM MTAVAL	;YES,SET MAG TAPE AVAL
000113	476000	000000	00870	TLNN IOS, IODT	;NON-DATA TRANSFER?
000114	260140	000000	00880	JRST MTCHK3 ;YES	
000115	200006	000002	00890	SOSL DCREQ ;NO,DECREMENT REQUEST COUNT,ANYONE LEFT	
000116	607000	010000	00900	SETOM DCAVAL ;YES,SET DATA CONTROL AVAILAB	
000117	254000	000066	00910	MTCHK3: PUSHJ PDP, WSYNC ;REQUEST WAIT	
000120	254000	000062	00920	MOVE IOS, DEVIOS(DEVDAT) ;LOAD STATUS	
			00930	TLNN IOS, IODT ;DATA TRANSFER?	
			00940	JRST MTCHK2+2 ;CHECK FOR MT AVAILABLE ONLY	
			00950	JRST MTCHK1 ;CHECK FOR MT AND DC AVAILABL	

Address	Hex	Dec	Label	Operation	Comments
000121	661000	000020			
000122	260140	000057'			
000123	722700	000200			
000124	254000	000146'			
000125	201066	000010			
000126	210101	000001			
000127	504040	000002			
000130	347040	000275'			
000131	200100	000547'			
000132	201200	001000			
000133	202040	000533'			
000134	202040	000530'			
000135	552100	000531'			
000136	541100	000530'			
000137	202100	000042			
000140	200100	000550'			
000141	202100	000043			
000142	700600	001100			
000143	720220	000531'			
000144	201040	000004			
000145	254000	000023'			
000146	660000	200000			
000147	260140	000250'			
000150	254000	000005'			
000151	135040	000000			
000152	305040	000016			
000153	254000	000160'			
000154	603000	000020			
000155	254000	000161'			
000156	201200	000016			
000157	254000	000006'			
000160	260140	000000			
000161	201200	000003			
000162	260140	000006'			
000163	201200	000003			
000164	260140	000006'			
000165	201200	000007			
000166	254000	000006'			
000167	263140	000000			
000170	254000	000151'			
000171	254000	000121'			
000172	254000	000047'			
000173	254000	000000			
000174	254000	000173'			
000175	254000	000456'			
000176	254000	000506'			
000177	254000	000150'			
000200	254000	000177'			
000201	254000	000200'			
000202	210040	000455'			
000203	572040	000536'			
00960					
00970					
00980					
00990					
01000					
01010					
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01370					
01380		</			

000204	722600	000000	01530
000205	513000	000212'	01540
000206	263140	000000	01550

CONO 224, 0
HLLZS MTCINT
POPJ PDP,

;CLEAR ENABLES
;CLEAR CONSO

		01560		
		01570		
		01580		
		01590	;BLK COUNTED OUT	
		01600		
000207	000000 000000	01610	MTDCND: 0	
000210	700600 001100	01620	CONO PI,DCB+1000	;SHUT OF DC CHANNEL
000211	254520 000207	01630	JEN @MTDCND	

MTWON: HRRZ TAC, DEVIAD (DEV DAT)
ALRZ TAC1, PROG
CALL TAC, JOBPFI
CALL TAC, TAC1
TRST MTERA

000212	722740	000005	01640
000213	254000	000213'	01650
000214	264000	000000	01660
000215	550300	000534'	01670
000216	135340	000000	01680
000217	550347	000000	01690
000220	200006	000002	01700
000221	722740	000001	01710
000222	254000	000325'	01720
000223	254000	000226'	01730
000224	254000	000357'	01740
000225	254000	000337'	01750
000226	607000	010000	01760
000227	254000	000314'	01770
000230	135040	000151'	01780
000231	301040	000016	01790
000232	254000	000250'	01800
000233	603000	000020	01810
000234	254000	000275'	01820
000235	332000	000535'	01830
000236	254000	000323'	01840
000237	201066	000007	01850
000240	210100	000533'	01860
000241	253100	000242'	01870
000242	513000	000002	01880
000243	270100	000530'	01890
000244	546101	000001	01900
000245	260140	000000	01910
000246	254000	000250'	01920
000247	254000	000277'	01930
000250	720200	000000	01940
000251	371000	000112'	01950
000252	476000	000113'	01960
000253	371000	000106'	01970
000254	476000	000107'	01980
000255	722700	010000	01990
000256	660000	002000	02000
000257	620000	004000	02010
000260	722700	004000	02020
000261	660000	004000	02030
000262	722700	020000	02040
000263	660000	004000	02050
000264	623000	000001	02060
000265	260140	000000	02070
000266	620000	010000	02080
000267	202006	000002	02090
000270	722600	000000	02100
000271	513000	000212'	02110
000272	210040	000455'	02120
000273	572040	000536'	02130
000274	263140	000000	02140

;FLAG FROM TAPE CONTROL. SET UP BY INSERT MACRO

MTCINT: CONSO 224,TCF+ERF

JRST .

JSR MTC SAV

HRRZ DEV DAT,MTDEV

LDB PROG,PJOBN;

MOVE ~~HRRZ~~ PROG, JBTADR(PROG)

MOVE IOS, DEVIOS(DEV DAT)

CONSO 224,TCF

JRST MTEOR

MTIDSP: JRST MTPDUN

JRST MTBSP

JRST MTERR

MTPDUN: TLNN IOS,IODT

JRST MTNIO2

LDB TAC,PIOMOD

CAIL TAC,16

JRST MTEND1

TLNE IOS,IO

JRST MTNOTI

SKIPE MTEOFF

JRST MTEOF

~~MTIND1~~ MOVEI TAC,@DEVIAD(DEV DAT)

MOVN TAC1,MTDCCN

AOBJN TAC1, .+1

HLLZS TAC1

ADD TAC1,DCWRD

HLRM TAC1,1(TAC)

PUSHJ PDP,ADVBF

JRST .+2 ;NEXT BUFFER FULL

JRST MTCON

MTEND1: CONO DC, 0

SOSL DCREQ

SETOM DCAVAL

MTNIO: SOSL MTREQ

SETOM MTAVAL

CONSZ 224,10000

TRO IOS, IOTEND

TRZ IOS, IOBOT

CONSZ 224, 4000

TRO IOS, IOBOT

CONSZ 224, 20000

TRO IOS, IOBOT

TLZE IOS, IOW

PUSHJ PDP, SETIOD

TRZ IOS, IOACT

MOVEM IOS, DEVIOS(DEV DAT)

MTDOFF: CONO 224,0

HLLZS MTCINT

MOVN TAC, MTREDO

HRREM TAC, MTERCN#

POPJ PDP,

MTERA: PUSHJ PDP,MTEND1

JRST ADRERR

;SAVE ACS

;DVDB

JOB NUMBER

;TAPE CONTROL FREE

;POINTS TO MTERR FOR ERROR

;AFTER BACKSPACE

;IF ERROR FOUND

;DUMP

;WRITING

;NOT EOF?

;BUFFER ADDRESS

;WD CNT-1

;WD CNT

;CLR RT HALF

;ADD CURRENT COUNT=NO. OF WDS

;STORE AT WORD COUNT

;CONTINUE MODE

;TURN OFF DATA CONTROL

;DECREMENT REQUEST COUNT, ANYONE LEFT?

;YES, SET FLAG FOR CLOCK

;YES, SET FLAG FOR CLOCK

;END OF TAPE?

;SET END OF TAPE INDICATION

;CLR LOAD POINT INDICATION

;LOAD POINT?

;SET LOAD POINT INDICATION

;TAPE REWINDING?

;SET LOAD POINT INDICATION

;CLEAR WAIT

;REQUEST WAIT SATISFIED

;CLEAR ACTIVE

;RESTORE BITS

;CLEAR MAG TAPE ENABLES

;CLEAR CONSO

;REPEAT COUNTER

;DISMISS INTERRUPT OR RETURN TO CALLER

			02180		
			02190		
000275	260140	000000	02200	MTNOTI:	PUSHJ PDP,ADVBFE ;WRITING
000276	254000	000250	02210		JRST MTEND1
000277	602000	000040	02220	MTCON:	TRNE IOS,IOCON ;CONTINUOUS?
000300	254000	000250	02230		JRST MTEND1 ;STOP TAPE
000301	722700	010000	02240		CONSZ 224,10000 ;END OF TAPE?
000302	254000	000250	02250		JRST MTEND1 ;STOP TAPE
000303	720200	000000	02260		CONO DC,0 ;CLEAR DATA CONTROL
000304	623000	000001	02270		TLZE IOS,IOW
000305	260140	000265	02280		PUSHJ PDP,SETIOD
000306	202006	000002	02290		MOVEM IOS,DEVIOS(DEVDAT)
000307	210040	000455	02300		MOVN TAC,MTREDO
000310	572040	000536	02310		HRREM TAC,MTERCN
000311	607000	000020	02320		TLNN IOS,IO ;INPUT OR OUTPUT?
000312	254000	000052	02330		JRST MTIN1 ;CALL INPUT SUBROUTINE
000313	254000	000125	02340		JRST MTOUT1 ;CALL OUTPUT SUBROUTINE
000314	554040	000534	02350	MTNIO2:	HLRZ TAC,MTDEV ;COMMAND
000315	405040	007400	02360		ANDI TAC,7400
000316	302040	003000	02370		CAIE TAC,3000 ;SPACING ONE RECORD
000317	254000	000253	02380		JRST MTNIO ;EXIT
000320	722700	000400	02390		CONSZ 224,400 ;EOF?
000321	661000	004000	02400		TLO IOS,IOEOF ;SET EOF DETECTED
000322	254000	000253	02410		JRST MTNIO ;EXIT
000323	661000	000040	02420	MTEOF:	TLO IOS,IOEND
000324	254000	000250	02430		JRST MTEND1
000325	722700	000030	02440	MTEOR:	CONSZ 224,LPE+CPE ;IF END OF RECORD CHECK PARIT
000326	370000	000223	02450		SOS MTIDSP ;IF ERROR CAUSE INTERRUPT TO
			02460		;ERROR ROUTIE VIA TCF
000327	722700	000400	02470		CONSZ 224,400 ;EOF?
000330	476000	000535	02480		SETOM MTEOFF ;SET EOF FLAG
000331	722600	000001	02490	MTIGN:	CONO 224,TCF ;IF ERF, CAUSE INTERRUPT TO D
			02500		;PATCH TABLE, DISABLE ERF FLA
000332	202040	000207	02510		MOVEM TAC,MTDCND ;SAVE TAC
000333	201040	000001	02520		MOVEI TAC,TCF ;LOOK FOR TCF ONLY
000334	542040	000212	02530		HRRM TAC,MTICNT ;SET CONSO
000335	200040	000207	02540		MOVE TAC,MTDCND ;RESTORE TAC
000336	254000	000000	02550		JRST MTCRET ;DISMISS AND RETURN VIA TCF

PLAIN TAC,400
JRST MTREW

MTREW: LDB TAC,PUNIT
PUSHJ PDP,MTOLK1
JRST MTOFF

```

MTERR:      HLRZ TAC,MTDEV          ;COMMAND
            ANDI TAC,7400
            CAIN TAC,2400          ;READ?
            JRST .+3
            CAIE TAC,1000         ;WRITE
            JRST MTIGN2          ;IGNORE IF NOT RD OR WRITE
            TRNN IOS, IONRCK      ;RE-DO?
            AOSL MTERCN          ;THIRD ERROR?
            JRST MTERR2          ;TRIPLE ERROR
            HLRZ TAC,MTDEV        ;COMMAND
            ANDI TAC,770377
            CONO 220,3400(TAC)    ;BSP
            SOS MTIDSP
            JRST MTIGN

MTERR2:     TRO IOS, IODERR        ;DEVICE ERROR
            JRST MTPDUN

MTBSP:      MOVE TAC,MTDCCN        ;POINTER
            MOVEM TAC,DCWRD        ;RESET POINTER WORD
            CONI DC,TAC           ;SAVE IN/OUT, PACK MD, DEV NU
                                   ;PRIORITY.

            ANDI TAC,777
            ADDI TAC,3000          ;MAKE WRITE
            TRNN TAC,400          ;WAS IT WRITING?
            ADDI TAC,1000         ;MAKE READ
            CONO DC,(TAC)         ;REISSUE CONO
            HLRZ TAC,MTDEV        ;COMMAND
            CONSO 224,XNC         ;WAIT FOR XNC
            JRST .-1 ;SHOULD ADD A COUNT(RUNAWAY TAPE TURNED
            CONO 220,(TAC)       ;REISSUE RD OR WRITE
            SETZM MTEOFF          ;CLR EOF FLAG
            CONO PI,2000+DCB      ;TURN ON CHANNEL
            MOVEI TAC,MTPDUN      ;RESET SWITCH
            HRRM TAC,MTIDSP
            MOVEI TAC,ERF
            HRRM TAC, MTCINT
            CONO 224,ERF
            JRST MTCRET          ;ENABLE PROPER FLAGS

MTIGN2:     AOS MTIDSP            ;RESET DISPATCH SWITCH
            JRST MTIGN

```

000405 550301 000427'
000406 241040 000004
000407 722201 000200
000410 722600 000002
000411 722700 000002
000412 254000 000422'
000413 241040 777774
000414 544101 000427'
000415 505100 000405'
000416 700600 000400
000417 136100 000104'
000420 700600 000200
000421 263140 000000
000422 200006 000002
000423 623000 000001
000424 260140 000305'
000425 202006 000002
000426 263140 000000

03020
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03090
03100
03110
03120
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03140
03150
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03190
03200
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03390
03400
03410
03420
03430
03440

EOSL11220000
SETSL1=100
LEVEL=419
XNC=40000

MTDC=2
TCF=1
ERF=4
LPE=20
CPE=10
DCB=100
DCN=1
SEL=2
IOEOF=4000
IOTEND=2000
IONRCK=100
IOBOT=4000
IODT=10000
EXTERNAL UXIT, ADVBFF, ADVBFE, DCREQ, DCWAIT, MTCSAV
EXTERNAL MTCRET, DCAVAL, MTAVAL, MTCCHN, MTCCHL, MTREQ
EXTERNAL MTWAIT, OUT, SETIOD, CLOCK, CUXIT1
EXTERNAL WSYNC, USRREL, WAIT1, ADRERR, PUNIT, PIOMOD, PJOBN
EXTERNAL JBTA DR
ENTRY MTDISP
INTERNAL MTCINT, MTAPE1, MTCINI

MTCLK: ~~HRZ DEVDAT, MTSTAK(TAC)~~ ; DVDB
MOVE ROT TAC, 4 ; PUT UNIT IN SEL BITS
CONO 220, 200(TAC) ; UNIT ONLY
CONO 224, SEL ; SET UNIT
CONS2 224, SEL ; UNIT NOT READY?
JRST ~~MTCLK2~~ *MTN10* ; UNIT READY
ROT TAC, -4 ; FOR INDEXING PURPOSES
~~HRZ TAC1, MTSTAK(TAC)~~ ; CLOCK REQUEST
~~HRZ TAC1, MTCLOCK~~ ; GET CLOCK REQUEST
CONO PI, 400 ; TURN OFF PI
IDPB TAC1, CLOCK ; STORE CLOCK REQUESTED
CONO PI, 200 ; TURN ON PI
POPJ PDP, 0 ; EXIT
MTCLK2: MOVE IOS, DEVIOS(DEVDAT)
TLZE IOS, IOW
PUSHJ PDP, SETIOD
MOVEM IOS, DEVIOS(DEVDAT)
POPJ PDP, 0
MTSTAK: BLOCK 108

MOVE IOS, DEVIOS(DEVDAT)

MTCLK1: MOVEJ TAC1, 1000
HRZ TAC1, MTCLOCK
DPB TAC, [POINT3, TAC1, 73]

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			03450		
			03460		
			03470		
000437	722700	004000	03480	;LOGICAL END OF TAPE LOOP	
000440	254000	000443	03490	MTEOT: CONSZ 224, 4000	;TAPE NOT AT LOAD POINT?
000441	201200	003400	03500	JRST MTEOT2	;AVOID BACKSPACE IF AT LOAD P
000442	260140	000022	03510	MOVEI T,3400	;BACKSPACE
000443	201200	000016	03520	PUSHJ PDP, MTG01-1	
000444	260140	000006	03530	MTEOT2: MOVEI T,16	;SPACE ONE FILE
000445	201200	000006	03540	PUSHJ PDP, MTAPE	
000446	260140	000006	03550	MOVEI T,6 ;SPACE ONE RECORD	
000447	260140	000006	03560	PUSHJ PDP, MTAPE	
000450	200006	000002	03570	PUSHJ PDP, WAIT1	;WAIT UNTIL SPACING IS COMPLE
000451	607000	004000	03580	MOVE IOS, DEVIOS(DEVDAT)	
000452	254000	000443	03590	TLNN IOS, IOEOF	;WAS EOF DETECTED?
000453	201200	000007	03600	JRST MTEOT2	;RESUME SPACING
000454	254000	000006	03610	MOVEI T,7 ;BACKSPACE, LOGICAL EOT FOUND	
000455	000000	000012	03620	JRST MTAPE	;RETURN BACK TO MAIN PROGRAM
				MTREDO: 12	;NUMBER OF TIMES TO RE-EXECUTE

000540	040300	000004
000541	070300	000000
000542	140300	000004
000543	000002	000001
000544	720000	004021
000545	000405	000040

```
; INPUT
MTDMP1:
```

```

MTDMP3:      SOSL DCREQ
              SETOM DCAVAL
MTDMP4:      SOSL MTREQ
              SETOM MTAVAL
              TRZ  IOS,IOACT
              TLZE IOS,IOW
              PUSHJ PDP,SETIOD
              MOVEM IOS,DEVIOS(DEVDAT)
              POPJ  PDP.

```


000546 140300 000002
000547 720100 003421
000550 264000 000207'

THERE ARE NO ERRORS

PROGRAM BREAK IS 000551

MTPSER - MAGNETIC TAPE SERVICE ROUTINES - NO DIRECTORIES PAGE 13
SYMBOL TABLE

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRERR	000516'	EXT
ADVBFE	000275'	EXT
ADVBFF	000245'	EXT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOCK	000417'	EXT
CLOS8	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CPE	000010	
CUXIT1	000174'	EXT
D	000017	INT
DAT	000005	INT
DCAVAL	000520'	EXT
DCR	000100	
DCL	000001	INT
DCN	000001	
DCREQ	000517'	EXT
DCW	020000	INT
DCWAIT	000063'	EXT
DCWRD	000530'	
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

MTPSER - MAGNETIC TAPE SERVICE ROUTINES - NO DIRECTORIES PAGE 14
SYMBOL TABLE

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
DVTY	000010	INT
ENTRB	020000	INT
FRF	000004	
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	040000	INT
IOROT	004000	
IOCON	000040	INT
IODEND	020000	INT
IODERR	200000	INT
IODISC	400000	INT
IODONE	400000	INT
IODT	010000	
IODTER	100000	INT
IOEND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSEOF	004000	
IOSTRT	000010	INT
IOTEND	002000	
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBTADR	000217	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
LOOKB	040000	INT
LPE	000020	

MTPSER - MAGNETIC TAPE SERVICE ROUTINES - NO DIRECTORIES PAGE 15
SYMBOL TABLE

MDCSAV	000531'	
MTAPE	000006'	
MTAPE1	000000'	INT
MTAVAL	000522'	EXT
MTRSP	000357'	
MTCCHL	000000'	EXT
MTCCHN	000032'	EXT
MTCHEK	000057'	
MTCHK1	000062'	
MTCHK2	000064'	
MTCHK3	000114'	
MTCINI	000202'	INT
MTCINT	000212'	INT
MTCLK2	000422'	
MTCLOK	000405'	
MTCLS	000151'	
MTCLS1	000160'	
MTCMDP	000532'	
MTCON	000277'	
MTCONO	000045'	
MTCRET	000402'	EXT
MTCSAV	000214'	EXT
MTDC	000002'	
MTDCCN	000533'	
MTDCND	000207'	
MTDEV	000534'	
MTDISP	000167'	INT
MTDMP1	000464'	
MTDMP2	000515'	
MTDMP3	000517'	
MTDMP4	000521'	
MTDMPI	000506'	
MTDMPO	000456'	
MTEND1	000250'	
MTFOF	000323'	
MTFOFF	000535'	
MTFOR	000325'	
MTFOT2	000443'	
MTFRCN	000536'	
MTFRR	000337'	
MTFRR2	000355'	
MTGO	000033'	
MTG01	000023'	
MTG01A	000025'	
MTIDSP	000223'	
MTIGN	000331'	
MTIGN2	000403'	
MTIN	000047'	
MTIN1	000052'	
MTIN2	000055'	
MTINDC	000133'	
MTINDN	000237'	
MTLEOT	000437'	
MTNIO	000253'	
MTNIO2	000314'	

MTPSER - MAGNETIC TAPE SERVICE ROUTINES - NO DIRECTORIES PAGE 16
SYMBOL TABLE

MTNOTI	000275'
MTOUT	000121'
MTOUT1	000125'
MTOUT2	000131'
MTOUTE	000146'
MTPDUN	000226'
MTREDO	000455'
MTREQ	000521' EXT
MTSTAK	000427'
MTW	010000 INT
MTWAIT	000067' EXT
QBUFR	100000 INT
OUT	000160' EXT
OUTPR	004000 INT
PDP	000003 INT
PICHN	000100 INT
PIOMOD	000230' EXT
PJOBN	000216' EXT
PROG	000007 INT
PUNIT	000025' EXT
RUN	200000 INT
RUNABL	204000 INT
SEL	000002
SETIOD	000525' EXT
SVCNTR	000537'
T	000004
TAC	000001 INT
TAC1	000002 INT
TCF	000001
TEM	000010 INT
TTYATC	020000 INT
TTYUSE	010000 INT
USRMOD	010000 INT
USRRFL	000474' EXT
UUO	000014 INT
UXIT	000201' EXT
WAIT1	000501' EXT
WSYNC	000114' EXT
XNC	040000

END OF ASSEMBLY

00010

XLIST

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 2

01970

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 3
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

```

00030      ;WHICH SHOULD BE THE LAST LOADED PROGRAM BEFORE SYSMAX AND DDT
00040      ;THUS IF IT OVERFLOWS INTO THE USER AREA NO HARM IS DONE
00050      ;INITIALIZE PRIORITY CHANNELS AND SETUP INTERRUPT SERVICE ROUTINE CHA
00060
00070      XP SYSFIN,.-1      ;LAST LOC. IN SYSTEM
00080      NXM=10000 ;NON EX-MEM
00090
00100      INTERNAL PATCH
00110
00120      PATCH:      BLOCK 100 ;PATCH SPACE
00130                      ;C(SYSSIZ) SHOULD BE UPDATED AS PATCHES ARE MADE
00140
00150      T=TAC      ;SOME ACS
00160      C=TAC1
00170      INT=DAT    ;INTERRUPT SERVICE ENTRY POINT(USUALLY A CONSO INSTR.)
00180      CHL=DEV DAT ;THE PLACE WHERE PC IS STORED FOR THAT CHANNEL
00190
00200      ;LINK TO SERVICE ROUTINES
00210
00220      INTERNAL LINKSR
00230      EXTERNAL NDEVM1      ;=NDEV-1 (DEFINED IN IOINI1)
00240      EXTERNAL DEVINT,JOBSYM
00250
000100 000000 000000 00260      LINKSR:      0      ;CALLED WITH JSR FROM SYSINI
00270                      ;CHAIN INTERRUPT SERVICE ROUTINES TOGETH
00280                      HRLZI INT, 254000 ;FORM JRST INSTR.
00290                      MOVEI C, NDEVM1   ;NO. OV DEV. SERV. ROUTINES TO CHAIN
00300      DEV1:      HLRZ CHL, DEVINT(C) ;LOC. WHERE PC IS STORED
00310                      HRR INT, DEVINT(C) ;INTERRUPT SERVICE ROUTINE ENTRY POINT
00320                      MOVE T, 1(CHL)    ;INSERT THIS ROUTINE AT FRONT OF CHAIN
00330                      MOVEM T, 1(INT)
00340                      MOVEM INT, 1(CHL)
00350                      SOJGE C, DEV1
000101 515240 254000
000102 201100 000000
000103 554302 000000
000104 540242 000103'
000105 200046 000001
000106 202045 000001
000107 202246 000001
000110 365100 000103'

```


ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 4
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		00360	
		00370	;MOVE SYMBOL TABLE UP IN MEMORY
		00380	;EXEC MUST BE LOADED IN 15K OR LESS IF GOING INTO 16K MACHINE
		00390	
000111	402000 000005	00400	SETZM DAT ;FIND FIRST NON EX MEM
000112	700200 010000	00410	CONO APR,NXM ;CLEAR NON-EX MEM FLAG
000113	271240 002000	00420	ADDI DAT,2000 ;TRY NEXT 1K BLOCK
000114	200105 000000	00430	MOVE TAC1,(DAT) ;REFERENCE THIS LOCATION
000115	700340 010000	00440	CONSO APR,NXM ;NON-EXISTENT?
000116	254000 000113'	00450	JRST .-3 ;NO
000117	275240 000001	00460	SUBI DAT,1 ;YES, HIGHEST LEGAL LOC
000120	202240 000037	00470	MOVEM DAT,DDTMEM ;FOR DDT
000121	275240 000177	00480	SUBI DAT,200-1 ;MAKE ROOM FOR DECDUMP
000122	574100 000000	00490	HLRE TAC1,JOBSYM ;-LENGTH OF S. T.
000123	322100 000143'	00500	JUMPE TAC1,JRSTI1 ;0 IF NO S. T. TO MOVE UP
000124	213000 000002	00510	MOVNS TAC1 ;+LENGTH
000125	550040 000122'	00520	HRRZ TAC,JOBSYM ;FIRST ADDRESS
000126	271042 000000	00530	ADDI TAC,(TAC1) ;LENGTH+FIRST ADDRESS
000127	504040 000002	00540	HRL TAC,TAC1 ;XWD LENGTH,LENGTH+FIRST ADDRESS
000130	275241 000001	00550	SUBI DAT,1(TAC) ;NEW LAST+1-OLD LAST+1
000131	542240 000140'	00560	HRRM DAT,ST01 ;DIST. TO MOVE
000132	200100 000125'	00570	MOVE TAC1,JOBSYM ;-N,FIRST ADD.
000133	271105 000001	00580	ADDI TAC1,1(DAT) ;FORM NEW S.T. POINTER
000134	202100 000132'	00590	MOVEM TAC1,JOBSYM
000135	201100 000134'	00600	MOVEI TAC1,JOBSYM
000136	202100 000036	00610	MOVEM TAC1,DDTSYM
000137	200101 777777	00620	MOVE TAC1,-1(TAC)
000140	202101 000140'	00630	MOVEM TAC1,.(TAC)
000141	274040 000551'	00640	SUB TAC,[XWD 1,1]
000142	325040 000137'	00650	JUMPGE TAC,.-3

ST01:

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 5
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		00660	
		00670	;SETUP LOCATIONS 40 THRU 57
		00680	
000143	200040 000552'	00690	JRSTI1: MOVE TAC,[XWD LOC40,40]
000144	251040 000057	00700	BLT TAC,57
000145	200040 000147'	00710	MOVE TAC,JRSTI
000146	202040 000101'	00720	MOVEM TAC,LINKSR+1 ;DO ONCE ONLY
000147	254020 000100'	00730	JRSTI: JRST @LINKSR
		00740	
		00750	EXTERN UU00,ERROR
		00760	EXTERN CH1,CH2,CH3,CH4,CH5,CH6,CH7
		00770	
000150	000000 000000	00780	LOC40: 0 ;UUO PC
000151	264000 000000	00790	JSR UU00 ;TO UUO HANDLER
000152	264000 000000	00800	JSR CH1
000153	265240 000000	00810	JSP DAT,ERROR
000154	264000 000000	00820	JSR CH2
000155	265240 000153'	00830	JSP DAT,ERROR
000156	264000 000000	00840	JSR CH3
000157	265240 000155'	00850	JSP DAT,ERROR
000160	264000 000000	00860	JSR CH4
000161	265240 000157'	00870	JSP DAT,ERROR
000162	264000 000000	00880	JSR CH5
000163	265240 000161'	00890	JSP DAT,ERROR
000164	264000 000000	00900	JSR CH6
000165	265240 000163'	00910	JSP DAT,ERROR
000166	264000 000000	00920	JSR CH7
000167	265240 000165'	00930	JSP DAT,ERROR
		00940	

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 6
 THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		00950	
		00960	
		00970	;ONCE ONLY CODE - OPERATOR SETUP DIALOGUE
		00980	
		00990	INTERNAL ONCE
		01000	EXTERNAL CONMES,RADX10,CRLF,DECIN,DECIN1
		01010	EXTERNAL THSDAT,MAKEND,JOBFF
		01020	EXTERNAL ERNAM,OCTPNT,SYSSIZ,CONFIG,SYSNUM,SYSDAT
		01030	
000170	000000 000000	01040	ONCE: 0
000171	201040 777777'	01050	MOVEI TAC,SYSFIN ;SET SIZE OF MONITOR
000172	202040 000000	01060	MOVEM TAC,SYSSIZ
000173	200240 000443'	01070	MOVE DAT,LINEP ;SETUP LINE BYTE POINTER
000174	200140 000553'	01080	MOVE PDP,[XWD ONCEPN,ONCEPD]
000175	260140 000000	01090	PUSHJ PDP,CRLF
000176	201040 000000	01100	MOVEI TAC,CONFIG
000177	260140 000000	01110	PUSHJ PDP,CONMES
000200	201040 000474'	01120	MOVEI TAC,TSEXEC
000201	260140 000177'	01130	PUSHJ PDP,CONMES
000202	554040 000000	01140	HLRZ TAC,SYSNUM
000203	260140 000000	01150	PUSHJ PDP,RADX10
000204	201040 000554'	01160	MOVEI TAC,[ASCIZ /. /]
000205	260140 000201'	01170	PUSHJ PDP,CONMES
000206	550040 000202'	01180	HRRZ TAC,SYSNUM
000207	260140 000203'	01190	PUSHJ PDP,RADX10
000210	201040 000555'	01200	MOVEI TAC,[ASCIZ / /]
000211	260140 000205'	01210	PUSHJ PDP,CONMES
000212	201040 000000	01220	MOVEI TAC,SYSDAT
000213	260140 000211'	01230	PUSHJ PDP,CONMES
000214	260140 000175'	01240	PUSHJ PDP,CRLF
000215	260140 000421'	01250	PUSHJ PDP,OPOUT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 7
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		01260	
		01270	;ASK FOR TODAYS DATE AND CONVERT
		01280	;DATE STORED AS ((Y-64)*12.+M-1)*31.+D-1
		01290	
000216	402000 000000	01300	DATLOP: SETZM THSDAT
000217	200240 000443'	01310	MOVE DAT,LINEP
000220	201040 000477'	01320	MOVEI TAC,TODATE
000221	260140 000213'	01330	PUSHJ PDP,CONMES
000222	260140 000421'	01340	PUSHJ PDP,OPOUT
000223	260140 000376'	01350	PUSHJ PDP,GETLIN
000224	254000 000216'	01360	JRST DATLOP ;JUST CR
000225	260140 000000	01370	PUSHJ PDP,DECIN1 ;MONTH
000226	254000 000216'	01380	JRST DATLOP ;ERROR
000227	332000 000002	01390	SKIPE TAC1
000230	303100 000014	01400	CAILE TAC1,+D12
000231	254000 000216'	01410	JRST DATLOP
000232	275100 000001	01420	SUBI TAC1,1
000233	221100 000037	01430	IMULI TAC1,+D31
000234	272100 000216'	01440	ADDM TAC1,THSDAT
000235	260140 000225'	01450	PUSHJ PDP,DECIN1 ;DAY
000236	254000 000216'	01460	JRST DATLOP
000237	332000 000002	01470	SKIPE TAC1
000240	303100 000037	01480	CAILE TAC1,+D31
000241	254000 000216'	01490	JRST DATLOP
000242	275100 000001	01500	SUBI TAC1,1
000243	272100 000234'	01510	ADDM TAC1,THSDAT
000244	260140 000235'	01520	PUSHJ PDP,DECIN1 ;YEAR
000245	254000 000216'	01530	JRST DATLOP
000246	301100 000101	01540	CAIL TAC1,+D65
000247	303100 000143	01550	CAILE TAC1,+D99
000250	254000 000216'	01560	JRST DATLOP
000251	275100 000100	01570	SUBI TAC1,+D64 ;YEAR ZERO
000252	221100 000564	01580	IMULI TAC1,+D12*+D31
000253	272100 000243'	01590	ADDM TAC1,THSDAT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 8
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		01600	
		01610	;GET TIME OF DAY
		01620	
		01630	EXTERN TIME
		01640	
000254	402000 000000	01650	TIMLOP: SETZM TIME
000255	200240 000443'	01660	MOVE DAT,LINEP
000256	201040 000506'	01670	MOVEI TAC,TIMEM
000257	260140 000221'	01680	PUSHJ PDP,CONMES
000260	260140 000421'	01690	PUSHJ PDP,OPOUT
000261	260140 000376'	01700	PUSHJ PDP,GETLIN
000262	254000 000254'	01710	JRST TIMLOP ;JUST A CR
000263	134100 000001	01720	ILDB TAC1,TAC
000264	275100 000060	01730	SUBI TAC1,60
000265	331000 000002	01740	SKIPL TAC1 ;CHECK FIRST DIGIT OF HOUR
000266	303100 000002	01750	CAILE TAC1,2
000267	254000 000254'	01760	JRST TIMLOP
000270	220100 000556'	01770	IMUL TAC1,[+D60**D60**D60**D10]
000271	272100 000254'	01780	ADDM TAC1,TIME
000272	134100 000001	01790	ILDB TAC1,TAC
000273	275100 000060	01800	SUBI TAC1,60 ;CONVERT TO BINARY
000274	331000 000002	01810	SKIPL TAC1
000275	303100 000011	01820	CAILE TAC1,+D9
000276	254000 000254'	01830	JRST TIMLOP
000277	221100 645700	01840	IMULI TAC1,+D60**D60**D60
000300	272100 000271'	01850	ADDM TAC1,TIME
000301	260140 000244'	01860	PUSHJ PDP,DECIN1
000302	254000 000254'	01870	JRST TIMLOP
000303	303100 000073	01880	CAILE TAC1,+D59
000304	254000 000254'	01890	JRST TIMLOP
000305	221100 007020	01900	IMULI TAC1,+D60**D60
000306	272100 000300'	01910	ADDM TAC1,TIME

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 9
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		01920	
		01930	;PRINT IO CONFIGURATION
		01940	
		01950	EXTERN DEVLST
		01960	
000307	200240 000443'	01970	MOVE DAT,LINEP
000310	201040 000517'	01980	MOVEI TAC,IOCONF
000311	260140 000257'	01990	PUSHJ PDP,CONMES
000312	554300 000000	02000	HLRZ DEVDAT,DEVLST
000313	201040 000004	02010	MOVEI TAC,ITEM
000314	261140 000001	02020	PUSH PDP,TAC
000315	201040 000001	02030	ONCE5: MOVEI TAC,1
000316	510206 000000	02040	HLLZ ITEM,DEVNAM(DEVDAT)
000317	554306 000003	02050	ONCE4: HLRZ DEVDAT,DEVSER(DEVDAT)
000320	322300 000324'	02060	JUMPE DEVDAT,ONCE6
000321	510106 000000	02070	HLLZ TAC1,DEVNAM(DEVDAT)
000322	316100 000004	02080	CAMN TAC1,ITEM
000323	344040 000317'	02090	AOJA TAC,ONCE4
000324	200340 000001	02100	ONCE6: MOVE PROG,TAC ;SAVE NO.
000325	260140 000207'	02110	PUSHJ PDP,RADX10
000326	201600 000040	02120	MOVEI UUO," "
000327	136600 000005	02130	IDPB UUO,DAT
000330	201600 000003	02140	MOVEI UUO,3
000331	200440 000557'	02150	MOVE JDAT,[POINT 6,ITEM]
000332	134100 000011	02160	ONCE7: ILDB TAC1,JDAT
000333	271100 000240	02170	ADDI TAC1,240
000334	136100 000005	02180	IDPB TAC1,DAT
000335	367600 000332'	02190	SOJG UUO,ONCE7
000336	201040 000560'	02200	MOVEI TAC,[ASCIZ /'S/]
000337	303340 000001	02210	CAILE PROG,1
000340	260140 000311'	02220	PUSHJ PDP,CONMES
000341	260140 000214'	02230	PUSHJ PDP,CRLF
000342	326300 000315'	02240	JUMPN DEVDAT,ONCE5
000343	262140 000002	02250	POP PDP,TAC1
000344	260140 000421'	02260	PUSHJ PDP,OPOUT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 10
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		02270		
		02280		
		02290	;ASK IF SYSMAX IS WANTED	
		02300		
000345	200240 000443'	02310	MOVE DAT,LINEP	
000346	201040 000524'	02320	MOVEI TAC,SYSM	
000347	260140 000340'	02330	PUSHJ PDP,CONMES	
000350	260140 000421'	02340	PUSHJ PDP,OPOUT	
000351	260140 000376'	02350	PUSHJ PDP,GETLIN	
000352	254000 000355'	02360	JRST ONCE2	;NO SYSMAX
000353	201040 000000	02370	MOVEI TAC,MAKEND	;YES
000354	202040 000172'	02380	MOVEM TAC,SYSSIZ	
		02390		
		02400	;IS EXEC DDT WANTED?	
		02410		
000355	200240 000443'	02420	ONCE2: MOVE DAT,LINEP	
000356	201040 000536'	02430	MOVEI TAC,SYSDM	
000357	260140 000347'	02440	PUSHJ PDP,CONMES	
000360	260140 000421'	02450	PUSHJ PDP,OPOUT	
000361	260140 000376'	02460	PUSHJ PDP,GETLIN	
000362	254000 000365'	02470	JRST ONCE3	;NO
000363	200040 000000	02480	MOVE TAC,JOBFF	;FIRST FREE LOCATION
000364	552040 000354'	02490	HRRZM TAC,SYSSIZ	

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 11
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

			02500	
			02510	;PRINT OCTAL SIZE OF MONITOR
			02520	
000365	200240	000443'	02530	ONCE3: MOVE DAT,LINEP
000366	201040	000541'	02540	MOVEI TAC,EXECIS
000367	260140	000357'	02550	PUSHJ PDP,CONMES
000370	200040	000364'	02560	MOVE TAC,SYSSIZ
000371	260140	000000	02570	PUSHJ PDP,OCTPNT
000372	201040	000544'	02580	MOVEI TAC,LENGTH
000373	260140	000367'	02590	PUSHJ PDP,CONMES
000374	260140	000421'	02600	PUSHJ PDP,OPOUT
000375	254020	000170'	02610	JRST @ONCE
			02620	

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 12
 THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		02630	
		02640	;ROUTINE TO READ A LINE FROM OPERATORS CONSOLE
		02650	;CALL: PUSHJ PDP,GETLIN
		02660	; JUST A CR TYPED IN
		02670	; A LINE TYPED IN,TAC SET AS BYTE POINTER
		02680	
		02690	EXTERN CPOPJ, CPOPJ1
		02700	
000376	200040 000443'	02710	GETLIN: MOVE TAC,LINEP
000377	201200 000000	02720	MOVEI ITEM,0
000400	712340 000040	02730	GET1: CONSO TTY,40
000401	254000 000400'	02740	JRST .-1
000402	712040 000002	02750	DATAI TTY,TAC1
000403	712140 000002	02760	DATAO TTY,TAC1
000404	136100 000001	02770	IDPB TAC1,TAC
000405	405100 000177	02780	ANDI TAC1,177
000406	306100 000177	02790	CAIN TAC1,177 ;RUBOUT
000407	254000 000000	02800	JRST CPOPJ
000410	302100 000015	02810	CAIE TAC1,15
000411	344200 000400'	02820	AOJA ITEM,GET1
000412	712340 000020	02830	CONSO TTY,20
000413	254000 000412'	02840	JRST .-1
000414	201100 000012	02850	MOVEI TAC1,12
000415	712140 000002	02860	DATAO TTY,TAC1
000416	200040 000443'	02870	MOVE TAC,LINEP
000417	326200 000000	02880	JUMPN ITEM,CPOPJ1
000420	263140 000000	02890	POPJ PDP,

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 13
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		02900	
		02910	;ROUTINE TO TYPE A LINE ON OPERATOR CONSOLE
		02920	;ECHO CHECK STOPS LINE AND RETURNS
		02930	;CALL: DAT SET TO END OF MESSAGE
		02940	
000421	200040 000443'	02950	OPOUT: MOVE TAC,LINEP
000422	712040 000002	02960	DATAI TTY,TAC1
000423	316040 000005	02970	OPOUT1: CAMN TAC,DAT
000424	263140 000000	02980	POPJ PDP,
000425	712300 000040	02990	CONSZ TTY,40
000426	254000 000434'	03000	JRST OPOUT2 ;ECHO CHECK
000427	712300 000020	03010	CONSZ TTY,20
000430	254000 000427'	03020	JRST .-1
000431	134100 000001	03030	ILDB TAC1,TAC
000432	712140 000002	03040	DATAO TTY,TAC1
000433	254000 000423'	03050	JRST OPOUT1
000434	712300 000020	03060	OPOUT2: CONSZ TTY,20
000435	254000 000434'	03070	JRST .-1
000436	712140 000561'	03080	DATAO TTY,[15]
000437	712300 000020	03090	CONSZ TTY,20
000440	254000 000437'	03100	JRST .-1
000441	712140 000562'	03110	DATAO TTY,[12]
000442	263140 000000	03120	POPJ PDP,
		03130	
000443	440700 000444'	03140	LINEP: POINT 7,LINBUF
		03150	LINBUF: BLOCK 20
		03160	ONCEPN=10
		03170	ONCEPD: BLOCK ONCEPN

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 14
THIS IS ONCE ONLY CODE PLACED AT THE END OF IOINIT

		03180	
		03190	;MESSAGES
		03200	
000474	202505 620246	03210	TSEXEC: ASCIZ / T. S. EXEC-/
000475	271010 554212		
000476	415320 000000		
		03220	TODATE: ASCIZ /
000477	064252 454640	03230	TYPE TODAY'S DATE AS ABOVE.
000500	425012 447610		
000501	406624 751500		
000502	422032 442500		
000503	406464 040604		
000504	476550 527032		
000505	050000 000000	03240	/
		03250	TIMEM: ASCIZ /
000506	064252 454640	03260	TYPE 4 DIGIT NAVY TIME(0953 IS 9:53 AM).
000507	425006 420210		
000510	446171 152100		
000511	472032 654500		
000512	522231 542520		
000513	301626 531500		
000514	446464 034564		
000515	325464 040632		
000516	245341 505000	03270	/
		03280	IOCONF: ASCIZ /
000517	064251 147500	03290	IO CONFIGURATION
000520	416371 643222		
000521	436532 240650		
000522	446371 606424	03300	/
000523	000000 000000		
		03310	SYSM: ASCIZ /
000524	064250 447500	03320	DO YOU WANT SYSMK(TYPE Y IF YES,CR IF NO)?
000525	546372 520256		
000526	406352 420246		
000527	546471 540626		
000530	242513 150212		
000531	202624 044614		
000532	202630 551530		
000533	416444 044614		
000534	202351 724576		
000535	064240 000000	03330	/
		03340	SYSDM: ASCIZ /
000536	064250 554212	03350	EXEC DDT?
000537	415010 442250		
000540	374321 200000	03360	/
		03370	EXECIS: ASCIZ /
000541	064250 554212	03380	EXEC IS /
000542	415011 151500		
000543	000000 000000		
000544	202370 352202	03390	LENGTH: ASCIZ / OCTAL LOCATIONS LONG.
000545	461011 447606		
000546	406511 147634		
000547	515011 447634		
000550	435341 505000	03400	/
		03410	
000551	000001 000001	03420	END,
000552	000150'000040		

000553	000010	000464'
000554	270000	000000
000555	200000	000000
000556	000000	106274
000557	440600	000004
000560	236460	000000
000561	000000	000015
000562	000000	000012

THERE ARE NO ERRORS

PROGRAM BREAK IS 000563

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 15
SYMBOL TABLE

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFNT	000012	INT
BUFWRD	000013	INT
C	000002	
CH1	000152'	EXT
CH2	000154'	EXT
CH3	000156'	EXT
CH4	000160'	EXT
CH5	000162'	EXT
CH6	000164'	EXT
CH7	000166'	EXT
CHL	000006	
CLOSB	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CONFIG	000176'	EXT
CONMES	000373'	EXT
CPOPJ	000407'	EXT
CPOPJ1	000417'	EXT
CRLF	000341'	EXT
D	000017	INT
DAT	000005	INT
DATLOP	000216'	
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTMEM	000037	INT
DDTSYM	000036	INT
DECIN	000000	EXT
DECIN1	000301'	EXT
DEN	000004	INT
DEV1	000103'	
DEVADR	000007	INT
DEVBUF	000006	INT
DEVCHR	000001	INT
DEVCTR	000011	INT
DEVDAT	000006	INT
DEVIAD	000007	INT
DEVINT	000104'	EXT
DEVIOS	000002	INT
DEVLOG	000005	INT
DEVLST	000312'	EXT
DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVPTR	000010	INT
DEVSER	000003	INT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 16
SYMBOL TABLE

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
ERNAM	000000	EXT
ERROR	000167'	EXT
EXECIS	000541'	
GET1	000400'	
GETLIN	000376'	
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INITR	400000	INT
INPB	010000	INT
INT	000005	
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IOBKTL	040000	INT
IOCON	000040	INT
IOCONF	000517'	
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
IOREL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFA DR	000000	INT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 17
 SYMBOL TABLE

JBFCR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JORFF	000363'	EXT
JOBSYM	000135'	EXT
JRSTI	000147'	
JRSTI1	000143'	
LENGTH	000544'	
LINBUF	000444'	
LINEP	000443'	
LINKSR	000100'	INT
LOC40	000150'	
LOOKR	040000	INT
MAKEND	000353'	EXT
MTW	010000	INT
NDEVMI	000102'	EXT
NXM	010000	
OBUF8	100000	INT
OCTPNT	000371'	EXT
ONCE	000170'	INT
ONCE2	000355'	
ONCE3	000365'	
ONCE4	000317'	
ONCE5	000315'	
ONCE6	000324'	
ONCE7	000332'	
ONCEPD	000464'	
ONCEPN	000010	
OPOUT	000421'	
OPOUT1	000423'	
OPOUT2	000434'	
OUTPR	004000	INT
PATCH	000000'	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RADX10	000325'	EXT
RUN	200000	INT
RUNABL	204000	INT
ST01	000140'	
SYSDAT	000212'	EXT
SYSDM	000536'	
SYSFIN	777777777777'	INT
SYSM	000524'	
SYSNUM	000206'	EXT
SYSSIZ	000370'	EXT
T	000001	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
THSDAT	000253'	EXT

ONCE ONLY CODE - OPERATOR DIALOGUE AND SERVICE ROUT. LINKAGEPAGE 18
SYMBOL TABLE

TIME	000306'	EXT
TIMEM	000506'	
TIMLOP	000254'	
TODATE	000477'	
TSEXEC	000474'	
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT
UUO0	000151'	EXT

END OF ASSEMBLY

00010

XLIST

01970

```
00030
00040   EXTERNAL PTPCHN, PTPSAV, ADVBFE, ITMCT1, SETIOD, SETBYT, IOSET, CKS12
00050   EXTERNAL ILLINP, OUT, WAIT1, PTPRET, PTPCHL, PIOMOD
00060   INTERNAL PTPINT
00070
00080   ;PTP DEVICE DATA BLOCK LINKAGE
00090
00100   EXTERNAL PTPDB, PTPDAT, PTPCHR, PTPIOS, PTPSER, PTPMOD, PTPBUF
00110   EXTERNAL PTPPTR, PTPADR, PTPCTR, PTPCNT, PTPCHA, PTPSIO
00120   ENTRY PTPDSP
```

```

00130
00140
00150      , PARAMETER ASSIGNMENTS
00160
00170
00180      ,   PTP CONTROL REGISTER
00190          PTPDON=10
00200
00210      ,   FORMAT CONTROL
00220          PTPFDN=200
00230
00240      ,   SPECIAL IO STATUS WORD ASSIGNMENTS
00250          PTPFED=200000
00260          PTPSSQ=40000
00270          PTPEOL=20000
00280          PTPSEQ=10000
00290          PTPBIN=4000      ;CHECKSUM BINARY
00300          PTPIB=2000      ;IMAGE BINARY
00310
00320      ,   SPECIAL ASCII CHARACTERS
00330          NULL=200
00340          RUBOUT=377
00350          HORTAB=211
00360          VERTAB=213
00370          FORMFD=214
00380
00390      REPEAT 0,<
00400      ,PTP DATA BLOCK
00410
00420      PTPDAT:   SIXBIT "PTP"
00430      PTPCHR:   41
00440      PTPIOS:   0
00450      PTPSER:   EXP PTPDSP
00460      PTPMOD:   XWD 1000+PROG,14403
00470      0
00480      PTPBUF:   0
00490      PTPPTR:   0
00500      PTPADR:   XWD PROG,0
00510      PTPCTR:   0
00520      PTPCNT:   0
00530      PTPCHA:   0
00540      PTPSIO:   0
00550      >

00560
00570      ,PTP SERVICE DISPATCH TABLE
00580
00590      PTPDSP:   JRST PTPREL      ;RELEASE
00600              JRST PTPCLS      ;CLOSE
00610              JRST PTPOUT      ;OUTPUT
00620              JRST ILLINP      ;INPUT
000000 254000 000004'
000001 254000 000007'
000002 254000 000024'
000003 254000 000000'

```

			00630		
			00640	INTERNAL PTPINI	
			00650	PTPINI:	
000004	710200	000000	00660	PTPREL:	CONO PTP,0
000005	513000	000052'	00670		HLLZS PTPINT ;CLEAR CONSO FLAG BITS
000006	263140	000000	00680		POPJ PDP, ;RETURN
			00690		
			00700		
			00710		
			00720		
000007	260140	000000	00730	PTPCLS:	PUSHJ PDP,OUT; OUTPUT REMAINING BUFFERS
000010	260140	000000	00740		PUSHJ PDP,WAIT1; WAIT FOR IOACT=0.
000011	200000	000000	00750		MOVE IOS,PTPIOS; C(IOS):=C(PTPIOS)
000012	661000	600001	00760		TLO IOS,IODISC+PTPFED+IOW; IODISC:=IOW:=PTPFED:=1
000013	660000	010000	00770		TRO IOS,IOACT; IOACT:=1
000014	202000	000011'	00780		MOVEM IOS,PTPIOS; C(PTPIOS):=C(IOS)
000015	201040	000200	00790		MOVEI TAC,200
000016	202040	000000	00800		MOVEM TAC,PTPCNT; PTPCNT:=400
000017	201040	000010	00810		MOVEI TAC,PTPDON ;SET CONSO FLAG
000020	542040	000052'	00820		HRRM TAC,PTPINT
000021	201040	000000	00830		MOVEI TAC,PTPCHN; TAC:=PTPCHN,PI CHANNEL ASSIGNMENT
000022	710201	000010	00840		CONO PTP,PTPDON(TAC); DONE FLAG:=1, ASSIGN PI CHANN
000023	254000	000010'	00850		JRST WAIT1 ;WAIT FOR IOACT=0, ALL BUFFERS FINISHED

		00860		
		00870		
000024	623000 000002	00880	PTPOUT:	TLZE IOS,IOBEG ;VIRGIN DEVICE? (IOBEG:=0)
000025	254000 000036'	00890		JRST PTPIN2 ;YES
		00900		
000026	660000 010000	00910	PTPIN1:	TRO IOS,IOACT ;IOACT:=1
000027	621000 400000	00920		TLZ IOS,IODISC ;CLEAR DISCONNECT BIT
000030	202000 000014'	00930		MOVEM IOS,PTPIOS ;PTPIOS:=C(10S)
000031	201040 000010	00940		MOVEI TAC,PTPDON ;SET CONSO FLAG BIT
000032	542040 000052'	00950		HRRM TAC,PTPINT
000033	201040 000021'	00960		MOVEI TAC, PTPCHN
000034	710201 000010	00970		CONO PTP,PTPDON (TAC) ;DONE FLAG:=1, ASSIGN PI CHAN
000035	263140 000000	00980		POPJ PDP, ;RETURN
		00990		
000036	135040 000000	01000	PTPIN2:	LDB TAC,PIOMOD
000037	661000 200024	01010		TLO IOS, IOFST+PTPFED+IO ;IOFST:=PTPFED:=IO:=1
000040	621000 006000	01020		TLZ IOS,PTPBIN+PTPIB ;CLEAR BINARY AND IMAGE BINAR
000041	306040 000013	01030		CAIN TAC,IB ;IMAGE BINARY?
000042	661000 002000	01040		TLO IOS,PTPIB ;YES
000043	306040 000014	01050		CAIN TAC,B ;MODE=BINARY?
000044	661000 004000	01060		TLO IOS,PTPBIN ;YES, PTPBIN:=1
000045	201040 000200	01070		MOVEI TAC,PTPFDN ;PTPCNT:=PTPFDN
000046	202040 000016'	01080		MOVEM TAC,PTPCNT
000047	260140 000000	01090		PUSHJ PDP,SETBYT ;SETBYT
000050	502040 000000	01100		HLLM TAC,PTPPTR ;PTPPTR0-5:=PTPPTR12-13:=0,PTPPTR6-11:=
		01110		;SIZE; PTPPTR14-17:=PROG
000051	254000 000026'	01120		JRST PTPIN1

			01130		
			01140		
			01150	,PUNCH INTERRUPT SERVICE	
			01160		
			01170		
000052	710340	000010	01180	PTPINT: CONSO PTP,PTPDON;	DONE FLAG=1?
000053	254000	000052'	01190	JRST PTPINT	;NO. IF PTP IS IN FLAG LIST GO TO ERROR
000054	202000	000000	01200	MOVEM IOS,PTPSIO	;PTPSIO:=C(IOS) SAVE IOS
000055	200000	000030'	01210	MOVE IOS,PTPIOS	;IOS:=C(PTPIOS)
000056	603000	200000	01220	TLNE IOS,PTPFED	;FEED REQUEST? (PTPFED=1?)
000057	254000	000151'	01230	JRST PTPS2	;YES
000060	200000	000054'	01240	MOVE IOS,PTPSIO	;RESTORE IOS
000061	264000	000000	01250	JSR PTPSAV	;SAVE ACS AND ESTABLISH PDP
000062	201300	000000	01260	MOVEI DEVDAT,PTPDAT	
000063	260140	000000	01270	PUSHJ PDP,IOSET	;PROG:=(JBTADR 18-35),ITEM:=C(DEVCTR)
000064	200000	000055'	01280	MOVE IOS,PTPIOS	
000065	623000	400000	01290	TLZE IOS,IODISC	;DISCONNECT? (IODISC=1?)
000066	254000	000167'	01300	JRST PTPADV	;YES
000067	623000	000004	01310	TLZE IOS,IOFST	;IOFST=1? IOFST:=0
000070	254000	000175'	01320	JRST PTP9	;YES
000071	607000	006000	01330	TLNN IOS,PTPBIN+PTPIB	;BINARY PUNCH MODE?
000072	254000	000121'	01340	JRST PTP3	;NO
			01350		
000073	200040	000000	01360	PTPB0: MOVE TAC,PTPCHA;	BINARY OUTPUT BYTE SIZE=36
000074	241040	000006	01370	ROT TAC,6	
000075	202040	000073'	01380	MOVEM TAC,PTPCHA	
000076	405040	000077	01390	ANDI TAC,77;	TAC:=XX, SIXBIT SUB-BYTE
000077	271040	000200	01400	ADDI TAC,200	
000100	710140	000001	01410	DATAO PTP,TAC;	PUNCH 2XX
000101	371000	000046'	01420	SOSL PTPCNT;	C(PTPCNT):=C(PTPCNT)-1. WORD DONE?
000102	254000	000227'	01430	JRST PTPXIT;	NO
000103	371000	000000	01440	SOSL PTPCTR;	C(PTPCTR):=C(PTPCTR)-1. ITEM COUNT < 0
000104	254000	000113'	01450	JRST PTPB1;	NO
000105	603000	002000	01460	TLNE IOS,PTPIB	;IMAGE BINARY?
000106	665000	400000	01470	TLOA IOS,IODISC	;YES, SUPPRESS TAPE FEED.
000107	661000	600000	01480	TLO IOS,IODISC+PTPFED	;IODISC:=PTPFED:=1
000110	201040	000010	01490	MOVEI TAC,10	
000111	202040	000101'	01500	MOVEM TAC,PTPCNT;	PTPCNT:=10
000112	254000	000227'	01510	JRST PTPXIT	
			01520		
000113	201040	000005	01530	PTPB1: MOVEI TAC,5,	;PTPCNT:=5
000114	202040	000111'	01540	MOVEM TAC,PTPCNT	
000115	200260	000050'	01550	MOVE DAT,@PTPPTR;	PTPCHA:=OUTPUT DATA WORD
000116	350000	000115'	01560	AOS PTPPTR;	PTPPTR:=C(PTPPTR)+1. ADVANCE ITEM POIN
000117	202240	000075'	01570	MOVEM DAT,PTPCHA	
000120	254000	000227'	01580	JRST PTPXIT	
			01590		

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000121 710140 000117' 01600
000122 602000 000014 01610
000123 254000 000136' 01620
000124 200240 000121' 01630
000125 302240 000211 01640
000126 306240 000213 01650
000127 254000 000216' 01660
000130 302240 000214 01670
000131 254000 000136' 01680
000132 661000 220000 01690
000133 201240 000020 01700
000134 202240 000114' 01710
000135 254000 000227' 01720
01730

```

PTP3:

```

DATA0 PTP,PTPCHA; PUNCH CHARACTER
TRNE IOS,14; IS MODE AN ALPHA MODE
JRST PTP1; NO
MOVE DAT,PTPCHA
CAIE DAT,HORTAB; HORIZONTAL OR VERTICAL TAB?
CAIN DAT,VERTAB
JRST PTPP1; YES
CAIE DAT,FORMFD; FORM FEED?
JRST PTP1; NO
TLO IOS,PTPFED+PTPEOL; PTPFED:=PTPEOL:=1
MOVEI DAT,20
MOVEM DAT,PTPCNT; PTPCNT:=20
JRST PTPXIT

```


			01740			
			01750			
000136	375000	000103'	01760	PTP1:	SOSGE PTPCTR;	C(PTPCTR):=C(PTPCTR)-1. IS C(PTPCTR)<0
000137	254000	000160'	01770		JRST PTP5	;YES
000140	134240	000116'	01780		LDBI DAT,PTPPTR	;DAT:=OUTPUT ITEM
000141	135040	000036'	01790		LDB TAC,PIOMOD	
000142	306040	000010'	01800		CAIN TAC,I;	MODE=IMAGE?
000143	254000	000147'	01810		JRST PTP6	;YES
000144	435240	000200'	01820		IORI DAT,200;	NO, INSERT EIGHTH HOLE
000145	306240	000200'	01830		CAIN DAT,NULL;	NULL?
000146	254000	000136'	01840		JRST PTP1;	YES
			01850			
000147	202240	000124'	01860	PTP6:	MOVEM DAT,PTPCHA;	PTPCHA:=OUTPUT ITEM
000150	254000	000227'	01870		JRST PTPXIT	
			01880			
000151	402000	000147'	01890	PTPS2:	CLEARM PTPCHA;	PUNCH FEED
000152	710140	000151'	01900		DATAO PTP,PTPCHA	
000153	377000	000134'	01910		SOSG PTPCNT;	COUNT FEED LINES
000154	621000	200000'	01920		TLZ IOS,PTPFED;	PTPFED:=0
000155	202000	000064'	01930		MOVEM IOS,PTPIOS;	PTPIOS:=C(IOS)
000156	200000	000060'	01940		MOVE IOS,PTPSIO	;RESTORE IOS
000157	254520	000000'	01950		JEN @PTPCHL	;DISMISS
			01960			
			01970			
000160	661000	400000'	01980	PTP5:	TLO IOS,IODISC;	IODISC:=1
000161	254000	000227'	01990		JRST PTPXIT	
			02000			
000162	550100	000000'	02010	PTPBN:	HRRZ TAC1,PTPADR;	TAC1:=BUFFER ADDRESS
000163	260140	000000'	02020		PUSHJ PDP,CKS12;	TAC:=CALCULATE CHECKSUM
000164	270100	000162'	02030		ADD TAC1,PTPADR	
000165	502060	000002'	02040		HLLM TAC,@TAC1;	STORE CHECKSUM IN LEFT HALF OF FIRST BU
000166	254000	000113'	02050		JRST PTPB1	

			02060		
			02070		
000167	260140	000000	02080	PTPADV:	PUSHJ PDP,ADVBFE; ADVANCE BUFFER
000170	254000	000222'	02090		JRST PTPDSC; EXIT1. NEXT BUFFER EMPTY
000171	602000	000040	02100		TRNE IOS,IOCON; CONTINUOUS? (IOCON=1?)
000172	254000	000222'	02110		JRST PTPDSC; YES
000173	623000	000001	02120		TLZE IOS,IOW; IN A WAIT? IOW:=0
000174	260140	000000	02130		PUSHJ PDP,SETIOD; YES. IOWS:=1
000175	621000	000004	02140	PTP9:	TLZ IOS,IOFST; IOFST:=0
000176	200040	000164'	02150		MOVE TAC,PTPADR
000177	350000	000001	02160		AOS TAC
000200	542040	000140'	02170		HRRM TAC,PTPPTR; PTPPTR18-35:=C(PTPADR18-35)+1
000201	550220	000001	02180		HRRZ ITEM,@TAC; ITEM:=WORD COUNT
000202	135100	000215'	02190		LDB TAC1,PTP91 ;PICK UP BYTE SIZE
000203	260140	000000	02200		PUSHJ PDP,ITMCT1; ITEM:=WORD COUNT*[36/BYTE SIZE]
000204	202200	000136'	02210		MOVEM ITEM,PTPCTR; PTPCTR:=C(ITEM)
000205	322200	000167'	02220		JUMPE ITEM,PTPADV ; IS ITEM COUNT=0?
000206	603000	004000	02230		TLNE IOS,PTPBIN; BINARY PUNCH MODE?
000207	254000	000162'	02240		JRST PTPBN; YES
000210	607000	002000	02250		TLNN IOS,PTPIB ;IMAGE BINARY?
000211	254000	000136'	02260		JRST PTP1
000212	350000	000200'	02270		AOS PTPPTR ;YES
000213	370000	000204'	02280		SOS PTPCTR
000214	254000	000113'	02290		JRST PTPB1
			02300		
000215	300600	000212'	02310	PTP91:	POINT 6,PTPPTR,11
			02320		
000216	201240	000377	02330	PTPP1:	MOVEI DAT,RUBOUT; PTPCHA:=RUBOUT
000217	202240	000152'	02340		MOVEM DAT,PTPCHA
000220	661000	020000	02350		TLO IOS,PTPEOL; PTPEOL:=1
000221	254000	000227'	02360		JRST PTPXIT
			02370		
000222	260140	000004'	02380	PTPDSC:	PUSHJ PDP,PTPREL ;CLEAR PTP CONTROL REG AND CONSO BITS
000223	620000	010000	02390		TRZ IOS,IOACT; IOACT:=0
000224	661000	000004	02400		TLO IOS,IOFST; IOFST:=1
000225	623000	000001	02410		TLZE IOS,IOW; IN A WAIT? IOW:=0
000226	260140	000174'	02420		PUSHJ PDP,SETIOD; YES. IOWS:=1
			02430		
000227	202000	000155'	02440	PTPXIT:	MOVEM IOS,PTPIOS; PTPIOS:=C(IOS)
000230	254000	000000	02450		JRST PTPRET; NO
			02460		
			02470	END,	

THERE ARE NO ERRORS

PROGRAM BREAK IS 000231

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADVBFE	000167'	EXT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CKS12	000163'	EXT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
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
FORMFD	000214	
HORTAB	000211	
I	000010	INT
IB	000013	INT
IBUFR	200000	INT
ILLINP	000003'	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	000063'	EXT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
ITMCT1	000203'	EXT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
LOOKR	040000	INT
MTW	010000	INT
NULL	000200	
OBUFR	100000	INT
OUT	000007'	EXT
OUTPR	004000	INT
PDP	000003	INT
PIC HN	000100	INT
PIOMOD	000141'	EXT
PROG	000007	INT
PTP1	000136'	
PTP3	000121'	
PTP5	000160'	

PTP6	000147'	
PTP9	000175'	
PTP91	000215'	
PTPADR	000176'	EXT
PTPADV	000167'	
PTPB0	000073'	
PTPB1	000113'	
PTPBIN	004000	
PTPBN	000162'	
PTPBUF	000000	EXT
PTPCHA	000217'	EXT
PTPCHL	000157'	EXT
PTPCHN	000033'	EXT
PTPCHR	000000	EXT
PTPCLS	000007'	
PTPCNT	000153'	EXT
PTPCTR	000213'	EXT
PTPDAT	000062'	EXT
PTPDB	000000	EXT
PTPDON	000010	
PTPDSC	000222'	
PTPDSP	000000'	INT
PTPEOL	020000	
PTPFDN	000200	
PTPFED	200000	
PTPIR	002000	
PTPIN1	000026'	
PTPIN2	000036'	
PTPINI	000004'	INT
PTPINT	000052'	INT
PTPIOS	000227'	EXT
PTPMOD	000000	EXT
PTPOUT	000024'	
PTPP1	000216'	
PTPPTR	000215'	EXT
PTPREL	000004'	
PTPRET	000230'	EXT
PTPS2	000151'	
PTPSAV	000061'	EXT
PTPSFQ	010000	
PTPSER	000000	EXT
PTPSIO	000156'	EXT
PTPSSQ	040000	
PTPXIT	000227'	
RUROUT	000377	
RUN	200000	INT
RUNABL	204000	INT
SETBYT	000047'	EXT
SETIOD	000226'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT

PTPSER - PAPER TAPE PUNCH SERVICE ROUTINE
SYMBOL TABLE

PAGE 14

UUO	000014	INT
VERTAB	000213	
WAIT1	000023'	EXT

END OF ASSEMBLY

00010

XLIST

01970
00010


```
00040
00050      EXTERNAL WSYNC, STOSQD, ILLOUT
00060      EXTERNAL STODAT, IOSET, SETBYT, CKS12, ADVBFF
00070      EXTERNAL SETIOD, PTRSAV, PTRCHN, PTRRET, PIOMOD
00080      INTERNAL PTRINT
00090
00100      ;PTR DEVICE DATA BLOCK LINKAGE
00110
00120      EXTERNAL PTRDB, PTRDAT, PTRCHR, PTRIOS, PTRSER, PTRMOD, PTRBUF
00130      EXTERNAL pTRADR, pTRpTR, pTRCTR, pTR SVC, pTRSV1
00140      ENTRY PTRDSP
```

```

00150
00160 ,PARAMETER ASSIGNMENTS
00170 ,   PTR CONTROL REGISTER
00180         PTRDON=10;         DONE FLAG
00190         PTRBSY=20;         BUSY FLAG
00200         PTRBIN=40;         BINARY READ MODE
00210         POW=400; POWER. ON=1
00220
00230 ,   SPECIAL IO STATUS WORD ASSIGNMENTS
00240         PTRERR=2000
00250         PTRFCI=200000
00260         PTRPOW=100000
00270 ,   SPECIAL ASCII CHARACTERS
00280         NULL=200
00290         RUBOUT=377
00300         S2EOF=232;         END OF FILE
00310 ,   PI CONTROL REGISTER
00320         PION=200
00330         PIOFF=400
00340
00350 REPEAT 0,<
00360 ,PTR DATA BLOCK
00370 PTRDAT: SIXBIT "PTR"
00380 PTRCHR: 41
00390 PTRIOS: 0
00400 PTRSER: EXP PTRDSP
00410 PTRMOD: XWD 1000+PROG,10403
00420 0
00430 PTRBUF: 0
00440 PTRADR: XWD PROG,0
00450 PTRPTR: 0
00460 PTRCTR: 0
00470 PTRSVC: 0
00480 PTRSV1: 0
00490 >

00500
00510 ,PTR SERVICE DISPATCH TABLE
00520
00530 PTRDSP: JRST PTRREL ;RELEASE
00540         POPJ PDP,; CLOSE
00550         JRST ILLOUT ;OUTPUT
00560         JRST PTRINP; INPUT
00570
000000 254000 000134'
000001 263140 000000
000002 254000 000000
000003 254000 000004'

```

			00580		
			00590		
			00600		
000004	607000	000002	00610	PTRINP:	TLNN IOS,IOBEG;
000005	254000	000013	00620		JRST PTRIN1;
000006	661000	000004	00630		TLO IOS,IOFST;
000007	260140	000000	00640		PUSHJ PDP,SETRYT;
			00650		
000010	202040	000000	00660		MOVEM TAC,PTRPTR;
000011	710700	000400	00670		CONSZ PTR,POW;
000012	661000	100000	00680		TLO IOS,PTRPOW;
000013	660000	010000	00690	PTRIN1:	TRO IOS,IOACT;
000014	135040	000000	00700		LDB TAC,PIOMOD
000015	201100	000000	00710		MOVEI TAC1, PTRCHN;
000016	306040	000014	00720		CAIN TAC,B;
000017	271100	000040	00730		ADDI TAC1,PTRBIN;
000020	201040	000010	00740		MOVEI TAC,PTRDON ;SET CONSO INTERRUPT FLAG
000021	542040	000032	00750		HRRM TAC,PTRINT
000022	627000	000002	00760		TLZN IOS,IOBEG;
000023	254000	000027	00770		JRST PTRIN4;
000024	202000	000000	00780		MOVEM IOS,PTRIOS;
000025	710602	000020	00790		CONO PTR,PTRBSY(TAC1);
000026	263140	000000	00800		POPJ PDP,;
			00810		
000027	202000	000024	00820	PTRIN4:	MOVEM IOS,PTRIOS;
000030	710602	000010	00830		CONO PTR,PTRDON(TAC1);
000031	263140	000000	00840		POPJ PDP,
			00850		

VIRGIN DEVICE? (IOBEG=1?)

NO

IOFST:=1. NEXT ITEM WILL BE FIRST ITEM

TAC0-5:=TAC12-13:=0,TAC6-11:=BYTE SIZE

TAC14-17:=PROG

PTRPTR:=C(TAC)

IS POWER ON?

YES. PTRPOW:=1

IOACT:=1

TAC1:=PTR PI CHANNEL ASSIGNME

MODE=BINARY?

YES. ALPHA/BINARY:=BINARY

YES. ALPHA/BINARY:=BINARY

YES. ALPHA/BINARY:=BINARY

VIRGIN DEVICE? (IOBEG=1?)

NO

PTRIOS:=C(10S)

PTR BUSY FLAG:=1,ASSIGN INTER

INPUT RETURN-VIRGIN DEVICE

PTRIOS:=C(10S)

PTR DONE FLAG:=1,ASSIGN INTER

			00860		
			00870		
000032	710740	000010	00880	PTRINT:	CONSO PTR,PTRDON ;INTERRUPT. IS DONE FLAG = 1?
000033	254000	000032'	00890		JRST PTRINT ;NO. IF PTR IS IN FLAG LIST, THIS LOC
000034	331000	000027'	00900		SKIPL PTRIOS ;DISCONNECT REQUEST? (IODISC=1?)
000035	710440	000000	00910		DATAI PTR,PTRSV1 ;PTRSV1: = DATA WORD
000036	264000	000000	00920		JSR PTRSAV ;SAVE ACCUMULATORS AND ESTABLISH PDP
000037	201300	000000	00930		MOVEI DEVDAT,PTRDAT ;DEV DAT: = PTR SIXBIT
000040	260140	000000	00940		PUSHJ PDP,IOSET ;PROG:=C(JBTADR18-35),ITEM:=C(DEVCTR)
000041	200000	000034'	00950		MOVE IOS,PTRIOS ;IOS:=C(PTRIOS)
000042	200240	000035'	00960		MOVE DAT,PTRSV1 ;DAT:=C(PTRSV1)
000043	710740	000400	00970		CONSO PTR,POW ;PTR POWER ON?
000044	254000	000075'	00980		JRST PTREND ;NO
000045	667000	100000	00990		TLON IOS,PTRPOW ;PTRPOW=1? PTRPOW:=1
000046	254000	000131'	01000		JRST PTREX1 ;NO
000047	623000	400000	01010		TLZE IOS,IODISC
000050	254000	000121'	01020		JRST PTREX
000051	623000	200000	01030		TLZE IOS,PTRFCI ;IS PTRFCI=1?
000052	200240	000000	01040		MOVE DAT,PTR SVC ;YES. DAT:=C(PTR SVC)
000053	602000	000014	01050	PTRIN0:	TRNE IOS,B ;MODE=BINARY?
000054	254000	000061'	01060		JRST PTRI0 ;YES
000055	302240	000200	01070		CAIE DAT,NULL ;LAST CHARACTER NULL OR RUBOUT?
000056	306240	000377	01080		CAIN DAT,RUBOUT
000057	254000	000131'	01090		JRST PTREX1 ;YES
000060	322240	000131'	01100		JUMPE DAT,PTREX1 ;DAT=0?
			01110		
000061	260140	000000	01120	PTRI0:	PUSHJ PDP,STODAT ;NO STORE DATA WORD.
000062	255000	000000	01130		JFCL ;CHECKSUM ERROR
000063	254000	000065'	01140		JRST PTRI1 ;BLOCK FULL OR BLOCK COMPLETE
000064	254000	000131'	01150		JRST PTREX1 ;DATA STORED CORRECTLY.
			01160		
000065	260140	000000	01170	PTRI1:	PUSHJ PDP,ADV BFF ;ADVANCE BUFFER
000066	661000	400000	01180		TLO IOS,IODISC; NEXT BUFFER IS FULL. IODISC:=1
000067	602000	000040	01190		TRNE IOS,IOCON; NEXT BUFFER IS EMPTY. CONTINUOUS? (IOC
000070	661000	400000	01200		TLO IOS,IODISC; NON-CONT. OPERATION. IODISC:=1
000071	661000	000004	01210	PTRI2:	TLO IOS,IOFST; IOFST:=1. NEXT ITEM IS FIRST ITEM OF A
000072	623000	000001	01220		TLZE IOS,IOW; IN A WAIT? IOW:=0
000073	260140	000000	01230		PUSHJ PDP,SETIOD; IOWS:=1
000074	254000	000131'	01240		JRST PTREX1

			01250	
			01260	
			01270	, COME HERE WHEN THE READER IS SHUT OFF
			01280	
			01290	
000075	630000	000137'	01300	PTREND: TDZ IOS,[XWD PTRPOW,IOACT] ;PTRPOW:=0,IOACT:=0
000076	260140	000134'	01310	PUSHJ PDP,PTRREL ;CLEAR PTR AND CONSO FLAG
000077	135040	000014'	01320	LDB TAC,PIOMOD
000100	661000	000040	01330	TLO IOS,IOEND ;IOEND:=1
000101	602040	000014	01340	TRNE TAC,B ;MODE=A,AL
000102	254000	000114'	01350	JRST PTREIB ;NO
000103	201240	000232	01360	MOVEI DAT,S2EOF; EOF CHAR
000104	260140	000061'	01370	PUSHJ PDP,STODAT ;STORE DATA WORD
000105	254000	000062'	01380	JRST PTRI0+1 ;CHECKSUM ERROR
000106	254000	000111'	01390	JRST .+3 ;BLOCK FULL OR BLOCK COMPLETE
000107	260140	000000	01400	PTREI: PUSHJ PDP,STOSQD; FINISH THIS BUFFER, STORE WORD COUNT
000110	330000	000000	01410	SKIP
000111	260140	000065'	01420	PUSHJ PDP,ADVBFF ;ADVANCE BUFFER
000112	330000	000000	01430	SKIP
000113	254000	000071'	01440	JRST PTRI2
			01450	
000114	302040	000014	01460	PTREIR: CAIE TAC,B ;MODE=BINARY?
000115	254000	000107'	01470	JRST PTREI ;NO
000116	607000	000004	01480	TLNN IOS,IOFST ;IOFST=1?
000117	660000	002000	01490	TRO IOS,PTRERR ;NO. PTRERR:=1. BINARY BLOCK INCOMPLE
000120	254000	000071'	01500	JRST PTRI2

			01510		
			01520		
			01530	,DISCONNECT PTR	
000121	337020	000000	01540	PTREX: SKIPG @PTRADR	;IOUSE=1?
000122	254000	000125'	01550	JRST PTREX0	;YES.
000123	710440	000042'	01560	DATAI PTR,PTRSV1	
000124	254000	000053'	01570	JRST PTRIN0	
			01580		
000125	710440	000052'	01590	PTREX0: DATAI PTR,PTRSV1	;SAVE LAST DATA WORD FROM PTR
000126	260140	000134'	01600	PUSHJ PDP,PTRREL	;CLEAR PTR AND CONSO FLAG
000127	661000	200000	01610	TLO IOS,PTRFCI	;PTRFCI:=1
000130	620000	010000	01620	TRZ IOS,IOACT	;IOACT:=0
			01630		
000131	202200	000000	01640	PTREX1: MOVEM ITEM,PTRCTR	;PTRCTR:=C(ITEM)
000132	202000	000041'	01650	MOVEM IOS,PTRIOS	;PTRIOS:=C(10S)
000133	254000	000000	01660	JRST PTRRET	;RESTORE ACCUMULATORS AND DISMISS INTER
			01670		
			01680	INTERNAL PTRINI	
			01690		
			01700	PTRINI:	
000134	710600	000000	01710	PTRREL: CONO PTR,0	;CLEAR PTR CONTROL
000135	513000	000032'	01720	HLLZS PTRINT	;CLEAR CONSO FLAG
000136	263140	000000	01730	POPJ PDP,	
			01740		
000137	100000	010000	01750	END,	

THERE ARE NO ERRORS

PROGRAM BREAK IS 000140

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADVBFF	000111	FXT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFNT	000012	INT
RUFWRD	000013	INT
CKS12	000000	FXT
CLOSR	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
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
DVTY	000010	INT

PTRSER - PAPER TAPE READER SERVICE ROUTINE
SYMBOL TABLE

PAGE 10

ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLOUT	000002'	EXT
INITB	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
IOFND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSET	000040'	EXT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAADR	000000	INT
JBFCTR	000002	INT
JBFPTR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
LOOKR	040000	INT
MTW	010000	INT
NULL	000200	
OBUFB	100000	INT
OUTPB	004000	INT
PDP	000003	INT
PICHN	000100	INT
PIOFF	000400	
PIOMOD	000077'	EXT
PION	000200	
POW	000400	
PROG	000007	INT
PTRADR	000121'	EXT
PTRBIN	000040	
PTRBSY	000020	
PTRBUF	000000	EXT

PTRCHN	000015'	EXT
PTRCHR	000000	EXT
PTRCTR	000131'	EXT
PTRDAT	000037'	EXT
PTRDR	000000	EXT
PTRDON	000010	
PTRDSP	000000'	INT
PTREI	000107'	
PTREIB	000114'	
PTREND	000075'	
PTRERR	002000	
PTREX	000121'	
PTREX0	000125'	
PTREX1	000131'	
PTRFCI	200000	
PTRI0	000061'	
PTRI1	000065'	
PTRI2	000071'	
PTRIN0	000053'	
PTRIN1	000013'	
PTRIN4	000027'	
PTRINI	000134'	INT
PTRINP	000004'	
PTRINT	000032'	INT
PTRIOS	000132'	EXT
PTRMOD	000000	EXT
PTRPOW	100000	
PTRPTR	000010'	EXT
PTRREL	000134'	
PTRRET	000133'	EXT
PTRSAV	000036'	EXT
PTRSFR	000000	EXT
PTRSV1	000123'	EXT
PTRSVC	000125'	EXT
RUROUT	000377	
RUN	200000	INT
RUNABL	204000	INT
S2FOF	000232	
SETBYT	000007'	EXT
SETIOD	000073'	EXT
STODAT	000104'	EXT
STOSQD	000107'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT
WSYNC	000000	EXT

END OF ASSEMBLY

00010

XLIST

01970

00030	
00040	EXTERNAL APRCHN,APRCHL,CH6SAC,JBTADR,JOB,JOBAC,JOB DAT,JOBN
00050	EXTERNAL JOBPDP,USRDDT,USRPDP,JOBD DT
00060	EXTERNAL IORELS,JBTSTS,JOBADR,JOBCDP,JO BPC,JO BREL,JOBSA,JOBSYM
00070	EXTERNAL MESPNT,QUANT1,JOBDAC,TTYSTR,STOPU,SCHEDF
00080	EXTERNAL UXIT,IOCOMP,DCREQ,DCAVAL,DTREQ,DTAVAL,MTREQ,MTAVAL
00090	EXTERNAL CH1XIT,CH2XIT,CH3XIT,CH4XIT,CH5XIT,CH6XIT,CH7XIT
00100	EXTERNAL JOBFF,MJOBPD,JOBDPL,IOCOMP,PJOBN,USRL0,USRL01,USRHI
00110	EXTERNAL TTYFNU,RSCHED

```

00120
00130
00140
00150
00160
00170
000000 260140 000000 00180
000001 260140 000000 00190
000002 201100 000005' 00200
000003 260140 000000 00210
000004 254000 000030' 00220
00230
00240
000005 064250 554222 00250
000006 520321 200000 00260
00270
00280
00290
00300
000007 260140 000000 00310
000010 260140 000230' 00320
000011 254000 000000 00330
00340

```

;EXIT UUO ROUTINE

INTERNAL EXIT
EXTERNAL IORELS,TTYFNU,MESPNT,IOKILL

EXIT: PUSHJ PDP,IORELS ;RELEASE ALL DEVICES
PUSHJ PDP,TTYFNU
MOVEI TAC1,EXMESS
PUSHJ PDP,MESPNT
JRST HOLD ;STOP THIS USER IMMEDIATELY

EXMESS: ASCIZ /
EXIT
/

;RESET UUO ROUTINE

INTERNAL RESET

RESET: PUSHJ PDP,IOKILL ;RELEASE ALL DEVICES
PUSHJ PDP,SETUSR ;CLEAR PART OF JOB DATA AREA
JRST UXIT ;AND RETURN TO CALLER

```

00350
00360 ;COMMON ERROR HANDLING ROUTINES
00370 ;DEV DAT MUST BE SET UP TO TTY DDB ON WHICH TO PRINT ERROR MESSAGE
00380
00390 ;HERE ON ERROR DETECTED AT INTERRUPT SERVICE LEVEL
00400 ;0(PDP) CONTAINS ADR. OF DEVICE DATA BLOCK CAUSING ERROR
00410
00420 ;CALL:  MOVE TAC, PI CHANNEL NO. DETECTING ERROR
00430 ;
00440
00450 INTERNAL HOLDI,HOLD,HOLDI1
00460
000012 200103 000000 00470 HOLDI:  MOVE TAC1, 0(PDP) ;DEVICE DATA BLOCK
000013 135200 000266' 00480 LDB ITEM, [POINT 9, DEVCHR(TAC1), 8] ;GET JOB NUMBER
000014 261140 000001 00490 HOLDI1:  PUSH PDP, TAC ;SAVE PI CHANNEL NO.
000015 260140 000032' 00500 PUSHJ PDP, HOLDSB
000016 262140 000001 00510 POP PDP, TAC
000017 254001 000020' 00520 JRST CHNTAB(TAC) ;GO RESTORE ACS AND DISMISS CHANNEL
00530
000020 254000 000000 00540 CHNTAB:  JRST RSCHED ;INTERRUPT ON CLOCK CHANNEL,RESCHEDULE
000021 254000 000000 00550 JRST CH1XIT
000022 254000 000000 00560 JRST CH2XIT
000023 254000 000000 00570 JRST CH3XIT
000024 254000 000000 00580 JRST CH4XIT
000025 254000 000000 00590 JRST CH5XIT
000026 254000 000000 00600 JRST CH6XIT
000027 254000 000000 00610 JRST CH7XIT
00620
00630 ;HERE ON ERROR FROM UVO LEVEL, ERROR MESSAGE ALREADY IN TTY BUFFER
00640
00650 ;DAT=BYTE POINTER TO END OF MESSAGE; DEV DAT=TTY DEV. DATA BLOCK
000030 200200 000000 00660 HOLD:  MOVE ITEM, JOB ;NO. OF THIS JOB
000031 260140 000243' 00670 PUSHJ PDP, WAIT1 ;WAIT UNTIL TTY FINISHED
00680
000032 260140 000000 00690 HOLDSR:  PUSHJ PDP, CRLF
000033 260140 000000 00700 PUSHJ PDP, TTYSTR ;START UP TTY TO PRINT ERROR MESSAGE
00710 EXTERNAL CRLF
00720
00730 ;ROUTINE TO STOP USER AND FLAG AS ERROR STOP
00740 ;CALL:  MOVE ITEM, JOB NUMBER
00750 ;
00760
00770 INTERNAL ESTOP
00780
000034 205040 002000 00800 ESTOP:  MOVSI TAC, JERR ;SET ERROR BIT IN JOB STATUS
000035 436044 000000 00810 IORM TAC, JBTSTS(ITEM)
000036 254000 000071' 00820 JRST STOP1

```

```

00830
00840
00850
00860
00870
00880
00890
00900
00910
00920
000037 260140 000000' 00930
000040 550051 000002 00940
000041 402011 000002 00950
000042 550240 000007 00960
000043 270240 000001 00970
000044 272045 000000 00980
000045 504240 000007 00990
000046 554045 000000 01000
000047 313040 000000 01010
000050 200040 000047' 01020
000051 207000 000005 01030
000052 270040 000005 01040
000053 270240 000267' 01050
000054 251241 000000 01060
000055 200051 000000 01070
000056 202040 000000 01080
000057 260140 000230' 01090
000060 260140 000001' 01100
000061 201100 000064' 01110
000062 260140 000003' 01120
000063 254000 000030' 01130
01140
01150
000064 064251 447602 01160
000065 422132 220214
000066 446351 151620
000067 426101 505000 01170

```

,BLOCK TRANSFER PROGRAM OVER LOADER

INTERNAL LDRBLT
EXTERNAL USRREL

PGADR=2 ;AC CONTAINING BEGINNING OF PROGRAM(LOA

```

LDRBLT:  PUSHJ PDP,IORELS
        HRRZ TAC, PGADR(JDAT) ;ADD OFFSET TO SYMBOL TABLE P
        SETZM PGADR(JDAT) ;THEN CLEAR SO SYSMAC WILL STILL WORK
        HRRZ DAT,PROG
        ADD DAT,TAC
        ADDM TAC,JOBSYM(DAT)
        HRL DAT,PROG
        HLRZ TAC,JOBSA(DAT)
        CAMLE TAC,USRREL ;IS HIGHEST DESTINATION STILL IN USER A
        MOVE TAC,USRREL ;NO, MAKE SURE IT IS.
        MOVSS DAT
        ADD TAC,DAT
        ADD DAT,[XWD 30,30] ;MOVE PROGRAM DOWN
        BLT DAT,(TAC)
        MOVE TAC,JOBDOT(JDAT)
        MOVEM TAC,USRDOT
        PUSHJ PDP,SETUSR
        PUSHJ PDP,TTYFNU
        MOVEI TAC1,LDRMES
        PUSHJ PDP,MESPNT
        JRST HOLD

```

LDRMES: ASCIZ /
LOADER FINISHED

/

		01180	
		01190	INTERNAL STOP1, STOP2, CONT1, START1
		01200	
		01210	PION=200
		01220	PIOFF=400
		01230	
		01240	;ROUTINE TO PUT CURRENT JOB IN IO WAIT
		01250	;ROUTINE TO STOP CURRENT JOB
		01260	;MAY BE CALLED FROM ANY LEVEL
		01270	;CALL; PUSHJ PDP, STOP0
		01280	; RETURN ;RETURN HERE IMMEDIATELY, IF CALLED FRO
		01290	;PRIORITY CHANNEL THAN CLOCK, OTHERWISE RETURN WHEN JOB IS RUNABLE AG
		01300	
		01310	INTERNAL STOP0
		01320	
000070	200200 000030'	01330	STOP0: MOVE ITEM, JOB ;CURRENT JOB NUMBER
		01340	
		01350	;ROUTINE TO STOP ANY JOB FROM BEING SCHEDULED
		01360	;CALL:
		01370	; MOVE ITEM, JOB NUMBER
		01380	; PUSHJ PDP, STOP1
		01390	; EXIT ;RETURN HERE IMMEDIATELY, IF CALLED FROM HIGHER
		01400	;PRIORITY CHANNEL THAN CLOCK, OTHERWISE RETURN WHEN JOB IC RUNABLE
		01410	;CALLED WHEN CONTROL C TYPED OR ON ERROR MESSAGES
		01420	
000071	205040 200000	01430	STOP1: MOVSI TAC, RUN
000072	700600 000400	01440	CONO PI, PIOFF ;DONE AT INTERRUPT LEVEL HIGHER THAN DT
000073	616044 000035'	01450	TDNN TAC, JBTSTS(ITEM) ;IS RUN BIT ON IN JOB STATUS
000074	254000 000105'	01460	JRST STOPA ;NO
000075	413044 000073'	01470	ANDCAB TAC, JBTSTS(ITEM) ;YES, SO CLEAR IT
000076	700600 000200	01480	CONO PI, PION
000077	603040 040000	01490	TLNE TAC, DTW ;WAITING TO USE DECTAPE
000100	370000 000000	01500	SOS DTREQ ;YES, REDUCE REQUEST COUNT
000101	603040 020000	01510	TLNE TAC, DCW ;DATA CONTROL
000102	370000 000000	01520	SOS DCREQ
000103	603040 010000	01530	TLNE TAC,MTW ;MAG TAPE
000104	370000 000000	01540	SOS MTREQ
000105	700600 000200	01550	STOPA: CONO PI, PION ;MAKE SURE PI ON
000106	332000 000000	01560	SKIPE SCHEDF ;IS CLOCK IN THE MIDDLE OF SCHEDULING
000107	254000 000112'	01570	JRST STOP2 ;YES, MAKE SURE THIS JOB WONT RUN
000110	312200 000070'	01580	CAME ITEM, JOB ;NO, IS THIS JOB CURRENT USER
PDP,	;NO		
		01600	;YES, MAKE CLOCK RESCHEDULE
		01610	
		01620	;ROUTINE TO CAUSE CLOCK TO RESCHEDULE
		01630	;CALL :
		01640	; PUSHJ PDP, STOP2
		01650	; EXIT ;RETURN WHEN JOB RUNABLE AGAIN
		01660	
		01670	EXTERNAL PICKL
		01680	
000112	700600 000400	01690	STOP2: CONO PI, PIOFF ;PREVENT CLOCK INTERRUPT
000113	476000 000000	01700	SETOM STOPU ;SET FLAG FOR CLOCK ROUTINE
000114	700600 000000	01710	CONO PI,PICKL ;REQUEST CLOCK INTERRUPT AND TURN PI ON
		01720	;CLOCK WILL TRAP IMMEDIATELY IF AT UO0
000115	263140 000000	01730	POPJ PDP, ;RETURN HERE WHEN JOB RUNABLE AGAIN


```

01740
01750 ;SUBROUTINE TO SETUP A MONITOR JOB TO BE RUN
01760 ;JOB MUST HAVE CORE ASSIGNED
01770 ;CALL: MOVE ITEM, JOB NUMBER
01780 ; HRRI TAC1, ADDRESS OF MONITOR JOB(A SUBROUTINE)
01790 ; HRLI TAC1, RETURN ADDRESS WHEN JOB FINISHED
01800 ; PUSH PDP, MONJOB
01810 ; RETURN IMMEDIATELY IF CALLED FROM CLOCK LEV OR HIGHER
01820
01830 ;ALL ACS WILL BE SAVED FOR THE MONITOR JOB
01840
01850 INTERNAL MONJOB
01860 EXTERNAL JOBDAC, JOBDHI, JOBPDP, MJOBDP, JOBPDL, JBTADR
01870
MONJOB: PUSH PDP, TAC1 ;SAVE ARG.
        HRRZ JDAT, JBTADR(ITEM) ;ADDRESS OF JOB DATA AREA
        MOVEI TAC1, JOBDAC(JDAT) ;SAVE 0-17 IN DUMP ACS
        BLT TAC1, JOBDHI(JDAT) ;IN JOB DATA AREA
        MOVSJ TAC1, MJOBDP ;SET UP PD LIST IN JOB DATA AREA
        HRRZ TAC1, JOBPDL(JDAT)
        HLRZ TAC, (PDP) ;WITH RETURN AS FIRST ITEM
        PUSH TAC1, TAC
        MOVEI TAC, JOBDAC(JDAT)
        MOVEM TAC1, PDP(TAC)
        POP PDP, TAC1 ;SET TO RUN
        ANDI TAC1, 77777 ;FALL INTO STARTU
02000
02010
02020 ;ROUTINE TO START A JOB AND LEAVE CONSOLE IN COMMAND MODE
02030 ;CALL: MOVE TAC1, START PC
02040 ; MOVE ITEM, JOB NUMBER
02050 ; PUSHJ PDP, STARTU
02060 ; RETURN IMMEDIATELY
02070 INTERNAL STARTM
02080 EXTERNAL TTYURC
02090
02100 STARTM: PUSHJ PDP, START1
02110 JRST TTYURC
02120
02130 ;START WITH TTY IN USER MODE
02140
02150 INTERNAL STARTU
02160 EXTERNAL TTYSET
02170
02180 STARTU: PUSHJ PDP, START1
02190 JRST TTYSET ;SET SCANNER TO CALL SETRUN WHEN
02200 ;CR-LF AND INITIALIZE TTY
02210
02220 INTERNAL CONTM
02230 EXTERNAL TTYURC
02240
02250 CONTM: JRST TTYURC
02260
02270 ;ROUTINE TO CONTINUE A JOB FROM COMMAND MODE
02280 ;CALL: MOVE ITEM, JOB NUMBER
02290 ; PUSHJ PDP, CONTU
02300 ; RETURN IMMEDIATELY

```

	02310	
	02320	INTERNAL CONTU
	02330	EXTERNAL TTYUSR
	02340	
000137 254000 000000	02350	CONTU: JRST TTYUSR ;SET SCANNER TO CALL SETRUN WHEN CR-LF

		02360	
		02370	;ROUTINE TO SET JOB STATE TO BE SCHEDULED TO RUN
		02380	;WITH SPECIFIED STARTING ADDRESS INCLUDING PC FLAGS
		02390	;CALL: MOVE TAC1,STARTING PC
		02400	; MOVE ITEM, JOB NUMBER
		02410	; MOVE JDAT, ADDRESS OF JOB DATA AREA(THERE MUST BE ONE)
		02420	; PUSHJ PDP, START1
		02430	; EXIT RETURN HERE IMMEDIATELY
		02440	
000140	200051 000000	02450	START1: MOVE TAC,JOBPC(JDAT) ;GET OLD PC
000141	202111 000140'	02460	MOVEM TAC1,JOBPC(JDAT) ;STORE NEW PC
000142	603100 010000	02470	TLNE TAC1,USRMOD ;IS NEW PC IN USER AREA?
000143	603040 010000	02480	TLNE TAC,USRMOD ;YES, WAS OLD PC IN USER AREA
000144	254000 000150'	02490	JRST START2 ;YES,DUMP ACS ARE HIS
000145	205111 000000	02500	MOVSI TAC1,(JDAT) ;NO, UUO ACS ARE HIS
000146	541111 000126'	02510	HRRI TAC1,JOBDAC(JDAT) ;MOVE THEM TO DUMP ACS
000147	251111 000121'	02520	BLT TAC1,JOBDHI(JDAT)
000150	205100 172000	02530	START2: MOVSI TAC1,JERR+DCW+DTW+MTW+JIOW ;CLEAR WAIT BITS
000151	412104 000075'	02540	ANDCAM TAC1, JBTSTS(ITEM) ;IN JOB STATUS WORD
		02550	
		02560	;ROUTINE TO CONTINUE ANY JOB AT CURRENT PC
		02570	;CALL:
		02580	; MOVE ITEM, JOB NUMBER
		02590	; PUSHJ PDP, CONT1
		02600	; EXIT RETURN IMMEDIATELY
		02610	
		02620	
000152	263140 000000	02630	CONT1: POPJ PDP,

			02640	
			02650	
			02660	
			02670	
			02680	;ROUTINE TO SET JOB STATUS RUN BIT
			02690	;CALL: MOVE ITEM,JOB NUMBER
			02700	; PUSHJ PDP,SETRUN
			02710	
			02720	INTERNAL SETRUN
			02730	SETRUN: MOVSJ TAC,RUN
			02740	IORB TAC,JBTSTS(ITEM)
000153	205040	200000	02750	TLNN TAC,DCW ;IS JOB WAITING FOR DATA CONTROL?
000154	437044	000151'	02760	JRST CONT2 ;NO
000155	607040	020000	02770	AOSG DCREQ ;YES, INCREMENT REQUEST COUNT
000156	254000	000161'	02780	SETOM DCAVAL ;AND SET DC AS AVAIL IF NOT IN USE
000157	357000	000102'	02790	CONT2: TLNN TAC,DTW ;DECTAPE?
000160	476000	000000	02800	JRST CONT3 ;NO
000161	607040	040000	02810	AOSG DTREQ
000162	254000	000165'	02820	SETOM DTAVAL
000163	357000	000100'	02830	CONT3: TLNN TAC,MTW ;MAG TAPE?
000164	476000	000000	02840	JRST CONT4
000165	607040	010000	02850	AOSG MTREQ
000166	254000	000171'	02860	SETOM MTAVAL
000167	357000	000104'	02870	CONT4: TLNE TAC,IOWS ;IO WAIT SATISFIED?
000170	476000	000000	02880	AOS IOCOMP ;YES
000171	603040	400000	02890	MOVEI TAC,QUANT1 ;SET TIME TO RUN FOR STRAIGHT QUEUE COM
000172	350000	000000	02900	HRRM TAC,JBTSTS(ITEM) ;RESPONSE IS FINISHED
000173	201040	000000	02910	SKIPE JOB ;IS NULL JOB RUNNING?
000174	542044	000154'	02920	POPJ PDP, ;NO
000175	332000	000110'	02930	JRST STOP2 ;YES, RESCHEDULE
000176	263140	000000	02940	
000177	254000	000112'		

```

02950
02960
02970
000200 261140 000002 02980
000201 515100 010000 02990
000202 261140 000001 03000
000203 200040 000175' 03010
000204 436101 000174' 03020
000205 260140 000112' 03030
000206 262140 000001 03040
000207 262140 000002 03050
000210 263140 000000 03060
03070
000211 261140 000002 03080
000212 515100 040000 03090
000213 254000 000202' 03100
03110
000214 261140 000002 03120
000215 515100 020000 03130
000216 254000 000202' 03140
03150

```

```

,ROUTINES TO INIATE A WAIT FOR MAG TAPE, DECTAPE, AND DATA CONTROL AV
INTERNAL MTWAIT
MTWAIT:  PUSH PDP,TAC1
        HRLZI TAC1,MTW
DVWAIT:  PUSH PDP, TAC
        MOVE TAC,JOB
        IORM TAC1,JBTSTS(TAC)
        PUSHJ PDP,STOP2
        POP PDP,TAC
        POP PDP,TAC1
        POPJ PDP,
INTERNAL DTWAIT
DTWAIT:  PUSH PDP,TAC1
        HRLZI TAC1,DTW
        JRST DVWAIT
INTERNAL DCWAIT
DCWAIT:  PUSH PDP,TAC1
        HRLZI TAC1,DCW
        JRST DVWAIT
INTERNAL DVWAIT

```

		03160	
		03170	
		03180	,DEC 06 00 EX JOB L PT PRE 02 SETIOD
		03190	,H.R. MORSE 64-12-26
		03200	,CALLING SEQUENCE
		03210	, PUSHJ PDP, SETIOD
		03220	, EXIT ALWAYS RETURNS HERE
		03230	,SETS THE BIT (IOWS:=1) IN THE JOB STATUS WORD (JBTSTS)
		03240	,INFORMING THE SYSTEM THAT AN I/O WAIT HAS BEEN COMPLETED
		03250	,AND THE JOB IS READY TO RUN AGAIN.
		03260	,MONITOR INTERFACE
		03270	, STORAGE: 6
		03280	, SYMBOLS SET/USED:
		03290	, ACCUMULATORS: DEV DAT U TAC S/U
		03300	, PDP U TAC1 S/U
		03310	,
		03320	, DEVICE DATA BLOCK: DEVCHR U
		03330	, SYSTEM DATA STORAGE: JBTSTS S/U
		03340	, JOB STATUS WORD: IOWS S
		03350	INTERN SETIOD
		03360	
000217	350000 000172'	03370	SETIOD: AOS IOCOMP
000220	135040 000000	03380	LDB TAC,PJOBN
000221	205100 400000	03390	MOVSI TAC1, IOWS ;SET IO-WAIT SATISFIED BIT
000222	436101 000204'	03400	IORM TAC1, JBTSTS(TAC)
000223	205100 100000	03410	MOVSI TAC1, JIOW ;CLEAR JOB IO-WAIT BIT
000224	412101 000222'	03420	ANDCAM TAC1, JBTSTS(TAC)
000225	336000 000203'	03430	SKIPN JOB ;IS NULL JOB RUNNING
000226	254000 000112'	03440	JRST STOP2 ;YES, FORCE CLOCK TO RE-SCHED
000227	263140 000000	03450	POPJ PDP,; RETURN

			03460
			03470
			03480
			03490
			03500
000230	541040	000000	03510
000231	505040	000000	03520
000232	402000	000231'	03530
000233	251040	000000	03540
000234	205040	000122'	03550
000235	541040	000123'	03560
000236	202040	000000	03570
000237	200440	000000	03580
000240	544051	000046'	03590
000241	552051	000000	03600
000242	263140	000000	03610

;SET CURRENT JOB AREA IN SYSTEM AREA

INTERNAL SETUSR

SETUSR: HRRI TAC,USRL01
HRLI TAC,USRLO
SETZM USRLO
BLT TAC,USRHI
MOVSI TAC,MJORPD
HRRI TAC,JOBPDL
MOVEM TAC,USRPDP
MOVE JDAT,JOBDAT
HLR TAC,JOBSA(JDAT)
HRRZM TAC,JOBFF(JDAT)
POPJ PDP,

```

03620
03630 ,DEC 06 00 EX COM L PT PRE 02 WAIT1,WSYNC
03640 ,H.R. MORSE 64-12-26
03650 ,CALLING SEQUENCE
03660 , PUSHJ PDP, WAIT1
03670 , EXIT ALWAYS RETURNS HERE
03680
03690 ,IF THE DEVICE IS INACTIVE (IOACT=0), RETURNS TO EXIT. OTHERWISE, SET
03700 ,IOW:=1 AND ENTERS WAIT UNLESS IOACT BECOMES ZERO BEFORE THE
03710 ,JUMP IS MADE, IN WHICH CASE IT SETS IOW:=0 AND RETURNS TO EXIT.
03720 ,ON LEAVING THE WAIT STATE, RETURNS TO EXIT.
03730 ,THIS ROUTINE PREVENTS THE STATE IOACT=0 AND IOW=1 FROM OCCURING
03740 ,CALLING SEQUENCE
03750 , PUSHJ PDP, WSYNC
03760 , EXIT ALWAYS RETURNS HERE
03770 ,SETS IOW:=1 AND ENTERS WAIT ROUTINE. RETURNS TO EXIT WHEN IOACT=0.
03780 ,MONITOR INTERFACE
03790 , STORAGE: 13
03800 , ROUTINES CALLED: WAIT
03810 , SYMBOLS SET/USED:
03820 , ACCUMULATORS: DEV DAT U PDP U
03830 , IOS S/U TAC S/U
03840 , DEVICE DATA BLOCK: DEV IOS S/U
03850 , IO STATUS WORD: IOACT U
03860 , IOW S/U

```



```

03870
03880
03890
03900
000243 200006 000002 03910
000244 606000 010000 03920
000245 263140 000000 03930
000246 260140 000250 03940
000247 254000 000243 03950
03960
03970
03980
03990
04000
04010
04020
04030
04040
04050
04060
04070
04080
04090
000250 205000 000001 04100
000251 205640 100000 04110
000252 200700 000225 04120
000253 201740 010000 04130
000254 700600 000400 04140
000255 616746 000002 04150
000256 254000 000263 04160
000257 436006 000002 04170
000260 436656 000224 04180
000261 700600 000200 04190
000262 260140 000112 04200
04210
000263 700600 000200 04220
000264 413006 000002 04230
04240
04250
04260
04270
000265 263140 000000 04280
000266 331102 000001
000267 000030 000030

```

```

INTERN WAIT1, WSYNC

; WAIT1 WAITS UNTIL DEVICE IS COMPLETELY INACTIVE BEFORE RETURNING
WAIT1:  MOVE IOS, DEVIOS(DEVDAT)
        TRNN IOS, IOACT          ;IS DEVICE ACTIVE? (IOACT=1?)
        POPJ PDP, ;              RETURN
        PUSHJ PDP, WSYNC;        WAIT
        JRST WAIT1

; WSYNC IS CALLED TO WAIT UNTIL SETIOD IS CALLED BY INTERRUPT SERVICE
; IE UNTIL CURRENT BUFFER ACTIVITY IS COMPLETED
; DEVDAT MUST BE SET UP

PION=200
PIOFF=400

WSYNC:  REPEAT 0, < PUSH PDP, TAC          ;MUST THESE BE SAVED?
        PUSH PDP, TAC1
        PUSH PDP, DAT>

        MOVSI IOS, IOW
        MOVSI AC1, JIOW
        MOVE AC2, JOB
        MOVEI AC3, IOACT
        CONO PI, PIOFF          ;TURN PI OFF
        TDNN AC3, DEVIOS(DEVDAT) ;IS THE DEVICE ACTIVE?
        JRST WSYNC1             ;NO
        IORM IOS, DEVIOS(DEVDAT) ;YES, SET DEVICE IO-WAIT BIT
        IORM AC1, JBTSTS(AC2)    ;AND JOB IO-WAIT BIT
        CONO PI, PION           ;TURN PI ON
        PUSHJ PDP, STOP2        ;STOP THIS USER BY FORCING CL
                                ;RETURN WHEN IO-WAIT FINISHED

WSYNC1: CONO PI, PION
        ANDCAB IOS, DEVIOS(DEVDAT) ;CLEAR DEVICE IO-WAIT BIT
REPEAT 0, < POP PDP, DAT
        POP PDP, TAC1
        POP PDP, TAC>

        POPJ PDP,
END,

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000270

RUNCSS - RUN CONTROL SUBROUTINES
SYMBOL TABLE

PAGE 16

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRCHL	000000	EXT
APRCHN	000000	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
BUFPNT	000012	INT
RUFWRD	000013	INT
CH1XIT	000021'	EXT
CH2XIT	000022'	EXT
CH3XIT	000023'	EXT
CH4XIT	000024'	EXT
CH5XIT	000025'	EXT
CH6SAC	000000	EXT
CH6XIT	000026'	EXT
CH7XIT	000027'	EXT
CHNTAB	000020'	
CLOSB	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CONT1	000152'	INT
CONT2	000161'	
CONT3	000165'	
CONT4	000171'	
CONTM	000136'	INT
CONTU	000137'	INT
CRLF	000032'	EXT
D	000017	INT
DAT	000005	INT
DCAVAL	000160'	EXT
DCL	000001	INT
DCREQ	000157'	EXT
DCW	020000	INT
DCWAIT	000214'	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

RUNCSS - RUN CONTROL SUBROUTINES
SYMBOL TABLE

PAGE 17

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
DTAVAL	000164'	EXT
DTREQ	000163'	EXT
DTW	040000	INT
DTWAIT	000211'	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
DVTY	000010	INT
DVWAIT	000202'	INT
ENTRB	020000	INT
ESTOP	000034'	INT
EXIT	000000'	INT
EXMESS	000005'	
HOLD	000030'	INT
HOLDI	000012'	INT
HOLDI1	000014'	INT
HOLDSB	000032'	
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
INIR	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORKTL	040000	INT
IOCOMP	000217'	EXT
IOCON	000040	INT
IODEND	020000	INT
IODERR	200000	INT
IODISC	400000	INT
IONONE	400000	INT
IODTER	100000	INT
IOEND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IOKILL	000007'	EXT
IONRCK	000100	INT
IORDEL	000100	INT
IORELS	000037'	EXT
IORET	000020	INT

IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000117'	EXT
JBTSTS	000260'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JLOW	100000	INT
JNA	004000	INT
JOB	000252'	EXT
JORAC	000000	EXT
JORADR	000000	EXT
JORCDP	000000	EXT
JORDAC	000146'	EXT
JORDAT	000237'	EXT
JORDDT	000055'	EXT
JORDHI	000147'	EXT
JORFF	000241'	EXT
JORN	000000	EXT
JOBPC	000141'	EXT
JORPDL	000235'	EXT
JORPDP	000000	EXT
JORREL	000000	EXT
JORSA	000240'	EXT
JORSYM	000044'	EXT
LDRBLT	000037'	INT
LDRMES	000064'	
LOOKB	040000	INT
MESPNT	000062'	EXT
MJOBPD	000234'	EXT
MONJOB	000116'	INT
MTAVAL	000170'	EXT
MTREQ	000167'	EXT
MTW	010000	INT
MTWAIT	000200'	INT
OBUFF	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PGADR	000002	
PICHN	000100	INT
PICKL	000114'	EXT
PIOFF	000400	
PION	000200	
PJOBN	000220'	EXT
PROG	000007	INT
QUANT1	000173'	EXT
RESET	000007'	INT

RUNCSS - RUN CONTROL SUBROUTINES
SYMBOL TABLE

PAGE 19

RSCHED	000020'	EXT
RUN	200000	INT
RUNABL	204000	INT
SCHEDF	000106'	EXT
SETIOD	000217'	INT
SETRUN	000153'	INT
SETUSR	000230'	INT
START1	000140'	INT
START2	000150'	
STARTM	000132'	INT
STARTU	000134'	INT
STOP0	000070'	INT
STOP1	000071'	INT
STOP2	000112'	INT
STOPA	000105'	
STOPU	000113'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYFNU	000060'	EXT
TTYSET	000135'	EXT
TTYSTR	000033'	EXT
TTYURC	000136'	EXT
TTYUSE	010000	INT
TTYUSR	000137'	EXT
USRDDT	000056'	EXT
USRHI	000233'	EXT
USRLO	000232'	EXT
USRL01	000230'	EXT
USRM00	010000	INT
USRPDP	000236'	EXT
USRREL	000050'	EXT
UUO	000014	INT
UXIT	000011'	EXT
WAIT1	000243'	INT
WSYNC	000250'	INT
WSYNC1	000263'	

END OF ASSEMBLY

00010

XLIST

01900
00010

```

00040
00050
00060
00070
00080
00090
00100
00110
000000 261140 000002 00120
000001 260140 000000 00130
000002 322100 000012' 00140
000003 202107 000017 00150
000004 260140 000001' 00160
000005 322100 000012' 00170
000006 202107 000014 00180
000007 262140 000002 00190
000010 260140 000000 00200
000011 254000 000000 00210
                                00220
000012 262140 000002 00230
000013 254000 000000 00240

```

```

;ROUTINE TO SET UP SAVE-GET DEVICE FILE-NAME TABLE
;CALLED BY COMMAND SETUP ROUTINES AND SAVE GET

```

```

INTERNAL SGSET
EXTERNAL CTEXT1,SETUSR,HOLD,MONJOB
EXTERNAL CONMES,NOTENF,CPOPJ1

```

```

SGSET:  PUSH PDP, TAC1      ;SAVE STARTING ADDRESS(SAVJOB OR GETJOB
        PUSHJ PDP, CTEXT1  ;GET DEVICE NAME FROM COMMAND STRING
        JUMPE TAC1,SGSET1
        MOVEM TAC1, 17(PROG)      ;SAVE IN UUO AC AREA
        PUSHJ PDP, CTEXT1  ;GET FILE NAME FROM COMMAND STRING
        JUMPE TAC1,SGSET1
        MOVEM TAC1, 14(PROG)
        POP PDP, TAC1      ;SCHEDULE MONITOR JOB
        PUSHJ PDP, MONJOB
        JRST CPOPJ1        ;SUPRESS CR-LF PRINTED BY COMINI

```

```

SGSET1: POP PDP,TAC1
        JRST NOTENF

```


			00250	
			00260	
			00270	;THIS JOB SAVES A JOB AREA ON RETRIEVABLE STORAGE
			00280	;THIS JOB RUNS IN EXEC. MODE AND CALLS IO ROUTINES DIRECTLY
			00290	;NO ATTEMPT IS MADE TO SAVE STATUS OF IO DEVICES, JOBPDP, OR ACS
			00300	;IN FACT THE ONLY USEFUL THING WHICH MAY BE DONE WITH A JOB AREA
			00310	;AFTER IT HAS BEEN SAVED IS TO START EXECUTION OVER AT THE STARTING
			00320	;ADDRESS
			00330	
			00340	INTERNAL SAVJOB
			00350	EXTERNAL USRPDP, OUT, USRREL, JOBPFI, JOB41, JOBS41, THSDAT
			00360	
			00370	T=BUFPNT ;TEMPORARY ACS
			00380	T1=BUFWRD
			00390	
000014	265040	000076'	00400	SAVJOB: JSP TAC, SG1 ;SET UP ACS AND ASSIGN DEVICE
000015	200551	000000	00410	MOVE T1, JOB41(JDAT) ;SAVE USR UO HANDLING JSR
000016	202551	000000	00420	MOVEM T1, JOBS41(JDAT)
000017	200540	000000	00430	MOVE T1, THSDAT ;SET DATE IN THIRD WORD
000020	202547	000016	00440	MOVEM T1, 16(PROG)
000021	260152	000004	00450	PUSHJ PDP, DEN(T) ;ENTER FILE NAME IN DIRECTORY
000022	254000	000031'	00460	JRST SAV4 ;DIRECTORY FULL
000023	260140	000134'	00470	PUSHJ PDP, SETLST ;SET DUMP COMMAND LIST IN USER ARE
000024	260140	000000	00480	PUSHJ PDP, OUT ;DO AN OUTPUT
000025	265040	000054'	00490	JSP TAC, SG2
			00500	
000026	452370	220246	00510	ASCIZ /JOB SAVED
000027	406550	542032		
000030	050000	000000	00520	/
000031	265040	000054'	00530	SAV4: JSP TAC, SG2
			00540	
000032	422232	242606	00550	ASCIZ /DIRECTORY FULL
000033	522372	254500		
000034	432531	446032		
000035	050000	000000	00560	/

		00570	
		00580	
		00590	;THIS JOB GETS A JOB AREA FROM A RETRIEVABLE DEVICE
		00600	;THIS JOB RUNS IN EXEC. MODE AND CALLS IO ROUTINES DIRECTLY
		00610	;NO ATTEMPT IS MADE TO RESTORE STATUS OF IO DEVICES, PC, OR ACS
		00620	;JOBPC IS SET TO STARTING ADDRESS OF JOB
		00630	;CORE MUST ALREADY HAVE BEEN ASSIGNED AND THE FOLLOWING LOC. SETUP IN
		00640	;JOB DATA AREA:
		00650	;JOBPDP, JOBREL
		00660	
		00670	INTERNAL GETJOB
		00680	EXTERNAL USRREL, IN
		00690	
000036	265040 000076'	00700	GETJOB: JSP TAC, SG1 ;SETUP ACS AND ASSIGN DEVICE
000037	260152 000005	00710	PUSHJ PDP, DLK(T) ;LOOKUP FILE NAME IN DIRECTORY
000040	254000 000047'	00720	JRST GET2 ;NOT FOUND
000041	260140 000134'	00730	PUSHJ PDP, SETLST ;SET DUMP COMMAND LIST IN USER ARE
000042	260140 000000	00740	PUSHJ PDP, IN ;DO AN INPUT
000043	265040 000054'	00750	JSP TAC,SG2
		00760	
000044	452370 220246	00770	ASCIZ /JOB SETUP
000045	426512 550032		
000046	050000 000000	00780	/
		00790	
000047	265040 000054'	00800	GET2: JSP TAC,SG2
		00810	
000050	432231 442500	00820	ASCIZ /FILE NOT FOUND
000051	472372 420214		
000052	476531 642032		
000053	050000 000000	00830	/

		00840	
		00850	
		00860	;ROUTINE TERMINATES SAVJOB AND GETJOB
		00870	;CLOSE, RELEASE, CHECK FOR ERRORS AND PRINT MESSAGE AND STOP JOB
		00880	;ADDRESS OF MESSAGE IN AC TAC
		00890	
		00900	EXTERNAL RELEA2, SETUSR, TTYFNU, WAIT1,JOBS41,JOB41
		00910	
		00920	ERRORS=1B18+1B19+1B20+1B21 ;ERRORS CHECKED FOR IN IO TRANSMISSION
		00930	
000054	260140	000000	00940
000055	602000	740000	00950
000056	254000	000070	00960
000057	261140	000001	00970
000060	260140	000000	00980
000061	260140	000000	00990

SG2:	PUSHJ PDP, WAIT1	
	TRNE IOS, ERRORS	;ANY ERRORS?
	JRST SG2A	;AN ERROR
	PUSH PDP,TAC	;SAVE PRINT ADDRESS
	PUSHJ PDP, RELEA2	;RELEASE DEVICE
	PUSHJ PDP, SETUSR	;SETUP COPY OF JOB AREA STORED IN SYSTE

000062	200051	000016'	01000
			01010
000063	202051	000015'	01020
000064	260140	000000	01030
000065	262140	000001	01040
000066	260140	000000	01050
000067	254000	000000	01060
			01070
000070	265040	000064'	01080
			01090
000071	522450	147246	01100
000072	466232	351622	
000073	476344	042644	
000074	512372	206424	01110
000075	000000	000000	

	MOVE TAC,JOBS41(JDAT)
	;RESTORE USER LOCATION 41
	MOVEM TAC,JOBS41(JDAT)
SG4:	PUSHJ PDP,TTYFNU ;FIND TELETYPE
	POP PDP, TAC ;RESTORE PRINT MESSAGE ADDRES
SG5:	PUSHJ PDP,CONMES
	JRST HOLD
SG2A:	JSP TAC,SG4
	ASCIZ /TRANSMISSION ERROR

/

		01120	
		01130	
		01140	;ROUTINE CALED BY SAVJOB AND GETJOBTO SETUP ACS
		01150	;AND ASSIGN DEVICE
		01160	;CALL: JSP TAC, SG1
		01170	
		01180	EXTERNAL JOBDAT, JOB, UUNIT1, WAIT1, JOBADR, RESET
		01190	
000076	505140	777763	01200 SG1: HRLI PDP, -15 ;SET UP PD LIST IN UUO ACS
000077	541147	777777	01210 HRRI PDP, -1(PROG)
000100	261140	000001	01220 PUSH PDP, TAC ;SAVE RETURN ADDRESS
000101	260140	000000	01230 PUSHJ PDP, RESET ;DO RESET UUO
000102	201600	000017	01240 MOVEI UUO, D ;DUMP MODE
000103	200047	000017	01250 MOVE TAC, 17(PROG) ;DEVICE NAME
000104	201340	000000	01260 MOVEI PROG, 0 ;PRETEND RELOC. IS 0
000105	260140	000000	01270 PUSHJ PDP, UUNIT1 ;ASSIGN DEVICE
000106	000000	000000	01280 0 ;IBF, OBF
000107	254000	000124	01290 JRST SGERRA ;NOT AVAILABLE
000110	200006	000002	01300 MOVE IOS, DEVIOS(DEVDAT) ;SETUP IOS
000111	201600	000014	01310 MOVEI UUO, 14 ;REL. ADDRESS OF 4 WORD DIRECTORY ENTRY
000112	200340	000000	01320 MOVE PROG, JOBADR ;RESTORE PROG
000113	205500	445560	01330 MOVSJ T, 445560 ;SET FILE EXTENSION TO DMP
000114	202507	000015	01340 MOVEM T, 15(PROG)
000115	402007	000016	01350 SETZM 16(PROG)
000116	210540	000000	01360 MOVN T1, USRREL ;SET NEG. WORD COUNT FROM JOBRCL
000117	271540	000000	01370 ADDI T1, JOBPFI ;DONT DUMP LOC. 0-JOBPFI
000120	505540	000117	01380 HRLI T1, JOBPFI
000121	206547	000017	01390 MOVSM T1, 17(PROG) ;STORE IN 4TH WORD OF DIRECTORY
000122	200506	000003	01400 MOVE T, DEVSER(DEVDAT) ;SETUP FOR DOING ENTER OF LOO
000123	263140	000000	01410 POPJ PDP,
		01420	
000124	201040	000127	01430 SGERRA: MOVEI TAC, SGNACL
000125	261140	000001	01440 PUSH PDP, TAC
000126	254000	000064	01450 JRST SG4
		01460	
000127	422132	644606	01470 SGNACL: ASCIZ /DEVICE NOT AVAILABLE
000130	425011	647650	
000131	202032	640622	
000132	462030	246212	
000133	064240	000000	01480 /

```

000134 200507 000017
000135 202507 000016
000136 402007 000017
000137 574500 000012
000140 270500 000116
000141 321500 000144
000142 201600 000016
000143 263140 000000

000144 260140 000060
000145 260140 000064
000146 255000 000000
000147 574047 000016
000150 213000 000001
000151 242040 777766
000152 271040 000001
000153 201100 000012
000154 260140 000000
000155 265040 000066

000156 201431 320204
000157 462370 345646
000160 202370 620206
000161 476450 520234
000162 426130 442610
000163 064240 000000

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01490
01500
01510
01520
01530
01540
01550
01560
01570
01580
01590
01600
01610
01620
01630
01640
01650
01660
01670
01680
01690
01700
01710
01720
01730
01740

01750
01760
01770

```

```

;ROUTINE TO SET DUMP MODE COMMAND LIST IN USER AREA

EXTERNAL ANYRDX,RELEA2,TTYFNU

SETLST:  MOVE T, 17(PROG)      ;4TH WORD FROM DIRECTORY
          MOVEM T, 16(PROG)
          SETZM 17(PROG)
          HLRE T, T
          ADD T, USRREL
          JUMPL T, NOROOM
          MOVEI UUO,16          ;DUMP MODE
          POPJ PDP,

NOROOM:  PUSHJ PDP,RELEA2
          PUSHJ PDP,TTYFNU
          JFCL
          HLRE TAC, 16(PROG)  ;PRINT NO. OF BLOCKS NEEDED
          MOVNS TAC
          LSH TAC, -12
          ADDI TAC, 1
          MOVEI TAC1, 12
          PUSHJ PDP, ANYRDX
          JSP TAC,SG5

          ASCIZ / 1K BLOCKS OF CORE NEEDED

/

END,

```

THERE ARE NO ERRORS

PROGRAM BREAK IS 000164

SAVGET- SAVE AND GET COMMANDS
SYMBOL TABLE

PAGE 10

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ANYRDX	000154'	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
RUFNT	000012	INT
RUFWRD	000013	INT
CLOSR	002000	INT
CONMES	000066'	EXT
CPOPJ1	000011'	EXT
CTFXT1	000004'	EXT
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
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
ENTRB	020000	INT

SAVGET- SAVE AND GET COMMANDS
SYMBOL TABLE

PAGE 11

FRRORS	740000	
GET2	000047'	
GETJOB	000036'	INT
HOLD	000067'	FXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
IN	000042'	FXT
INITR	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	040000	INT
IOCON	000040	INT
IODEND	020000	INT
IODERR	200000	INT
IODISC	400000	INT
IONONE	400000	INT
IONTER	100000	INT
IOEND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOR	000000	FXT
JOR41	000063'	FXT
JORADR	000112'	FXT
JORDAT	000000	FXT
JORPFI	000120'	FXT
JORS41	000062'	FXT
LOOKB	040000	INT
MONJOB	000010'	FXT
MTW	010000	INT
NOROOM	000144'	
NOTENF	000013'	FXT
OBUFB	100000	INT
OUT	000024'	FXT
OUTPB	004000	INT

SAVGET- SAVE AND GET COMMANDS
SYMBOL TABLE

PAGE 12

PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RELEA2	000144'	EXT
RESET	000101'	EXT
RUN	200000	INT
RUNABL	204000	INT
SAV4	000031'	
SAVJOB	000014'	INT
SETLST	000134'	
SETUSR	000061'	EXT
SG1	000076'	
SG2	000054'	
SG2A	000070'	
SG4	000064'	
SG5	000066'	
SGFERRA	000124'	
SGNAVL	000127'	
SGSET	000000'	INT
SGSET1	000012'	
T	000012	
T1	000013	
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
THSDAT	000017'	EXT
TTYATC	020000	INT
TTYFNU	000145'	EXT
TTYUSE	010000	INT
UINIT1	000105'	EXT
USRM0D	010000	INT
USRPDP	000000	EXT
USRREL	000140'	EXT
UUO	000014	INT
WAIT1	000054'	EXT

END OF ASSEMBLY

00010

XLIST

01970
00010

```

00040
00050 EXTERN SETIOD, ADVBFE, ADVBFF, JBTADR, CLRBYT,STTYB1
00060 EXTERN SCNCHN, COMCNT, SCNSAV, SCNRET,STOP1, DEVLST,TTYTAB
00070 INTERN SCNINI
00080
00090 ;TTYPTR=DEVOAD+1
00100 ;TTYCTR=TTYPTR+1
00110 ;TTYBUF=TTYCTR+1
00120 PION=200 ;TURN PI ON BIT
00130 PIOFF=400 ;TURN PI OFF BIT
00140 ;SCNDOB ;NUMBER OF DEVICE DATA BLOCKS
00150 ;STTYBF7 ;SIZE OF TELETYPE BUFFER
00160 CHREC=TEM ;AC FOR CHARACTER
00170 VPOS=ITEM ;VERTICAL POSITION OF TELETYPE
00180 HPOS=VPOS+1 HORIZONTAL POS.
00190 DOB=DEV DAT
00200 LINE=TAC1 ;AC THAT HOLDS SCANNER LINE NUMBER
00210 SYNC=40000 ;1 WHEN A BUFFER IS READY TO TRANSFER
00220 DETH=10000 ;1 IF TTY DETACHED AND OUTPUT WAITING
00230 NIO=20000 ;STOP ALL IO
00240 TOUT=IO ;OUTPUT IN PROGRESS
00250 NCERR=IOBKTL ;CHARACTERS LOST ON TYPE IN
00260 DCHAR=177 ;DELETE CHARACTER
00270 ECHO=IODTER ;ECHO FAILURE OCCURED
00280 TPMON=1000 ;IO IS FROM MONITOR
00290 SP=2000 ;SPECIAL TELETYPE CHAR. IS BEING INTERPRETED
00300 DDTM=100000 ;DDT MODE
00310 T35=4000 ;TELETYPE HAS TAB,FF,VT,ETC. MECHANISM
00320 USRB=100 ;TURN OFF TPMON WHEN OUTPUT IS FINISHED
00330 USRBC=20000 ;RT HALF MONITOR IOS WORD, REMAIN IN MONITOR MODE
00340 INTERNAL SCNINT,CTYINT,TTYUSR,TTYURC
00350 ENTRY TTYDSP
00360 EXTERN TSCNLN,TCONLN,MTTYLN,CPOPJ1
00370 EXTERN CPOPJ
00380 EXTERN FSNCHN,SCNCHL,OUT,PUUOAC,PJOBN,PUNIT,PIOMOD
00390 INTERNAL DDTGT,DDTRL,DDTIN,DDTOUT,TTYFND,TTYSTR,TTYFNU
00400 EXTERNAL WAIT1,WSYNC,CLRBYT,JOB,CLDS,CLEN,TTYBFE,TTYBM1
00410 EXTERNAL UXIT,ADRCK,TTYSAB,DEVPHY,DEVOPR
00420 EXTERNAL TTYCTR,TTYPTR,TTYBUF,TTYLST,MLTTYL,SETRUN,STTYBF,TTYDOB
00430
000000 270706 000007 00440 PHPOS: POINT 7,DEVIAD(DEV DAT),12 ;POINTER HORIZONTAL POSITION
000001 270506 000010 00450 PVPOS: POINT 5,DEVOAD(DEV DAT),12 ;POINTER VERTICAL POSITION
000002 340706 000010 00460 PLASTC: POINT 7,DEVOAD(DEV DAT),7 ;POINTER TO LAST CHARACTER OU
000003 360606 000007 00470 PSCHAR: POINT 6,DEVIAD(DEV DAT),5 ;POINTER TO +C OR +O
00480
000004 321102 000000 00490 TPCJOBN: POINT 9,TTYTAB(LINE),9 ;CONSOLE NUMBER FOR TTY

```

```

00500
00510
000005 201040 100000 00520
000006 712200 000000 00530
000007 730200 004010 00540
000010 730300 001000 00550
000011 730200 004000 00560
000012 730300 000010 00570
000013 730440 000002 00580
000014 367040 000010 00590
000015 201040 000000 00600
000016 712201 003600 00610
000017 730200 000000 00620
000020 205040 000000 00630
000021 205240 010000 00640
000022 205000 001004 00650
000023 201300 000000 00660
000024 616246 000004 00670
000025 402006 000000 00680
000026 202006 000002 00690
000027 402006 000000 00700
000030 412246 000004 00710
000031 554306 000003 00720
000032 253040 000024 00730
000033 205040 000000 00740
000034 205100 010000 00750
000035 332301 000004 00760
000036 436106 000004 00770
000037 253040 000035 00780
000040 263140 000000 00790

```

```

SCNINI:  MOVEI TAC,100000
          CONO TTY,0           ;SHUT DOWN CONSOLE TTY
          CONO DCSA,4010       ;RELEASE XMITTER,RECEIVER
          CONSZ DCSA, 1000
          CONO DCSA, 4000
          CONSZ DCSA, 10
          DATAI DCSB, TAC1
          SOJG TAC,.-4
          MOVEI TAC,SCNCHN
          CONO TTY,3600(TAC)    ;CLEAR TTY,ASSIGN CHANNEL
          CONO DCSA,FSNCHN      ;ASSIGN INTERRUPT CHANNELS
          MOVSI TAC,MLTTYL      ;NO. OF TTY DEV. DATA BLOCKS
          MOVSI DAT,TTYUSE      ;TTY DDB IN USE BIT
          MOVSI IOS,TPMON+IOFST ;VIRGIN STATUS
          MOVEI DDB,TTYLST      ;FIRST TTY DDB ADDRESS
SCN1:     TDNN DAT,DEVMOD(DDB)   ;IS THIS TTY DDB IN USE?
          SETZM DEVNAM(DDB)     ;NO, SET NAME TO 0
          MOVEM IOS,DEVIOS(DDB)
          SETZM TTYSAB(DDB)     ;CLEAR USER MODE TTY STATUS WORD
          ANDCAM DAT,DEVMOD(DDB) ;CLEAR USE BIT
          HLRZ DDB,DEVSER(DDB)  ;GET NEXT TTY DDB
          AOBJN TAC,SCN1
          MOVSI TAC,MTTYLN      ;SET DDB USE BITS FROM TRANSLATOR TABLE
          MOVSI TAC1,TTYUSE
SCN2:     SKIPE DDB,TTYTAB(TAC)
          IORM TAC1,DEVMOD(DDB)
          AOBJN TAC,SCN2
          POPJ PDP,

```

			00800	
			00810	;ROUTINE TO RETURN TTY TO VIRGIN STATE
			00820	;CALL: MOVE DDB, ADDRESS OF DEVICE DATA BLOCK
			00830	; PUSHJ PDP,TTYKIL
			00840	
			00850	INTERNAL TTYKIL
			00860	
000041	200040	001144'	00870	TTYKIL: MOVE TAC,[XWD TTYUSE+TTYATC,ASSCON+ASSPRG]
000042	412046	000004	00880	ANDCAM TAC,DEVMOD(DEVDAT) ;CLEAR DDB USE BIT
000043	402006	000000	00890	SETZM DEVNAM(DEVDAT) ;CLEAR PHYSICAL NAME
000044	402006	000005	00900	SETZM DEVLOG(DEVDAT) ;CLEAR LOGICAL NAME
000045	254000	000052'	00910	JRST TTYDT1
			00920	
			00930	;ROUTINE TO DETACH TTY FROM JOB
			00940	;CALL: MOVE DEVDAT,ADDRESS OF TTY DDB TO BE DETACHED
			00950	
			00960	INTERNAL TTYDET
			00970	
000046	200046	000004	00980	TTYDET: MOVE TAC,DEVMOD(DEVDAT)
000047	627040	020000	00990	TLZN TAC,TTYATC ;WAS TTY ATTACHED?
000050	254000	000041'	01000	JRST TTYKIL ;NO, SO RETURN DDB TO POOL
000051	202046	000004	01010	MOVEM TAC,DEVMOD(DEVDAT) ;YES, JUST CLEAR ATTACH BIT
000052	135100	000000	01020	TTYDT1: LDB LINE,PUNIT
000053	402002	000035'	01030	SETZM TTYTAB(LINE)
000054	263140	000000	01040	POPJ PDP,
			01050	
			01060	
000055	000000	000000	01070	CCHAR: 0 ;HOLDS CHARACTER FOR CONSOLE TELETYPE
			01080	;CONTROL C - GO BACK TO MONITOR
			01090	;CONTROL 0 - SUPPRESS OUTPUT
			01100	
000056	334040	001145'	01110	TTYURC: SKIP A TAC,[XWD USRB,USRBC] ;START JOB BUT REMAIN IN MONI
000057	205040	000100	01120	TTYUSR: MOVSJ TAC,USRB ;CAUSE TTY TO GO INTO
000060	436046	000002	01130	IORM TAC,DEVIOS(DEVDAT) ;USER MODE WHEN
000061	263140	000000	01140	POPJ PDP, ;OUTPUT FINISHES
			01150	
			01160	INTERNAL TTYSET
			01170	
000062	205040	000004	01180	TTYSET: MOVSJ TAC,IOFST ;INITIALIZE USER TTY IOS WORD
000063	202046	000027'	01190	MOVEM TAC,TTYSAB(DEVDAT) ;FOR START COMMAND
000064	254000	000057'	01200	JRST TTYUSR

		01210	
		01220	;ROUTINE TO ATTACH TTY TO A JOB
		01230	;CALL: MOVE DEVDAT,ADDRESS OF TTY DEVICE DATA BLOCK
		01240	; MOVE ITEM,JOB NUMBER
		01250	; PUSHJ PDP,TTYATT
		01260	; ERROR ;DEVDAT=DDB ADR OF OTHER TTY
		01270	; ;IF ANOTHER ALREADY IS ATTACHED.
		01280	; OK RETURN ;DEVDAT, DAT AND TRANSLATOR TABLE SET
		01290	
		01300	INTERNAL TTYATT
		01310	
000065	135100 000052'	01320	TTYATT: LDB LINE,PUNIT ;LINE NO. OF THIS TTY
000066	201300 000023'	01330	MOVEI DEVDAT,TTYLST ;SEARCH FOR DDB THAT IS ATTACHED
000067	334000 000000	01340	SKIPA
000070	554306 000003	01350	TTYAT2: HLRZ DEVDAT,DEVSER(DEV DAT)
000071	322300 000115'	01360	JUMPE DEVDAT,TTYAT4
000072	135040 000000	01370	LDB TAC,PJOBN ;JOB NUMBER
000073	500046 000004	01380	HLL TAC,DEVMOD(DEV DAT) ;ATTACH AND USE BITS
000074	607040 000010	01390	TLNN TAC,DVTTY ;IS THIS STILL A TTY DDB?
000075	254000 000115'	01400	JRST TTYAT4 ;NO, THIS MUST BE IJOB
000076	306201 000000	01410	CAIN ITEM,(TAC) ;JOB NUMBER THE ONE TO ATTACH?
000077	607040 010000	01420	TLNN TAC,TTYUSE ;YES, IS IT THE DETACHED ONE?
000100	254000 000070'	01430	JRST TTYAT2 ;NO, KEEP LOOKING
000101	603040 020000	01440	TLNE TAC,TTYATC ;IS SOME TTY ALREADY ATTACHED?
000102	263140 000000	01450	POPJ PDP, ;YES, ERROR RETURN WITH DEV DAT SET
000103	261140 000006	01460	PUSH PDP,DEV DAT ;SAVE NEW DDB ADDRESS
000104	200302 000053'	01470	MOVE DEV DAT,TTYTAB(LINE)
000105	200046 000004	01480	MOVE TAC,DEVMOD(DEV DAT)
000106	260140 000046'	01490	PUSHJ PDP,TTYDET ;DETACH DDB FROM TTY
000107	262140 000006	01500	POP PDP,DEV DAT
000110	137200 000004'	01510	TTYAT3: DPB ITEM,TPCJOBN ;STORE ATTACHED JOB NO.
000111	137200 000072'	01520	DPB ITEM,PJOBN ;SET JOB NUMBER
000112	205040 020000	01530	MOVSI TAC,TTYATC ;SET ATTACHED BIT
000113	260140 000247'	01540	PUSHJ PDP,TTYDAT ;SETUP OUTPUT BYTE
000114	254000 000411'	01550	JRST SCNIN ;GO INITIALIZE DDB
		01560	
000115	200302 000104'	01570	TTYAT4: MOVE DEV DAT,TTYTAB(LINE) ;RESTORE OLD DDB ADDRES
000116	254000 000110'	01580	JRST TTYAT3

			01590
			01600
			01610
			01620
			01630
			01640
			01650
			01660
			01670
			01680
			01690
000117	205100	000033'	01700
000120	331002	000115'	01710
000121	253100	000120'	01720
000122	327100	000000	01730
000123	205300	400000	01740
000124	413302	000120'	01750
000125	205240	440700	01760
000126	271246	000000	01770
000127	200040	000005	01780
			01790
			01800
			01810
			01820
			01830
			01840
			01850
			01860
000130	135100	000065'	01870
000131	135200	000004'	01880
000132	254000	000000	01890

```

;ROUTINE TO SETUP AC DEVDAT TO ADDRESS OF TTY WHICH HAS TYPED A COMMA
;AC DAT TO BYTE POINTER TO OUTPUT BUFFER FOR COMMAND MESSAGES
;AC TAC TO BYTE POINTER TO COMMAND STRING
;AC ITEM TO JOB NUMBER TTY IS ATTACHED TO
;CALL:    PUSHJ PDP,TTYCOM
;          NONE FOUND
;          ACS SETUP

```

INTERNAL TTYCOM

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TTYCOM:    MOVSI LINE,MTTYLN
           SKIPL TTYTAB(LINE)
           AOBJN LINE,.-1
           JUMPG LINE,CPOPJ
           MOVSI DEVDAT,400000
           ANDCAR DEVDAT,TTYTAB(LINE)
           MOVSI DAT,440700
           ADDI DAT,TTYBUF(DEV DAT)
           MOVE TAC,DAT

```

```

;FALL INTO TTYJOB

```

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;ROUTINE TO RETURN IN AC ITEM JOB NUMBER WHICH TTY IS ATTACHED TO
;CALL:    MOVE DEVDAT,ADDRESS OF TTY DEVICE DATA BLOCK

```

INTERNAL TTYJOB

```

TTYJOB:    LDB LINE, PUNIT
           LDB ITEM,TPCJOB
           JRST CPOPJ1

```


			01900		
			01910	;TELETYPE SCANNER UO ROUTINES	
			01920	;FOR DDT	
			01930		
			01940		
			01950	;DDTGT WAITS FOR OUTPUT TO COMPLETE THEN PUTS	
			01960	;TELETYPE INTO DDT MODE	
			01970		
000133	260140	000231'	01980	DDTGT: PUSHJ PDP,TTYSR1	;FIND DEVICE DATA BLOCK
000134	200006	000002	01990	MOVE IOS,DEVIOS(DEVDAT)	
000135	607000	100000	02000	TLNN IOS,DDTM	
000136	607000	000020	02010	TLNN IOS,IO	;OUTPUT IN PROGRESS?
000137	254000	000141'	02020	JRST DDTGT2	;NO
			02030	; PUSHJ PDP,OUT	;MAKE SURE OUTPUT STARTED
000140	260140	000000	02040	PUSHJ PDP,WAIT1	;WAIT FOR OUTPUT TO FINISH
000141	661000	100000	02050	DDTGT2: TLO IOS,DDTM	;SET DDT MODE BIT
000142	202006	000002	02060	MOVEM IOS,DEVIOS(DEVDAT)	
000143	254000	000000	02070	JRST UXIT	
			02080		
			02090	;RELEASE TELETYPE FROM DDT MODE	
			02100	;MAKE SURE OUTPUT IS FINISHED FIRST	
			02110		
000144	260140	000231'	02120	DDTRL: PUSHJ PDP,TTYSR1	;FIND DEVICE DATA BLOCK
000145	200006	000002	02130	MOVE IOS,DEVIOS(DEVDAT)	
000146	603000	000020	02140	TLNE IOS,IO	;OUTPUT IN PROGRESS?
000147	260140	000140'	02150	PUSHJ PDP,WAIT1	;YES, WAIT
000150	205000	140000	02160	MOVSI IOS,DDTM+SYNC	
000151	412006	000002	02170	ANDCAM IOS,DEVIOS(DEVDAT)	;TURN OFF DDT BIT
000152	254000	000143'	02180	JRST UXIT	

		02190	
		02200	
		02210	; INPUT TO DDT
		02220	; CALL AC,[SIXBIT /DDTIN/] AC CONTAINS POINTER TO BUFFER AREA
		02230	; BUFFER AREA MUST BE 21 WORDS LONG
		02240	
000153	260140 000231'	02250	DDTIN: PUSHJ PDP,TTYSR1 ;SET UP DEVDAT
000154	200006 000002	02260	MOVE IOS,DEVIOS(DEV DAT)
000155	603000 000020	02270	TLNE IOS,IO ;OUTPUT IN PROGRESS
000156	260140 000147'	02280	PUSHJ PDP,WAIT1 ;YES, WAIT
000157	200006 000002	02290	DDTIN2: MOVE IOS,DEVIOS(DEV DAT)
000160	603000 000040	02300	TLNE IOS,IOEND ;BUFFER READY?
000161	254000 000166'	02310	JRST DDTIN3 ;YES
000162	201000 010000	02320	MOVEI IOS,IOACT
000163	436006 000002	02330	IORM IOS,DEVIOS(DDB)
000164	260140 000000	02340	PUSHJ PDP,WSYNC ;NO, WAIT
000165	254000 000157'	02350	JRST DDTIN2
		02360	
000166	205040 120004	02370	DDTIN3: MOVSJ TAC,NIO+IOFST+DDTM
000167	436046 000002	02380	IORM TAC,DEVIOS(DEV DAT) ;STOP ALL IO
000170	200046 000000	02390	MOVE TAC,TTYPTR(DEV DAT)
000171	260140 000000	02400	PUSHJ PDP,CLRBYT ;CLEAR OUT REMAINING BYTES
000172	275046 000000	02410	SUBJ TAC,TTYBM1(DEV DAT) ;NUMBER OF WORDS
000173	135100 000000	02420	LDB TAC1,PUUOAC ;PICK UP AC NUMBER
000174	271107 000000	02430	ADDJ TAC1,(PROG) ;FIND REAL ADDRESS
000175	200102 000000	02440	MOVE TAC1,(TAC1) ;PICK UP POINTER
000176	271107 000000	02450	ADDJ TAC1,(PROG) ;FIND REAL ADDRESS OF BUFFER
000177	505106 000126'	02460	HRLI TAC1,TTYBUF(DEV DAT)
000200	271042 000000	02470	ADDJ TAC,(TAC1)
000201	251101 000000	02480	BLT TAC1,(TAC)
000202	402001 000001	02490	CLEARM 1(TAC) ;TRANSFER MONITOR BUFFER TO U
000203	205040 020040	02500	MOVSJ TAC,NIO+IOEND ;MAKE SURE THERE ARE SOME NUL
000204	412046 000002	02510	ANDCAM TAC,DEVIOS(DEV DAT)
000205	254000 000152'	02520	JRST UXIT
		02530	

			02540
			02550
			02560
			02570
			02580
000206	260140	000231'	02590
000207	200006	000002	02600
000210	603000	000020	02610
000211	260140	000156'	02620
000212	200000	001146'	02630
000213	437006	000002	02640
000214	135040	000173'	02650
000215	505040	000011	02660
000216	540060	000001	02670
000217	505060	000001	02680
000220	541046	000177'	02690
000221	552046	000000	02700
000222	200100	000001	02710
000223	251042	000020	02720
000224	505100	440700	02730
			02740
000225	202106	000170'	02750
000226	621000	020004	02760
000227	260140	000303'	02770
000230	254000	000205'	02780

```

;OUTPUT FROM DDT
;CALL AC,[SIXBIT /DDTOUT/]      AC HAS POINTER TO DDT OUTPUT BUFFER

DDTOUT:  PUSHJ PDP,TTYSR1
         MOVE IOS,DEVIOS(DEVDAT)
         TLNE IOS,IO              ;OUTPUT IN PROGRESS?
         PUSHJ PDP,WAIT1          ;YES, WAIT
         MOVE IOS,[XWD NIO+TOUT+DDTM,IOACT]
         IORB IOS,DEVIOS(DEVDAT)
         LDB TAC,PUUOAC           ;PICK UP AC NUMBER
         HRLI TAC,JDAT            ;CALC REAL ADDRESS OF AC
         HRR TAC,@TAC             ;PICK UP AC
         HRLI TAC,@TAC            ;CALC REAL ADDRESS OF DDT BUF
         HRRZM TAC,TTYCTR(DDB)    ;A SUITABLY LARGE NUMBER
         MOVE TAC1,TAC
         BLT TAC,20(TAC1)         ;MOVE DDT BUFFER TO MONITOR
         HRLI TAC1,440700

         MOVEM TAC1,TTYPTR(DEVDAT)
         TLZ IOS,NIO+IOFST
         PUSHJ PDP,TTYOU0
         JRST UXIT

```

```
02790
02800
02810
000231 200200 000000 02820 TTYSR1:  MOVE ITEM, JOB
000232 205100 000117' 02830 TTYSRC:  MOVSI LINE, MTTYLN
000233 550302 000124' 02840      HRRZ DEVDAT, TTYTAB(LINE)
000234 322300 000240' 02850      JUMPE DEVDAT, TTYF0
000235 135040 000004' 02860      LDB TAC, TPCJOBN
000236 306044 000000 02870      CAIN TAC, (ITEM)
000237 263140 000000 02880      POPJ PDP,          ;FOUND
000240 253100 000233' 02890      TTYF0:  AOBJN LINE, TTYSRC+1
000241 205040 576062 02900      MOVSI TAC, 576062      ;SIXBIT /OPR/
000242 254000 000000 02910      JRST DEVPHY      ;SEARCH PHYSICAL DEVICE NAMES
02920      ;AND RETURN OPERATOR TTY.
02930
02940      ;ROUTINE TO FIND TTY FOR A JOB
02950      ;CALL:  MOVE ITEM, JOB NUMBER
02960      ;      PUSHJ PDP, TTYFND
02970      ;      ERROR RETURN
02980      ;      RETURN WITH DEVDAT SET TO ADR OF DDB
02990      ;      AND DAT SET TO BYTE POINTER TO MONITOR OUTPUT BUFFER
03000
03010
000243 200200 000231' 03020      TTYFNU:  MOVE ITEM, JOB
000244 260140 000232' 03030      TTYFND:  PUSHJ PDP, TTYSRC      ;CALLED BY PUSHJ PDP, TTYFND
03040      ;      PUSHJ PDP, WSYNC
03050      MOVSI TAC, NIO      ;JOB NUMBER IN TAC1
03060      IORM TAC, DEVIOS(DEVDAT)
000245 205040 020000 03070      TTYDAT:  MOVEI DAT, TTYBUF(DEVDAT)      ;SETUP OUTPUT BYTE POINTER
000246 436046 000002 03080      HRLI DAT, 440700
000247 201246 000220' 03090      POPJ PDP,
000250 505240 440700 03100
000251 263140 000000 03110
000252 200040 000005 03120      TTYSTR:  MOVE TAC, DAT
000253 260140 000171' 03130      PUSHJ PDP, CLRBYT
000254 275046 000172' 03140      SUBI TAC, TTYBM1(DEVDAT)
000255 405040 777777 03150      ANDI TAC, -1
000256 221040 000005 03160      IMULI TAC, 5
000257 202046 000221' 03170      MOVEM TAC, TTYCTR(DEVDAT)
000260 201046 000247' 03180      MOVEI TAC, TTYBUF(DEVDAT)
000261 505040 440700 03190      HRLI TAC, 440700
000262 202046 000225' 03200      MOVEM TAC, TTYPTR(DEVDAT)
000263 200006 000002 03210      MOVE IOS, DEVIOS(DEVDAT)
000264 434000 001147' 03220      IOR IOS, [XWD TOUT+TPMON, IOACT]
000265 420000 001150' 03230      ANDCM IOS, [XWD NIO+IOFST, IODTER+IOBKTL]
000266 260140 000771' 03240      PUSHJ PDP, GCHAR
000267 263140 000000 03250      POPJ PDP, ;NOTHING TO TYPE
000270 254000 000311' 03260      JRST TTYOU2      ;START OUTPUT
03270
03280      ;DISPATCH TABLE
03290
000271 263140 000000 03300      TTYDSP:  POPJ PDP, ;RELEASE
000272 254000 000000 03310      JRST OUT ;CLOSE
000273 254000 000301' 03320      JRST TTYOUT      ;OUTPUT
000274 630000 001151' 03330      TDZ IOS, [XWD TPMON, ECHOF+NCERR]      ;INPUT
000275 660000 010000 03340      TRO IOS, IOACT
000276 623000 000002 03350      TLZE IOS, IOBEG
000277 661000 000004 03360      TLO IOS, IOFST
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000300	254000	001133'	03360	JRST MIS1	
			03370		
			03380		
000301	670000	001152'	03390	TTYOUT:	TDO IOS,[XWD TOUT+IOFST,IOACT]
000302	630000	001151'	03400		TDZ IOS,[XWD TPMON,ECHOF+NCERR]
000303	135240	000000'	03410	TTYOUT:	LDB HPOS,PHPOS
000304	135200	000001'	03420		LDB VPOS,PVPOS
000305	260140	000771'	03430		PUSHJ PDP, GCHAR
000306	263140	000000'	03440		POPJ PDP,
000307	137240	000000'	03450		DPB HPOS,PHPOS
000310	137200	000001'	03460		DPB VPOS,PVPOS
000311	135100	000130'	03470	TTYOUT2:	LDB LINE,PUNIT
000312	700200	000000'	03480		CONO CLDS ;DISABLE CLOCK
000313	306100	000000'	03490		CAIN LINE,TCONLN
000314	254000	000325'	03500		JRST CTYOUT
000315	730200	000000'	03510		CONO DCSA,0 ;DISABLE SCANNER
000316	730602	000000'	03520		CONO DCSB, (LINE)
000317	730140	000010'	03530		DATAO DCSA, CHREC
000320	730200	000017'	03540		CONO DCSA,FSNCHN
000321	137400	000002'	03550		DPB CHREC,PLASTC
000322	700200	000000'	03560	TTYOUT1:	CONO CLEN ;RE-ENABLE CLOCK
000323	202006	000002'	03570		MOVEM IOS,DEVIOS(DEVDAT)
000324	263140	000000'	03580		POPJ PDP,
			03590		
000325	712200	000000'	03600	CTYOUT:	CONO TTY,0 ;DISABLE TTY
000326	712140	000010'	03610		DATAO TTY,CHREC
000327	202400	000055'	03620		MOVEM CHREC,CCHAR
000330	712200	000015'	03630		CONO TTY,SCNCHN ;RE-ENABLE
000331	254000	000322'	03640		JRST TTYOUT1
			03650		
000332	712340	000050'	03660	CTYINT:	CONSO TTY,50
000333	254000	000333'	03670		JRST .
000334	712340	000040'	03680		CONSO TTY,40
000335	254000	000347'	03690		JRST CTYOUT1
000336	202040	000055'	03700		MOVEM TAC, CCHAR ;DONT ECHO RUBOUT
000337	712040	000001'	03710		DATAI TTY, TAC
000340	405040	000177'	03720		ANDI TAC, 177
000341	306040	000177'	03730		CAIN TAC, 177
000342	254000	000346'	03740		JRST CTYRUB ;IS A RUBOUT
000343	712140	000001'	03750		DATAO TTY, TAC ;NOT, SO ECHO
000344	250040	000055'	03760		EXCH TAC, CCHAR
000345	254520	000000'	03770		JRST 12,@SCNCHL ;DISMISS INTERRUPT
			03780		
000346	250040	000055'	03790	CTYRUB:	EXCH TAC, CCHAR
000347	264000	000000'	03800	CTYOUT1:	JSR SCNSAV
000350	201400	000330'	03810		MOVEI CHREC,SCNCHN
000351	712210	000200'	03820		CONO TTY,200(CHREC)
000352	200400	000055'	03830		MOVE CHREC,CCHAR
000353	201100	000313'	03840		MOVEI LINE,TCONLN
000354	254000	000364'	03850		JRST TCOMM
			03860		
000355	730340	001010'	03870	SCNINT:	CONSO DCSA,1010
000356	254000	000356'	03880		JRST .
000357	264000	000347'	03890		JSR SCNSAV
000360	730340	000010'	03900		CONSO DCSA,10 ;RECEIVER FLAG?
000361	254000	000440'	03910		JRST SCNIN1 ;NO,XMITTER FLAG
000362	730640	000002'	03920		CONI DCSB, LINE
000363	730440	000010'	03930		DATAI DCSB, CHREC
000364	405400	000177'	03940	TCOMM:	ANDI CHREC, 177
000365	303100	000353'	03950		CAILE LINE,TCONLN ;CTY LINE OR LESS?

000366	254000	000450'	03960
000367	332302	000233'	03970
000370	254000	000462'	03980
000371	260140	000400'	03990
000372	254000	000450'	04000
000373	403240	000004	04010
000374	730300	000700	04020
000375	306100	000365'	04030
000376	254000	000575'	04040
000377	254000	000511'	04050

JRST TYPX	;NO
SKIPE DDB,TTYTAB(LINE)	;DATA BLOCK ASSIGNED?
JRST INUSE	;YES
PUSHJ PDP,DDBSRC	;SEARCH FOR FREE TTY DEV. DATA BLOCK
JRST TYPX	;NONE FOUND, TYPE X
CLEARB HPOS,VPOS	;ASSUME TTY IS AT BEGIN OF FORM
CONSZ DCSA,700	;FULL DUPLEX?
CAIN LINE,TCONLN	;CTY?
JRST INJEST	;NO, SWALLOW CHAR
JRST TYP1	

04060
04070
04080
04090
04100
04110
04120
04130
04140
04150
04160
04170
04180
04190
04200
04210
04220
04230
04240
04250
04260
04270
04280
04290
04300
04310
04320
04330
04340
04350
04360
04370
04380
04390
04400
04410
04420
04430
04440
04450
04460
04470
04480
04490
04500
04510
04520
04530
04540
04550
04560
04570
04580
04590

000400 205000 000020'
000401 201300 000066'
000402 334040 001144'
000403 554306 000003
000404 612046 000004
000405 253000 000403'
000406 325000 000122'
000407 200000 001153'
000410 200040 001154'

000411 436046 000004
000412 137100 000311'
000413 205040 646471
000414 202046 000000
000415 200040 001155'
000416 261140 000002
000417 606100 000070
000420 254000 000425'
000421 241100 777775
000422 271100 000020
000423 136100 000001
000424 242100 000020
000425 271100 000020
000426 136100 000001
000427 262140 000002

000430 542302 000367'
000431 205040 436471
000432 306100 000375'
000433 202046 000000
000434 200046 000000
000435 336000 000000
000436 202040 000435'
000437 254000 000132'

000440 730040 000002
000441 201040 000320'
000442 730201 004000
000443 332302 000430'
000444 301100 000432'
000445 254000 000000
000446 135400 000002'
000447 254000 000471'

;ROUTINE TO SEARCH FOR FREE TTY DEV DATA BLOCK

;CALL: MOVE LINE,TTY LINE NO

; PUSHJ PDP,DDBSRC

; NONE FOUND

; RETURN DEVDAT, LINE SET

DDBSRC: MOVSJ IOS,MLTTYL ;NO. OF TTY DDB

MOVEI DEVDAT,TTYLST ;ADDRESS OF FIRST DDB

SKIPA TAC,[XWD TTYUSE+TTYATC,ASSPRG+ASSCON]

HLRZ DEVDAT,DEVSR(DEVDAT)

TDNE TAC,DEVMOD(DEVDAT) ;USE,ATTACH, AND BOTH ASSIGN

AOBJN IOS,.-2

JUMPGE IOS,CPOPJ ;DDB FOUND?

MOVE IOS,[XWD TPMON+IOFST,IOACT]

MOVE TAC,[XWD TTYUSE,ASSCON]

;INITIALIZE TTY DEVICE DATA BLOCK(CALLED FROM TTYATT TOO)

SCNIN: IORM TAC,DEVMOD(DEVDAT)

DPB LINE,PUNIT ;SET LINE NO. IN DDB

MOVSJ TAC,646471 ;SIXBIT /TTY/

MOVEM TAC,DEVNAM(DEVDAT)

MOVE TAC,[POINT 6,DEVNAM(DEVDAT),17]

PUSH PDP,LINE ;SAVE LINE NO.

TRNN LINE,70 ;IS THERE A HIGH ORDER OCTAL DIGIT?

JRST SCNIN0 ;NO

ROT LINE,-3 ;YES,CONVERT TO SIXBIT

ADDI LINE,20

IDPB LINE,TAC ;STORE HIGH ORDER SIXBIT DIGIT

LSH LINE,20 ;IN PHYSICAL NAME

SCNIN0: ADDI LINE,20

IDPB LINE,TAC ;STORE LOW ORDER DIGIT

POP PDP,LINE

HRRM DEVDAT,TTYTAB(LINE) ;SET LINE NO. IN TRANSLATOR T

MOVSJ TAC,436471 ;SIXBIT /CTY/

CAIN LINE,TCONLN ;IS THIS CONSOLE TTY?

MOVEM TAC,DEVNAM(DEVDAT) ;YES, SET NAME TO CTY

MOVE TAC,DEVNAM(DEVDAT)

SKIPN DEVOPR ;IS THIS FIRST CHAR. TYPED BY ANYONE?

MOVEM TAC,DEVOPR ;YES,SET THIS TTY AS OPERATOR TTY

JRST CPOPJ1 ;SUCCESSFUL RETURN

SCNIN1: DATAI DCSA,LINE ;GET LINE NO. FROM FULL DUPLEX

MOVEI TAC,FSNCHN

CONO DCSA,4000(TAC) ;RELEASE XMITTER SCANNER

SKIPE DDB,TTYTAB(LINE) ;DATA BLOCK ASSIGNED?

CAIL LINE,TCONLN ;LINE NO. TOO LARGE?

JRST SCNRET ;GO AWAY

LDB CHREC,PLASTC

JRST INUS1

000450	306400	000130	04600		
000451	254000	000445'	04610	TYPX:	CAIN CHREC,"X" ;CHARACTER RECEIVED AN X?
000452	201400	000130	04620		JRST SCNRET ;YES, GO AWAY
000453	302100	000444'	04630		MOVEI CHREC,"X"
000454	254000	000457'	04640		CAIE LINE,TCONLN
000455	712140	000010	04650		JRST TYPX1
000456	254000	000451'	04660		DATAO TTY,CHREC
000457	730602	000000	04670		JRST SCNRET
000460	730140	000010	04680	TYPX1:	CONO DCSB,(LINE)
000461	254000	000456'	04690		DATAO DCSA,CHREC ;TYPE AN X
			04700		JRST SCNRET
			04710		
			04720		
000462	730300	000700	04730	INUSE:	CONSZ DCSA,700 ;FULL DUPLEX?
000463	306100	000453'	04740		CAIN LINE,TCONLN
000464	254000	000471'	04750		JRST INUS1
000465	730602	000000	04760		CONO DCSB,(LINE)
000466	730140	000010	04770		DATAO DCSA,CHREC
000467	137400	000002'	04780		DPB CHREC,PLASTC
000470	254000	000461'	04790		JRST SCNRET
			04800		
000471	200006	000002	04810	INUS1:	MOVE IOS,DEVIOS(DDB)
000472	135340	000111'	04820		LDB PROG,PJOB
000473	550347	000000	04830		HRRZ PROG,JBTADR(PROG)
000474	135240	000000'	04840		LDB HPOS,PHPOS
000475	135200	000001'	04850		LDB VPOS,PVPOS
000476	135046	000262'	04860		LDB TAC,TTYPTR(DDB)
000477	603000	002000	04870		TLNE IOS, SP
000500	254000	000533'	04880		JRST SIM35
000501	607000	000020	04890	INUS2:	TLNN IOS, TOUT
000502	254000	000575'	04900		JRST INJEST
000503	312040	000010	04910		CAME TAC, CHREC
000504	254000	000527'	04920		JRST ECHO
000505	260140	000771'	04930	INUS3:	PUSHJ PDP, GCHAR
000506	254000	000520'	04940		JRST LEAV0
000507	306100	000463'	04950	TYPE:	CAIN LINE,TCONLN
000510	254000	000524'	04960		JRST CTSER3
000511	730602	000000	04970	TYP1:	CONO DCSB,(LINE)
000512	730140	000010	04980		DATAO DCSA, CHREC
000513	137400	000002'	04990		DPB CHREC,PLASTC ;SAVE CHARACTER FOR FULL DUPLEX
000514	202006	000002	05000	LEAVE:	MOVEM IOS, DEVIOS(DDB)
000515	137240	000000'	05010	LEAV1:	DPB HPOS,PHPOS
000516	137200	000001'	05020		DPB VPOS,PVPOS
000517	254000	000470'	05030		JRST SCNRET
000520	200046	000004	05040	LEAV0:	MOVE TAC,DEVMOD(DEVDAT) ;IS TTY ATTCHED?
000521	607040	020000	05050		TLNN TAC,TTYATC
000522	260140	000041'	05060		PUSHJ PDP,TTYKIL ;NO,RETURN TO POOL
000523	254000	000515'	05070		JRST LEAV1
			05080		
000524	712140	000010	05090	CTSER3:	DATAO TTY,CHREC
000525	202400	000055'	05100		MOVEM CHREC,CCHAR
000526	254000	000514'	05110		JRST LEAVE


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000527 670000 001156' 05120
000530 621000 000020 05130
000531 201400 000177 05140
000532 254000 000507' 05150
000533 205040 777766 05160
000534 200241 000545' 05170
000535 302405 000000 05180
000536 253040 000534' 05190
000537 135240 000000' 05200
000540 325040 000527' 05210
000541 204041 000545' 05220
000542 603040 000140 05230
000543 344241 000000 05240
000544 254001 000000 05250
000545 000557'000040 05260
000546 000565'000012 05270
000547 000572'000177 05280
000550 000572'000134 05290
000551 000735'000015 05300
000552 000562'000136 05310
000553 000766'000103 05320
000554 000766'000117 05330
000555 000566'000132 05340
000556 000766'000125 05350
000557 606240 000007 05360
000560 254000 000566' 05370
000561 254000 000507' 05380
000562 135400 000003' 05390
000563 660400 000100 05400
000564 254000 000507' 05410
000565 367200 000507' 05420
000566 621000 002000 05430
000567 607000 000020 05440
000570 254000 000630' 05450
000571 254000 000505' 05460
000572 625000 002000 05470
000573 640000 004000 05480
000574 254000 000514' 05490

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ECHO:   TDO IOS,[XWD SP,ECHOF]
        TLZ IOS,TOUT
        MOVEI CHREC,177          ;SEND A RUBOUT AFTER ECHO CHE
        JRST TYPE

SIM35:  MOVSI TAC,-SCTABL
        MOVE HPOS, SCTAB(TAC)
        CAIE CHREC,(HPOS)
        AOBJN TAC,.-2
        LDB HPOS,PHPOS
        JUMPGE TAC, ECHO
        MOVS TAC, SCTAB(TAC)
        TLNE TAC, 140           ;SPACING CHARACTER
        AOJA HPOS,(TAC)         ;YES
        JRST (TAC)              ;NO

SCTAB:  XWD SPACE," "
        XWD SIMLF,12
        XWD SIMRO,177          ;RUBOUT
        XWD SIMRO,134          ;BACK SLASH
        XWD ASC3,15            ;CR
        XWD SIMVA,"+"
        XWD DELET1,"C"
        XWD DELET1,"O"
        XWD SIM4,"Z"
        XWD DELET1,"U"
SCTABL=.-SCTAB

SPACE:  TRNN HPOS,7             ;FINISHED SIMULATING TABS(8)
        JRST SIM4              ;YES
        JRST TYPE              ;NO, SEND ANOTHER SPACE

SIMVA:  LDB CHREC,PSCHAR
        TRO CHREC, 100
        JRST TYPE

SIMLF:  SOJG VPOS,TYPE          ;SEND ANOTHER LINE-FEED
SIM4:   TLZ IOS,SP
        TLNN IOS,TOUT
        JRST INJ4
        JRST INUS3

SIMRO:  TLZA IOS, SP
MOD35:  TRC IOS,T35
        JRST LEAVE

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000575	306400	000003	05580
000576	254000	000644'	05590
000577	623000	000004	05600
000600	260140	000632'	05610
000601	603000	100000	05620
000602	661000	040040	05630
000603	306400	000017	05640
000604	254000	000657'	05650
000605	622000	100000	05660
000606	254000	000677'	05670
000607	602000	040000	05680
000610	254000	000514'	05690
000611	302400	000033	05700
000612	306400	000176	05710
000613	201400	000175	05720
000614	306400	000020	05730
000615	254000	000573'	05740
000616	603000	100000	05750
000617	254000	000622'	05760
000620	306400	000177	05770
000621	254000	000752'	05780
000622	136406	000476'	05790
000623	370046	000257'	05800
000624	301400	000040	05810
000625	303400	000137	05820
000626	254000	000701'	05830
000627	271240	000001	05840
000630	260140	001064'	05850
000631	254000	000514'	05860
			05870
			05880
000632	541046	000260'	05890
000633	505040	440700	05900
000634	202046	000622'	05910
000635	507000	000001	05920
000636	350000	000001	05930
000637	402006	000632'	05940
000640	251046	000000	05950
000641	201040	000111	05960
000642	202046	000623'	05970
000643	263140	000000	05980
			05990

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INJEST:  CAIN CHREC,3           ;CONTROL C?
          JRST INJ5
          TLZE IOS,IOFST        ;IF FIRST CHARACTER IN, INITIALIZE
          PUSHJ PDP,SETMB1
          TLNE IOS,DDTM         ;1 DDT CHAR RESTARTS PROGRAM
          TLO IOS,SYNC+IOEND    ;YES, TERMINATE BUFFER
          CAIN CHREC,17         ;CONTROL 0?
          JRST INJ6             ;YES, FLUSH OUTPUT
          TRZE IOS,ECHOF        ;ECHO HAS OCCURRED?
          JRST INJ7             ;YES, NOW RESUME OUTPUT
          TRNE IOS,NCERR
          JRST LEAVE
          CAIE CHREC,033        ;NEW NEW ALT-MODE?
          CAIN CHREC,176        ;NEW ALT-MODE?
          MOVEI CHREC,175       ;CHANGE TO OLD
          CAIN CHREC,20         ;CONTROL P TAB SIMULATION FLIP FLOP SWI
          JRST MOD35
          TLNE IOS,DDTM
          JRST INJ25            ;SEND RUBOUTS ON TO DDT
          CAIN CHREC,177        ;RUBOUT
          JRST DELET
INJ25:    DPBI CHREC, TTYPTR(DDB)
          SOS TAC, TTYCTR(DDB)
          CAIL CHREC, 40
          CAILE CHREC, 137
          JRST SPCIN
          ADDI HPOS,1
INJ4:     PUSHJ PDP, MOVBUF
          JRST LEAVE
          JRST LEAVE
SETMB1:   HRRI TAC, TTYBUF(DDB)
          HRLI TAC, 440700
          MOVEM TAC, TTYPTR(DDB)
          HRLS TAC
          AOS TAC
          SETZM TTYBUF(DDB)
          BLT TAC,TTYBFE(DDB) ;CLEAR OUT MONITOR BUFFER
          MOVEI TAC, 111
          MOVEM TAC, TTYCTR(DDB)
          POPJ PDP,

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```

06000
06010
000644 260140 000632' 06020
000645 261140 000004 06030
000646 135200 000004' 06040
000647 332000 000004 06050
000650 260140 000000 06060
000651 262140 000004 06070
000652 607000 001000 06080
000653 202006 000063' 06090
000654 200000 001153' 06100
000655 201040 000103 06110
000656 254000 000674' 06120
06130
000657 261140 000002 06140
000660 623000 000001 06150
000661 260140 000000 06160
000662 262140 000002 06170
000663 603000 101000 06180
000664 254000 000667' 06190
000665 603000 000020 06200
000666 260140 000000 06210
000667 665000 000004 06220
000670 254000 000666' 06230
000671 620000 100000 06240
000672 660000 020000 06250
000673 201040 000117 06260
000674 137040 000003' 06270
000675 201400 000136 06280
000676 254000 000745' 06290
06300
000677 661000 000020 06310
000700 254000 000505' 06320

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INJ5:  PUSHJ PDP,SETMB1
        PUSH PDP,ITEM      ;+C
        LDB ITEM,TPCJOB    ;YES, GET USER CONSOLE NUMBER
        SKIPE ITEM
        PUSHJ PDP,STOP1    ;SHUT OFF JOB
        POP PDP,ITEM
        TLNN IOS,TPMON     ;SAVE STATUS OF TTY
        MOVEM IOS,TTYSAV(DD) ;WHEN IT WAS IN USER MODE
        MOVE IOS,[XWD TPMON+IOFST,IOACT]
        MOVEI TAC,"C"
        JRST INJ61

INJ6:  PUSH PDP,TAC1      ;+0
        TLZE IOS,IOW
        PUSHJ PDP,SETIOD
        POP PDP,TAC1
        TLNE IOS,TPMON+DDTM
        JRST INJ6A
        TLNE IOS,TOUT
        PUSHJ PDP,ADVRFE
INJ6A:  TLOA IOS,IOFST
        JRST .-2
        TRZ IOS,ECHOF
        TRO IOS,IODEND
        MOVEI TAC,"0"
INJ61:  DPB TAC,PSCHAR
        MOVEI CHREC,"+"
        JRST SPC21

INJ7:  TLO IOS,TOUT
        JRST INUS3

```

000701 205040 777770 06330
000702 200101 000711' 06340
000703 302402 000000 06350
000704 253040 000702' 06360
000705 544040 000002 06370
000706 135100 000412' 06380
000707 321041 000000 06390
000710 254000 000630' 06400
000711 000721' 000015 06410
000712 000727' 000012 06420
000713 000742' 000011 06430
000714 000724' 000013 06440
000715 000723' 000014 06450
000716 000737' 000025 06460
000717 000747' 000032 06470
000720 000727' 000175 06480
000721 201240 000000 06490
000722 254000 000735' 06500
000723 334200 001157' 06510
000724 201200 000004 06520
000725 607000 004000 06530
000726 661000 002000 06540
000727 135040 000000 06550
000730 607000 001000 06560
000731 306040 000001 06570
000732 661000 040000 06580
000733 607000 002000 06590
000734 254000 000630' 06600
000735 201400 000012 06610
000736 254000 000507' 06620
000737 260140 000632' 06630
000740 201040 000125 06640
000741 254000 000674' 06650
000742 602000 004000 06660
000743 254000 000514' 06670
000744 201400 000040 06680
000745 661000 002000 06690
000746 254000 000507' 06700
000747 661000 042040 06710
000750 201040 000132 06720
000751 254000 000674' 06730

SPCIN: MOVSI TAC,-SCITL ;SEARCH FOR SPECIAL INPUT CHAR
 MOVE TAC1,SCITAB(TAC)
 CAIE CHREC,(TAC1) ;FOUND?
 AOBJN TAC,.-2 ;NO
 HLR TAC,TAC1 ;SAVE DISPATCH ADDRESS
 LDB LINE,PUNIT ;RESTORE TAC1
 JUMPL TAC,(TAC)
 JRST INJ4 ;CHARACTER NOT FOUND

SCITAB: XWD SPCCR,15 ;CR
 XWD ASC1,12 ;LF
 XWD SPC2,11 ;HORIZ TAB
 XWD SPVT,13 ;VT
 XWD SPFF,14 ;FF
 XWD SPC4A,25 ;↑U
 XWD SPC7,32 ;↑Z
 XWD ASC1,175 ;ALT MODE

SCITL=.-SCITAB

SPCCR: MOVEI HPOS,0
 JRST ASC3

SPFF: SKIPA VPOS,[10]
SPVT: MOVEI VPOS,4
 TLNN IOS,T35 ;DONT SIMULATE FOR A MOD 35
 TLO IOS,SP

ASC1: LDB TAC,PIOMOD
 TLNN IOS,TPMON
 CAIN TAC,AL
 TLO IOS,SYNC

ASC2: TLNN IOS,SP
 JRST INJ4

ASC3: MOVEI CHREC,12 ;LINE FEED
 JRST TYPE

SPC4A: PUSHJ PDP,SETMB1
 MOVEI TAC,"U"
 JRST INJ61

SPC2: TRNE IOS,T35
 JRST LEAVE
 MOVEI CHREC," "

SPC21: TLO IOS,SP
 JRST TYPE

SPC7: TLO IOS,SYNC+IOEND+SP ;↑Z
 MOVEI TAC,"Z"
 JRST INJ61 ;ECHO ↑Z

```

06820
06830
06840
000752 200046 000642' 06850
000753 301040 000111 06860
000754 254000 000766' 06870
06880
000755 205040 070000 06890
000756 270046 000634' 06900
000757 603040 400000 06910
000760 270040 001160' 06920
000761 202046 000756' 06930
000762 350006 000752' 06940
06950
000763 201400 000334 06960
000764 661000 002000 06970
000765 254000 000507' 06980
06990
000766 201200 000001 07000
000767 201400 000015 07010
000770 254000 000764' 07020

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DELET:  MOVE TAC,TTYCTR(DDB)
        CAIL TAC,111
        JRST DELET1

        MOVSI TAC,070000
        ADD TAC,TTYPTR(DDB)
        TLNE TAC,400000
        ADD TAC,[XWD 347777,-1]
        MOVEM TAC,TTYPTR(DDB)
        AOS TTYCTR(DDR)

DELET2:  MOVEI CHREC,334
        TLO IOS,SP
        JRST TYPE

DELET1:  MOVEI VPOS,1
        MOVEI CHREC,15
        JRST DELET2

```

;BACK SLASH

		07030		
		07040		;ROUTINE TO GET NEXT CHARACTER FROM OUTPUT BUFFER
		07050		;CALL: PUSHJ PDP,GCHAR
		07060		; NO MORE LEFT
		07070		; RETURN WITH CHAR. IN CHREC
		07080		
		07090		
000771	627000 000004	07100	GCHAR:	TLZN IOS, IOFST
000772	254000 001001'	07110		JRST GCHAR3
000773	550046 000010	07120	GCHAR1:	HRRZ TAC,DEVOAD(DDB)
000774	270040 001161'	07130		ADD TAC, [XWD 000700+PROG,1]
000775	202046 000761'	07140		MOVEM TAC, TTYPTR(DDB)
000776	550060 000001	07150		HRRZ TAC, @TAC
000777	221040 000005	07160		IMULI TAC, 5
001000	202046 000762'	07170		MOVEM TAC,TTYCTR(DDB)
001001	375006 001000'	07180	GCHAR3:	SOSGE TTYCTR(DDB)
001002	254000 001025'	07190		JRST GCHAR5
001003	134406 000775'	07200		LDBI CHREC, TTYPTR(DDB)
001004	322400 001023'	07210		JUMPE CHREC, GCHAR7
001005	306400 000011	07220		CAIN CHREC, 11
001006	254000 001052'	07230		JRST HT
001007	306400 000012	07240		CAIN CHREC, 12
001010	344200 001017'	07250		AOJA VPOS,GCH3
001011	302400 000013	07260		CAIE CHREC, 13
001012	306400 000014	07270		CAIN CHREC, 14
001013	254000 001057'	07280		JRST VTFF
001014	271240 000001	07290		ADDI HPOS,1
001015	306400 000015	07300		CAIN CHREC,15
001016	201240 000000	07310		MOVEI HPOS,0
001017	354003 000000	07320	GCH3:	AOSA (PDP)
001020	200006 000653'	07330	GCH3A:	MOVE IOS,TTYSAB(DDB) ;RESTORE STATUS TO USER
001021	202006 000002	07340	GCHAR4:	MOVEM IOS, DEVIOS(DDB)
001022	263140 000000	07350		POPJ PDP,
		07360		
001023	607000 100000	07370	GCHAR7:	TLNN IOS,DDTM ;DDT BUFFER TERMINATED WITH NULL
001024	254000 001001'	07380		JRST GCHAR3
001025	261140 000002	07390	GCHAR5:	PUSH PDP,TAC1
001026	623000 000001	07400		TLZE IOS, IOW
001027	260140 000661'	07410		PUSHJ PDP, SETIOD
001030	262140 000002	07420		POP PDP,TAC1
001031	607000 101000	07430		TLNN IOS,TPMON+DDTM
001032	260140 000666'	07440		PUSHJ PDP, ADVBFE
001033	665000 000004	07450		TLOA IOS,IOFST
001034	254000 000773'	07460		JRST GCHAR1
001035	630000 001162'	07470		TDZ IOS,[XWD IO,IOACT]
001036	627000 000100	07480		TLZN IOS,USRB
001037	254000 001021'	07490		JRST GCHAR4
001040	621000 001000	07500		TLZ IOS,TPMON
001041	135100 000706'	07510		LDB LINE,PUNIT ;GET LINE NO.
001042	261140 000004	07520		PUSH PDP,ITEM
001043	135200 000004'	07530		LDB ITEM,TPCJOB
001044	260140 000000	07540		PUSHJ PDP,SETRUN
001045	262140 000004	07550		POP PDP,ITEM
001046	626000 020000	07560		TRZN IOS,USRBC
001047	254000 001020'	07570		JRST GCH3A
001050	205000 001004	07580		MOVSI IOS,TPMON+IOFST
001051	254000 001021'	07590		JRST GCHAR4

001052	602000	004000	07600
001053	344240	001017'	07610
001054	661000	002000	07620
001055	201400	000240	07630
001056	254000	001017'	07640
			07650
			07660
001057	602000	004000	07670
001060	344200	001017'	07680
001061	201400	000012	07690
001062	661000	002000	07700
001063	254000	001017'	07710

HT:	TRNE IOS,T35
	AOJA HPOS,GCH3
	TLO IOS,SP
SPOUT:	MOVEI CHREC,240
	JRST GCH3
VTFF:	TRNE IOS,T35
	AOJA VPOS,GCH3
	MOVEI CHREC,12
	TLO IOS,SP
	JRST GCH3

			07720
001064	603000	100000	07730
001065	254000	001125'	07740
001066	627000	040000	07750
001067	337006	001001'	07760
001070	254000	001072'	07770
001071	254000	001133'	07780
001072	603000	001000	07790
001073	254000	001135'	07800
001074	200046	000007	07810
001075	602040	777777	07820
001076	335020	000001	07830
001077	254000	001132'	07840
001100	261140	000002	07850
001101	200046	001003'	07860
001102	260140	000253'	07870
001103	200046	000007	07880
001104	260140	000000	07890
001105	551041	000000	07900
			07910
001106	201066	000007	07920
001107	271040	000002	07930
001110	540400	000001	07940
001111	271040	000000	07950
001112	505406	000637'	07960
001113	251401	777777	07970
			07980
001114	201040	000111	07990
001115	274046	001067'	08000
001116	271040	000004	08010
001117	231040	000005	08020
001120	201426	000007	08030
001121	202050	000001	08040
001122	260140	000000	08050
001123	254000	001124'	08060
001124	665000	000004	08070
001125	261140	000002	08080
001126	623000	000001	08090
001127	260140	001027'	08100
001130	262140	000002	08110
001131	624000	050000	08120
001132	660000	040000	08130
001133	202006	000002	08140
001134	263140	000000	08150
001135	205040	400000	08160
001136	436042	000443'	08170
001137	661000	000004	08180
001140	201040	000015	08190
001141	137046	001101'	08200
001142	350000	000000	08210
001143	263140	000000	08220
			08230
001144	030000	600000	08240
001145	000100	020000	
001146	120020	010000	
001147	001020	010000	
001150	020004	140000	

```
MOVBUF:  TLNE IOS,DDTM
          JRST MOV3 ;DONT ADVANCE BUFFERS FOR DDT MODE
          TLZN IOS,SYNC
          SKIPG TTYCTR(DDB)
          JRST .+2
          JRST MIS1
          TLNE IOS,TPMON
          JRST MOVMON
          MOVE TAC,DEVIAD(DDB)           ;IS TTY EXPECTING INPUT?
          TRNE TAC,-1
          SKIPGE @TAC                    ;OR IS NEXT BUFFER READY?
          JRST MIS ;NO
          PUSH PDP,TAC1
          MOVE TAC,TTYPTR(DDB)
          PUSHJ PDP,CLRBYT
          MOVE TAC,DEVIAD(DDB)
          PUSHJ PDP,ADRCK ;MAKE SURE BUFFER WILL FIT
          HRRZI TAC,STTYB1(TAC)          ;LENGTH+1

          MOVEI TAC,@DEVIAD(DDB)
          ADDI TAC,2
          HRR CHREC,TAC
          ADDI TAC,STTYBF
          HRLI CHREC,TTYBUF(DDB)
          BLT CHREC,-1 (TAC)

          MOVEI TAC, 111
          SUB TAC,TTYCTR(DDB)
          ADDI TAC,4
          IDIVI TAC,5
          MOVEI CHREC,@DEVIAD(DDB)
          MOVEM TAC,1(CHREC)
          PUSHJ PDP,ADVBBF
          JRST .+1
          TLOA IOS,IOFST
          PUSH PDP,TAC1
          TLZE IOS,IOW
          PUSHJ PDP,SETIOD
          POP PDP,TAC1
          TRZA IOS,NCERR+IOACT
          TRO IOS,NCERR
          MOV3:  MOVEM IOS,DEVIOS(DDB)
          POPJ PDP,
          MIS:
          MIS1:  MOVEM IOS,DEVIOS(DDB)
          POPJ PDP,
          MOVMON:  MOVSI TAC,400000
                   IORM TAC,TTYTAB(LINE)           ;SET BIT FOR MONITOR
                   TLO IOS,IOFST
                   MOVEI TAC,15
                   DPB TAC,TTYPTR(DDB) ;FORCE A CARRIAGE RET INTO MONITOR COMM
                   AOS COMCNT
                   POPJ PDP,

          END,
```


001151	001000	140000
001152	000024	010000
001153	001004	010000
001154	010000	400000
001155	220606	000000
001156	002000	100000
001157	000000	000010
001160	347777	777777
001161	000707	000001
001162	000020	010000

THERE ARE NO ERRORS

PROGRAM BREAK IS 001163

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 21

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
ADRCK	001104'	EXT
ADVBFE	001032'	EXT
ADVBFF	001122'	EXT
AL	000001	INT
ASC1	000727'	
ASC2	000733'	
ASC3	000735'	
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CCHAR	000055'	
CHREC	000010	
CLDS	000312'	EXT
CLFN	000322'	EXT
CLOSB	002000	INT
CLRBYT	001102'	EXT
CLSIN	000002	INT
CLSOUT	000001	INT
COMCNT	001142'	EXT
CPOPJ	000406'	EXT
CPOPJ1	000437'	EXT
CTSER3	000524'	
CTYINT	000332'	INT
CTYOU1	000347'	
CTYOUT	000325'	
CTYRUB	000346'	
D	000017	INT
DAT	000005	INT
DCHAR	000177	
DCL	000001	INT
DCW	020000	INT
DDR	000006	
DDRSRC	000400'	
DDI	000007	INT
DDO	000006	INT
DDTGT	000133'	INT
DDTGT2	000141'	
DDTIN	000153'	INT
DDTIN2	000157'	
DDTIN3	000166'	
DDTM	100000	
DDTMEM	000037	INT
DDTOUT	000206'	INT
DDTRL	000144'	INT
DDTSYM	000036	INT
DELET	000752'	
DELET1	000766'	
DELET2	000764'	
DEN	000004	INT

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 22

DETH	010000	
DEVADR	000007	INT
DEVBUF	000006	INT
DEVCHR	000001	INT
DEVCTR	000011	INT
DEVDAT	000006	INT
DEVIAD	000007	INT
DEVIOS	000002	INT
DEVLOG	000005	INT
DEVLST	000000	EXT
DEVMOD	000004	INT
DEVNAM	000000	INT
DEVOAD	000010	INT
DEVOPR	000436'	EXT
DEVPHY	000242'	EXT
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
DVTY	000010	INT
ECHO	000527'	
ECHOF	100000	
ENTRR	020000	INT
FSNCHN	000441'	EXT
GCH3	001017'	
GCH3A	001020'	
GCHAR	000771'	
GCHAR1	000773'	
GCHAR3	001001'	
GCHAR4	001021'	
GCHAR5	001025'	
GCHAR7	001023'	
HPOS	000005	
HT	001052'	
I	000010	INT
IB	000013	INT
IBUFR	200000	INT
INITB	400000	INT
INJ25	000622'	
INJ4	000630'	

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 23

INJ5	000644'	
INJ6	000657'	
INJ61	000674'	
INJ6A	000667'	
INJ7	000677'	
INJEST	000575'	
INPB	010000	INT
INUS1	000471'	
INUS2	000501'	
INUS3	000505'	
INUSE	000462'	
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IORCTL	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
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFAADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000473'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOR	000243'	EXT
LEAV0	000520'	
LEAV1	000515'	
LEAVE	000514'	
LINE	000002	
LOOKB	040000	INT
MIS	001132'	
MIS1	001133'	
MLTTYL	000400'	EXT
MOD35	000573'	
MOV3	001125'	
MOVBUF	001064'	

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 24

MOVMON	001135'	
MTTYLN	000232'	EXT
MTW	010000	INT
NCERR	040000	
NIO	020000	
OBUFB	100000	INT
OUT	000272'	EXT
OUTPB	004000	INT
PDP	000003	INT
PHPOS	000000'	
PICHN	000100	INT
PIOFF	000400	
PIOMOD	000727'	EXT
PION	000200	
PJOBN	000472'	EXT
PLASTC	000002'	
PROG	000007	INT
PSCHAR	000003'	
PUNIT	001041'	EXT
PUUOAC	000214'	EXT
PVPOS	000001'	
RUN	200000	INT
RUNABL	204000	INT
SCITAB	000711'	
SCITL	000010	
SCN1	000024'	
SCN2	000035'	
SCNCHL	000345'	EXT
SCNCHN	000350'	EXT
SCNIN	000411'	
SCNIN0	000425'	
SCNIN1	000440'	
SCNINI	000005'	INT
SCNINT	000355'	INT
SCNRET	000517'	EXT
SCNSAV	000357'	EXT
SCTAB	000545'	
SCTABL	000012	
SETIOD	001127'	EXT
SETMB1	000632'	
SETRUN	001044'	EXT
SIM35	000533'	
SIM4	000566'	
SIMLF	000565'	
SIMR0	000572'	
SIMVA	000562'	
SP	002000	
SPACE	000557'	
SPC2	000742'	
SPC21	000745'	
SPC4A	000737'	
SPC7	000747'	
SPCCR	000721'	
SPCIN	000701'	
SPFF	000723'	

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 25

SPOUT	001055'	
SPVT	000724'	
STOP1	000650'	EXT
STTYB1	001105'	EXT
STTYBF	001111'	EXT
SYNC	040000	
T35	004000	
TAC	000001	INT
TAC1	000002	INT
TCOMM	000364'	
TCONLN	000507'	EXT
TEM	000010	INT
TOUT	000020	
TPCJOB	000004'	
TPMON	001000	
TSCNLN	000000	EXT
TTY0DB	000000	EXT
TTYAT2	000070'	
TTYAT3	000110'	
TTYAT4	000115'	
TTYATC	020000	INT
TTYATT	000065'	INT
TTYBFE	000640'	EXT
TTYBM1	000254'	EXT
TTYBUF	001112'	EXT
TTYCOM	000117'	INT
TTYCTR	001115'	EXT
TTYDAT	000247'	
TTYDET	000046'	INT
TTYDSP	000271'	INT
TTYDT1	000052'	
TTYF0	000240'	
TTYFND	000244'	INT
TTYFNU	000243'	INT
TTYJOB	000130'	INT
TTYKIL	000041'	INT
TTYLST	000401'	EXT
TTYOU0	000303'	
TTYOU1	000322'	
TTYOU2	000311'	
TTYOUT	000301'	
TTYPTR	001141'	EXT
TTYSAV	001020'	EXT
TTYSET	000062'	INT
TTYSR1	000231'	
TTYSRC	000232'	
TTYSTR	000252'	INT
TTYTAB	001136'	EXT
TTYURC	000056'	INT
TTYUSE	010000	INT
TTYUSR	000057'	INT
TYP1	000511'	
TYPE	000507'	
TYPX	000450'	
TYPX1	000457'	

SCNSER - SCANNER SERVICE
SYMBOL TABLE

PAGE 26

USRB	000100	
USRBC	020000	
USRM0D	010000	INT
UU0	000014	INT
UXIT	000230'	EXT
VPOS	000004	
VTFF	001057'	
WAIT1	000211'	EXT
WSYNC	000164'	EXT

END OF ASSEMBLY

00010

XLIST

01970

00030
00040
00050
00060
00070
00080
00090
00100

EXTERNAL CLOSE1,ILLINS,IN,JOBAC,JOBADR,JOB DAT
EXTERNAL MTAPE1,OUT,RELEA1,UINBF,UNIT,UOUTBF
EXTERNAL USRJDA,USRSV,USTATO,USTATS,USTATZ
EXTERNAL ERROR,UOERR,CLDS,CLEN
EXTERNAL IOIERR,MJOBPD,JOBPDL,WAIT1,USRREL,PUUOAC
EXTERNAL JOBPDL,MJOBPD,USETST

```

00110
00120
00130 , DEC 06 00 EX UUO L PT PRE 06 UUO HANDLER
00140 , 3/10/65
00150 , ALL UUOS DROP THEMSELVES IN REAL LOCATION 40, AND TRAP
00160 , TO 41. THE UUO HANDLER SHUFFLES THE UUO OFF TO THE USERS
00170 , 40,41, IF IT IS NOT A SYSTEM UUO.
00180 , SYSTEM UUOS FALL INTO THREE CLASSES, HANDLED DIFFERENTLY
00190 , (1) SYSTEM FUNCTIONS: LOAD ACS PDP, PROG, AND DISPATCH TO THE
00200 , FUNCTION.
00210 , (2) DEVICE INDEPENDENT I/O UUO: ALSO LOAD ACS DEVDAT AND IOS
00220 , AND GO THE THE SYSTEM FUNCTION.
00230 , (3) DEVICE DEPENDENT I/O UUOS: DO (1) AND (2), THEN DISPATCH
00240 , THROUGH THE TABLE WHOSE ADDRESS IS IN THE RIGHT HALF OF DEVSER(DEV
00250 , CONTROL MAY ALWAYS BE RETURNED BY EXECUTING A
00260 , JRST UXIT
00270 , WHICH WILL RESTORE THE ACS, ARP BITS, AND RETURN.
00280 , THE UUO HANDLER IS PURE IF THE FOLLOWING RESTRICTIONS ARE OBSERVED.
00290 , RESTRICTIONS: UUOS CANNOT BE CALLED BY INTERRUPT SERVICE ROUTINES.
00300 , MONITOR INTERFACE
00310 , STORAGE: 89
00320 , ROUTINES CALLED: ILLINS, ADRCK, EXCLK, UUOH, SETIOS,UUOUSR
00330 , UUOS CALLED: CALL, INIT, RELEAS, CLOSE, OUTBUF, INBUF
00340 , STATS, STATO, STATZ, OUTPUT, INPUT
00350 , DEVICE DEPENDENT: DEN, DLK, DSO, DSI, DGF
00360 , SYMBOLS SET/USED:
00370 , ACCUMULATORS: PDP S/U TAC S/U
00380 , PROG S/U TAC1 S/U
00390 , SUB S UUO S
00400 , SYSTEM PARAMETERS: UIO U
00410 , USYS U
00420 , USYSN U
00430 , JOB AREA: JOBAC U JOB DAT U
00440 , JOBPDP U
00450 , SYSTEM ADDRESSES: CLK S/U
00460 , JOBADR U
00470 , USRLEV S/U
00480 , DEVICE DATA BLOCK: DEVSER U
00490 , INTERNAL ADDRESSES: 40 S/U
00500 , UUO0 S/U
00510 , UUOSAV S/U

```

```

00520
00530
00540
00550
00560
00570
00580
00590
00600
00610
00620
00630
00640
00650
00660
00670
00680
00690
00700
00710
00720
00730
00740
00750
00760
00770
00780
00790
00800
000000 000000 000000
000001 250040 000040
000002 202740 000000
000003 603040 077000
000004 603040 740000
000005 254000 000030
000006 200740 000000
000007 202057 000040
000010 550057 000041
000011 322040 000030
000012 500040 000000
000013 607040 010000
000014 254000 000030
000015 201741 000000
000016 317740 000000
000017 541041 000001
000020 250040 000000
000021 313740 000016
000022 254000 000025
000023 270740 000006
000024 202057 000000
000025 200040 000040
000026 200740 000002
000027 254120 000000

```

INTERNAL UUO

UUO:

```

0
EXCH TAC,40
MOVEM 17,USRSV
TLNE TAC,77000
TLNE TAC,740000
JRST UUOSYS
MOVE 17,JOBADR
MOVEM TAC,40(17)
HRRZ TAC,41(17)
JUMPE TAC,UUOSYS
HLL TAC,UUO
TLNN TAC,USRMOD
JRST UUOSYS
MOVEI 17,(TAC)
CAMG 17,USRREL
HRRI TAC,1(TAC)
EXCH TAC,UUO

CAMLE 17,USRREL
JRST .+3 ;NO, DONT STORE PC
ADD 17,JOBADR
MOVEM TAC,(17)
MOVE TAC,40
MOVE 17,USRSV
JRST 2,@UUO

;SAVE TAC; PICK UP UUO
;SAVE 17
;0 UUO IS ILLEGAL
;UUO FOR SYSTEM?
;YES
;GET JOB AREA ADDRESS
;STORE UUO IN USERS 40
;PICK UP ADR OF USERS JSR
;IF ADDRESS=0,ILLEGAL USER UU
;PICK UP PROCESSOR FLAGS FOR
;WAS UUO FROM USER?
;NO, ILLEGAL UUO FROM SYSTEM
;17 NOW HAS REL. ADR. OF USER
;DONT INCREMENT RETURN IF PC
;INCREMENT PC
;SET UP RETURN TO USER, PICK
;UP USERS FLAGS,PC
;LEGAL MEMORY?

;MAKE REL. ADR. INTO ABS. ADR
;STORE FLAGS AND PC LIKE JSR
;RESTORE TAC
;RESTORE 17
;RETURN TO USER

```

```

00810
00820
000030 250040 000040 00830
000031 200740 000000' 00840
000032 607740 010000 00850
000033 254000 000046' 00860
000034 200740 000023' 00870
000035 202717 000016 00880
000036 550700 000017 00890
000037 251717 000015 00900
000040 200000 000026' 00910
000041 202017 000017 00920
00930
000042 200440 000000 00940
000043 205140 000000 00950
000044 541151 000000 00960
000045 334340 000017 00970
000046 200740 000040' 00980
000047 261140 000000' 00990
000050 200600 000040 01000
000051 135100 000250' 01010
000052 301100 000100 01020
000053 254000 000000 01030
000054 305100 000040 01040
000055 254000 000000 01050
000056 135040 000000 01060
000057 200301 000000 01070
000060 305100 000060 01080
000061 254000 000070' 01090
000062 302100 000070 01100
000063 306100 000071 01110
000064 322300 000236' 01120
000065 322300 000000 01130
000066 200006 000002 01140
000067 254002 000015' 01150
01160
000070 305100 000042 01170
000071 254002 000033' 01180
000072 254000 000055' 01190

```

```

UUOSYS:  EXCH TAC,40          ;RESTORE TA, RESTORE THE UUO
          MOVE 17,UUO0        ;PICK UP PROCESSOR FLAGS
          TLNN 17,USRM0D      ;SYSTEM UUO FROM SYSTEM?
          JRST UUOSY1         ;YES
          MOVE 17,JOBADR       ;NO, PICK UP ADR. OF USER PRO
          MOVEM 16,16(17)      ;STORE AC16 IN USER 16
          HRRZ 16,17           ;SET UP BLT POINTER
          BLT 16,15(17)        ;MOVE REAL ACS TO USER AREA
          MOVE 0,USRS0V        ;MOVE USER 17 TO USERS AREA
          MOVEM 0,17(17)

          MOVE JDAT,JOB0DAT    ;LOAD UP JOB DATA AREA ADDRES
          MOVSI PDP,MJ0R0PD    ;LOAD UP PUSH DOWN AC AND
          HRRI PDP,J0BP0DL(JDAT) ;MAKE ABSOLUTE RATH
          SKIPA PROG,17        ;PROGRAM BASE ADDRESS
UUOSY1:  MOVE 17,USRS0V        ;RESTORE AC17 IF UUO FROM SYS
          PUSH PDP,UUO0        ;SAVE RETURN ON PUSH DOWN LIS
          MOVE UUO,40          ;GET THE UUO INTO AC(UUO)
          LDB TAC1,[POINT 9,UUO,8] ;PICK UP UUO OP COD
          CAIL TAC1,100        ;ILLEGAL INSTRUCTION?
          JRST ILLINS          ;YES
          CAIGE TAC1,40         ;SYSTEM UUO?
          JRST UUOERR          ;NO, ILLEGAL

          LDB TAC,PUU0AC        ;GET DDB
          MOVE DEV0AT,USRJDA(TAC) ;AN IO UUO?
          CAIGE TAC1,100-UUOT2L ;NO
          JRST UUODSP           ;CLOSE AND RELEASE ARE ALWAYS LEGAL
          CAIE TAC1,70
          CAIN TAC1,71
          JUMPE DEV0AT,UXIT
          JUMPE DEV0AT,IOIERR ;CHANNEL MUST BE ASSIGNED
          MOVE IOS,DEVIOS(DEV0AT) ;GET DATA BLOCK STA
          JRST UUOT2-77+UUOT2L-1(TAC1) ;DISPATCH

UUODSP:  CAIGE TAC1,40+UUOT1L   ;LEGAL SYSTEM UUO?
          JRST UUOT1-40(TAC1)   ;YES, DISPATCH
          JRST UUOERR

```

		01200		
		01210		
000073	254000 000162'	01220	UUOT1: JRST UCALL	;40
000074	254000 000000	01230	JRST UINIT	
		01240	;ADD NON IO UUOS HERE	
		01250		
		01260	UUOT1L=-UUOT1	
		01270		
		01280	UUOT2:	
		01290	;ADD IO UUOS HERE	
000075	254000 000000	01300	JRST USETST	
000076	254000 000000	01310	JRST USTAT0	
000077	254000 000000	01320	JRST USTATS	
000100	254000 000000	01330	JRST USTATZ	
000101	254000 000000	01340	JRST UINBF	
000102	254000 000000	01350	JRST UOUTBF	
000103	254000 000000	01360	JRST IN	
000104	254000 000000	01370	JRST OUT	
000105	254000 000000	01380	JRST CLOSE1	
000106	254000 000000	01390	JRST RELEA1	
000107	254000 000000	01400	JRST MTAPE1	
000110	254000 000160'	01410	JRST UDGf	
000111	254000 000156'	01420	JRST UDSI	
000112	254000 000154'	01430	JRST UDSO	
000113	254000 000143'	01440	JRST UDLK	
000114	254000 000131'	01450	JRST UDEN	;77
		01460	UUOT2L=-UUOT2	

		01470	
		01480	,DISPATCH TO SPECIAL ROUTINE
		01490	DEFINE DSPT(A)
		01500	<U'A: PUSHJ PDP,UDSP
		01510	JRST A(TAC)
		01520	>
000115	200046 000003	01530	UDSP: MOVE TAC,DEVSR(DEV DAT)
000116	200106 000001	01540	MOVE TAC1,DEVCHR(DEV DAT)
000117	607100 000020	01550	TLNN TAC1,IORET
000120	201040 000116'	01560	MOVEI TAC,NRTDSP-4; IGNORE THESE CALLS FOR NON-
000121	263140 000000	01570	POPJ PDP,
000122	254000 000235'	01580	NRTDSP: JRST CUXIT1 ;SKIP RETURN
000123	254000 000235'	01590	NRTSRP: JRST CUXIT1 ;SKIP RETURN
000124	265240 000000	01600	JSP DAT,ERROR ;DUMPO
000125	265240 000124'	01610	JSP DAT,ERROR ;DUMPI
000126	254000 000072'	01620	JRST UUDERR ;USETO
000127	254000 000126'	01630	JRST UUDERR ;USETI
000130	254000 000127'	01640	JRST UUDERR ;GETF
000131	260140 000000	01650	UDEN: PUSHJ PDP,WAIT1
000132	661000 000002	01660	TLO IOS,IOBEG
000133	620000 776000	01670	TRZ IOS,776000
000134	202006 000002	01680	MOVEM IOS,DEVIOS(DEV DAT)
000135	135040 000056'	01690	LDB TAC,PUUOAC
000136	661300 020000	01700	TLO DEV DAT,ENTRB
000137	621300 002000	01710	TLZ DEV DAT,CLOSB
000140	502301 000057'	01720	HLLM DEV DAT,USRJDA(TAC)
000141	260140 000115'	01730	PUSHJ PDP,UDSP
000142	254001 000004	01740	JRST DEN(TAC)
		01750	
000143	260140 000131'	01760	UDLK: PUSHJ PDP,WAIT1
000144	630000 000251'	01770	TDZ IOS,[XWD IOEND,776000]
000145	202006 000002	01780	MOVEM IOS,DEVIOS(DEV DAT)
000146	135040 000135'	01790	LDB TAC,PUUOAC
000147	661300 040000	01800	TLO DEV DAT,LOOKB
000150	621300 002000	01810	TLZ DEV DAT,CLOSB
000151	502301 000140'	01820	HLLM DEV DAT,USRJDA(TAC)
000152	260140 000115'	01830	PUSHJ PDP,UDSP
000153	254001 000005	01840	JRST DLK(TAC)
		01850	
		01860	DSPT(DSO)
000154	260140 000115'	UDSO:	PUSHJ PDP,UDSP
000155	254001 000010		JRST DSO(TAC)
		01870	
		01880	DSPT(DSI)
000156	260140 000115'	UDSI:	PUSHJ PDP,UDSP
000157	254001 000011		JRST DSI(TAC)
		01890	DSPT(DGF)
000160	260140 000115'	UDGF:	PUSHJ PDP,UDSP
000161	254001 000012		JRST DGF(TAC)

```

01900
01910 , 6-CSS-DEC-CALL-PL-PRE2
01920 , H. R. MORSE 64-11-17
01930 , CALLING SEQUENCE
01940 , CALL D,[SIXBIT/NAME/]
01950 , WHERE NAME IS THE NAME OF A SYSTEM ROUTINE.
01960 , IF NO SYSTEM ROUTINE WITH THE SPECIFIED NAME IF FOUND, THIS ROUTINE
01970 , EXITS TO ERROR.
01980 , MONITOR INTERFACE
01990 , ROUTINES CALLED: ERROR, HASH, SYSTEM ROUTINES DEFINED BY
02000 , USE OF UCALIN.
02010 , SYMBOLS SET/USED:
02020 , ACCUMULATORS: DAT S/U PROG U
02030 , PDP U UUO S/U
02040 ;CONTENTS OF USER AC PLACED IN AC TAC
02050
02060
000162 661600 000011 02070 UCALL: TLO UUO,JDAT ;RELATIVIZE UUO ADDRESS
000163 200260 000014 02080 MOVE DAT,@UUO; DAT:=NAME OF SYSTEM ROUTINE C
000164 205100 777760 02090 MOVSI TAC1,-UCLLEN
000165 312242 000174' 02100 CAME DAT,UCLTAB(TAC1); SEARCH SYSTEM ROUTINE NAME TA
000166 253100 000165' 02110 AOBJN TAC1,.-1
000167 135240 000146' 02120 LDB DAT,PUUOAC ;USER UUO AC FIELD
000170 505240 000011 02130 HRLI DAT,JDAT
000171 200060 000005 02140 MOVE TAC,@DAT ;PICK UP CONTENTS OF USER AC
000172 321122 000214' 02150 JUMPL TAC1,@UCLJMP(TAC1)
000173 254000 000130' 02160 JRST UUOERR
02170
02180
02190 DEFINE NAMES
02200 < X DDTIN,DDTIN
02210 X DDTOUT,DDTOUT
02220 X DDTGT,DDTGT
02230 X DDTRL,DDTRL
02240 X SETDDT,SETDDT
02250 X DEVCHR,DVCHR
02260 X GETCHR,DVCHR
02270 X WAIT,WAIT
02280 X RESET,RESET
02290 X EXIT,EXIT
02300 X LDRBLT,LDRBLT
02310 X UTPCLR,UTPCLR
02320 X DATE,DATE
02330 X SETPOV,SETPOV
02340 X SWITCH,SWITCH
02350 X TIMER,TIMER
02360 >
02370 DEFINE X (A,B)
02380 < SIXBIT /A/
02390 >
02400 UCLTAB: NAMES
000174 444464 515600 SIXBIT /DDTIN/
000175 444464 576564 SIXBIT /DDTOUT/
000176 444464 476400 SIXBIT /DDTGT/
000177 444464 625400 SIXBIT /DDTRL/
000200 634564 444464 SIXBIT /SETDDT/
000201 444566 435062 SIXBIT /DEVCHR/

```



```

000202 474564 435062
000203 674151 640000
000204 624563 456400
000205 457051 640000
000206 544462 425464
000207 656460 435462
000210 444164 450000
000211 634564 605766
000212 636751 644350
000213 645155 456200

```

```

SIXBIT /GETCHR/
SIXBIT /WAIT/
SIXBIT /RESET/
SIXBIT /EXIT/
SIXBIT /LDRBLT/
SIXBIT /UTPCLR/
SIXBIT /DATE/
SIXBIT /SETPOV/
SIXBIT /SWITCH/
SIXBIT /TIMER/

```

```

02410 UCLLEN=-UCLTAB
02420
02430 DEFINE X(A,B)
02440 < JRST B
02450 EXTERNAL B
02460 >
02470 UCLJMP: NAMES

```

```

000214 254000 000000
000215 254000 000000
000216 254000 000000
000217 254000 000000
000220 254000 000000
000221 254000 000000
000222 254000 000221
000223 254000 000000
000224 254000 000000
000225 254000 000000
000226 254000 000000
000227 254000 000000
000230 254000 000000
000231 254000 000000
000232 254000 000000
000233 254000 000000

```

```

JRST DDTIN
JRST DDTOUT
JRST DDTGT
JRST DDTRL
JRST SETDDT
JRST DVCHR
JRST DVCHR
JRST WAIT
JRST RESET
JRST EXIT
JRST LDRBLT
JRST UTPCLR
JRST DATE
JRST SETPOV
JRST SWITCH
JRST TIMER

```

02480			
02490			
02500	,	DEC 06 00 EX COM L PT PRE 02 UXIT	
02510	,	H. R. MORSE	64-12-26
02520	,	CALLING SEQUENCE	
02530	,	ANY TRANSFER OF CONTROL TO UXIT	
02540	,	EXITS THIS UUO CALL.	
02550	,	MONITOR INTERFACE	
02560	,	SYMBOLS SET/USED:	
02570	,	ACCUMULATORS:	MAY RESTORE ALL ACCUMULATORS
02580	,		JDAT U
02590	,		PDP U
02600	,		17 S/U
02610	,	JOB AREA:	JOBAC U
02620	,	SYSTEM ADDRESSES:	USRXT U
02630	,		USRLEV S/U

			02640		
			02650	INTERN UXIT,CUXIT1,CUXIT2	
			02660		
000234	350003	000000	02670	CUXIT2: AOS (PDP)	
000235	350003	000000	02680	CUXIT1: AOS (PDP)	
000236	262140	000046'	02690	UXIT: POP PDP,USRSAV	;RESTORE UUO EXIT ADDRESS FRO
000237	250040	000236'	02700	EXCH TAC,USRSAV	
000240	607040	010000	02710	TLNN TAC,USRMOD	;WAS ENTRY FROM USER MODE?
000241	254000	000246'	02720	JRST UXIT2	
000242	202040	000237'	02730	MOVEM TAC,USRSAV	;SET UP RETURN
000243	205751	000000	02740	MOVSI 17, JOBAC(JDAT)	;RESTORE ACCUMULATO
000244	251740	000017	02750	BLT 17,17	
000245	254120	000242'	02760	UXIT1: JRST 2,@USRSAV	;RETURN TO USERS PROGRAM
			02770		
000246	250040	000245'	02780	UXIT2: EXCH TAC,USRSAV	
000247	254120	000246'	02790	JRST 2,@USRSAV	
			02800		
000250	331100	000014	02810	END,	
000251	000040	776000			

THERE ARE NO ERRORS

PROGRAM BREAK IS 000252

SYSCON - UUD HANDLER
SYMBOL TABLE

PAGE 12

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFPNT	000012	INT
RUFWRD	000013	INT
CLDS	000000	EXT
CLFN	000000	EXT
CLOSP	002000	INT
CLOSE1	000105'	EXT
CLSIN	000002	INT
CLSOUT	000001	INT
CUXIT1	000235'	INT
CUXIT2	000234'	INT
D	000017	INT
DAT	000005	INT
DATE	000230'	EXT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTGT	000216'	EXT
DDTIN	000214'	EXT
DDTMEM	000037	INT
DDTOUT	000215'	EXT
DDTRL	000217'	EXT
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

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 13

DVCDR	100000	INT
DVCHR	000222'	EXT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTTY	000010	INT
FNTRB	020000	INT
FRROR	000125'	EXT
EXIT	000225'	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLINS	000053'	EXT
IN	000103'	EXT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOREG	000002	INT
IOKTL	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
IOIERR	000065'	EXT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOBAC	000243'	EXT
JOBADR	000034'	EXT
JORDAT	000042'	EXT
JORPDL	000044'	EXT

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 14

LDRBLT	000226'	EXT
LOOKR	040000	INT
MJOBPD	000043'	EXT
MTAPE1	000107'	EXT
MTW	010000	INT
NRTDSP	000122'	
NRTSRP	000123'	
OBUFR	100000	INT
OUT	000104'	EXT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
PUUOAC	000167'	EXT
RELEA1	000106'	EXT
RESET	000224'	EXT
RUN	200000	INT
RUNARL	204000	INT
SETDDT	000220'	EXT
SETPOV	000231'	EXT
SWITCH	000232'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TIMER	000233'	EXT
TTYATC	020000	INT
TTYUSE	010000	INT
UCALL	000162'	
UCLJMP	000214'	
UCLLEN	000020	
UCLTAB	000174'	
UDFN	000131'	
UDGF	000160'	
UDLK	000143'	
UDSI	000156'	
UDSO	000154'	
UDSP	000115'	
UINBF	000101'	EXT
UINIT	000074'	EXT
UOUTBF	000102'	EXT
USETST	000075'	EXT
USRJDA	000151'	EXT
USRMOD	010000	INT
USRREL	000021'	EXT
USRSV	000247'	EXT
USTATO	000076'	EXT
USTATS	000077'	EXT
USTATZ	000100'	EXT
UTPCLR	000227'	EXT
UUO	000014	INT
UUO0	000000'	INT
UUODSP	000070'	
UUOERR	000173'	EXT
UUOSY1	000046'	
UUOSYS	000030'	

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 15

UUOT1	000073'
UUOT1L	000002
UUOT2	000075'
UUOT2L	000020
UXIT	000236' INT
UXIT1	000245'
UXIT2	000246'
WAIT	000223' EXT
WAIT1	000143' EXT

END OF ASSEMBLY

00010

XLIST

01970

00030
00040
00050
00060
00070
00080
00090
00100

EXTERNAL CLOSE1,ILLINS,IN,JOBAC,JOBADR,JOB DAT
EXTERNAL MTAPE1,OUT,RELEA1,UINBF,UNIT,UOUTBF
EXTERNAL USRJDA,USRSV,USTATO,USTATS,USTATZ
EXTERNAL ERROR,UUOERR,CLDS,CLEN
EXTERNAL IOIERR,MJOBPD,JOBPDL,WAIT1,USRREL,PUUOAC
EXTERNAL JOBPDL,MJOBPD,USETST

```

00110
00120
00130 , DEC 06 00 EX UUO L PT PRE 06 UUO HANDLER
00140 , 3/10/65
00150 , ALL UUOS DROP THEMSELVES IN REAL LOCATION 40, AND TRAP
00160 , TO 41. THE UUO HANDLER SHUFFLES THE UUO OFF TO THE USERS
00170 , 40,41, IF IT IS NOT A SYSTEM UUO.
00180 , SYSTEM UUOS FALL INTO THREE CLASSES, HANDLED DIFFERENTLY
00190 , (1) SYSTEM FUNCTIONS: LOAD ACS PDP, PROG, AND DISPATCH TO THE
00200 , FUNCTION.
00210 , (2) DEVICE INDEPENDENT I/O UUO: ALSO LOAD ACS DEVDAT AND IOS
00220 , AND GO THE THE SYSTEM FUNCTION.
00230 , (3) DEVICE DEPENDENT I/O UUOS: DO (1) AND (2), THEN DISPATCH
00240 , THROUGH THE TABLE WHOSE ADDRESS IS IN THE RIGHT HALF OF DEVSER(DEV
00250 , CONTROL MAY ALWAYS BE RETURNED BY EXECUTING A
00260 , JRST UXIT
00270 , WHICH WILL RESTORE THE ACS, ARP BITS, AND RETURN.
00280 , THE UUO HANDLER IS PURE IF THE FOLLOWING RESTRICTIONS ARE OBSERVED.
00290 , RESTRICTIONS: UUOS CANNOT BE CALLED BY INTERRUPT SERVICE ROUTINES.
00300 , MONITOR INTERFACE
00310 , STORAGE: 89
00320 , ROUTINES CALLED: ILLINS, ADRCK, EXCLK, UUOH, SETIOS,UUOUSR
00330 , UUOS CALLED: CALL, INIT, RELEAS, CLOSE, OUTBUF, INBUF
00340 , STATS, STATO, STATZ, OUTPUT, INPUT
00350 , DEVICE DEPENDENT: DEN, DLK, DSO, DSI, DGF
00360 , SYMBOLS SET/USED:
00370 , ACCUMULATORS: PDP S/U TAC S/U
00380 , PROG S/U TAC1 S/U
00390 , SUB S UUO S
00400 , SYSTEM PARAMETERS: UIO U
00410 , USYS U
00420 , USYSN U
00430 , JOB AREA: JOBAC U JOB DAT U
00440 , JOBPDP U
00450 , SYSTEM ADDRESSES: CLK S/U
00460 , JOBADR U
00470 , USRLEV S/U
00480 , DEVICE DATA BLOCK: DEVSER U
00490 , INTERNAL ADDRESSES: 40 S/U
00500 , UUO0 S/U
00510 , UUOSAV S/U

```

```

00520
00530
00540
00550
00560
00570
00580
00590
00600
00610
00620
00630
00640
00650
00660
00670
00680
00690
00700
00710
00720
00730
00740
00750
00760
00770
00780
00790
00800
000000 000000 000000
000001 250040 000040
000002 202740 000000
000003 603040 077000
000004 603040 740000
000005 254000 000030
000006 200740 000000
000007 202057 000040
000010 550057 000041
000011 322040 000030
000012 500040 000000
000013 607040 010000
000014 254000 000030
000015 201741 000000
000016 317740 000000
000017 541041 000001
000020 250040 000000
000021 313740 000016
000022 254000 000025
000023 270740 000006
000024 202057 000000
000025 200040 000040
000026 200740 000002
000027 254120 000000

```

INTERNAL UUO

UUO:

```

0
EXCH TAC,40
MOVEM 17,USRSV
TLNE TAC,77000
TLNE TAC,740000
JRST UUOSYS
MOVE 17,JOBADR
MOVEM TAC,40(17)
HRRZ TAC,41(17)
JUMPE TAC,UUOSYS
HLL TAC,UUO
TLNN TAC,USRMOD
JRST UUOSYS
MOVEI 17,(TAC)
CAMG 17,USRREL
HRRI TAC,1(TAC)
EXCH TAC,UUO

CAMLE 17,USRREL
JRST .+3 ;NO, DONT STORE PC
ADD 17,JOBADR
MOVEM TAC,(17)
MOVE TAC,40
MOVE 17,USRSV
JRST 2,@UUO

;SAVE TAC; PICK UP UUO
;SAVE 17
;0 UUO IS ILLEGAL
;UUO FOR SYSTEM?
;YES
;GET JOB AREA ADDRESS
;STORE UUO IN USERS 40
;PICK UP ADR OF USERS JSR
;IF ADDRESS=0,ILLEGAL USER UU
;PICK UP PROCESSOR FLAGS FOR
;WAS UUO FROM USER?
;NO, ILLEGAL UUO FROM SYSTEM
;17 NOW HAS REL. ADR. OF USER
;DONT INCREMENT RETURN IF PC
;INCREMENT PC
;SET UP RETURN TO USER, PICK
;UP USERS FLAGS,PC
;LEGAL MEMORY?

;MAKE REL. ADR. INTO ABS. ADR
;STORE FLAGS AND PC LIKE JSR
;RESTORE TAC
;RESTORE 17
;RETURN TO USER

```

```

00810
00820
000030 250040 000040 00830
000031 200740 000000' 00840
000032 607740 010000 00850
000033 254000 000046' 00860
000034 200740 000023' 00870
000035 202717 000016 00880
000036 550700 000017 00890
000037 251717 000015 00900
000040 200000 000026' 00910
000041 202017 000017 00920
00930
000042 200440 000000 00940
000043 205140 000000 00950
000044 541151 000000 00960
000045 334340 000017 00970
000046 200740 000040' 00980
000047 261140 000000' 00990
000050 200600 000040 01000
000051 135100 000250' 01010
000052 301100 000100 01020
000053 254000 000000 01030
000054 305100 000040 01040
000055 254000 000000 01050
000056 135040 000000 01060
000057 200301 000000 01070
000060 305100 000060 01080
000061 254000 000070' 01090
000062 302100 000070 01100
000063 306100 000071 01110
000064 322300 000236' 01120
000065 322300 000000 01130
000066 200006 000002 01140
000067 254002 000015' 01150
01160
000070 305100 000042 01170
000071 254002 000033' 01180
000072 254000 000055' 01190

```

```

UUOSYS:  EXCH TAC,40          ;RESTORE TA, RESTORE THE UUO
          MOVE 17,UUO0        ;PICK UP PROCESSOR FLAGS
          TLNN 17,USRM0D      ;SYSTEM UUO FROM SYSTEM?
          JRST UUOSY1        ;YES
          MOVE 17,JOBADR      ;NO, PICK UP ADR. OF USER PRO
          MOVEM 16,16(17)     ;STORE AC16 IN USER 16
          HRRZ 16,17          ;SET UP BLT POINTER
          BLT 16,15(17)       ;MOVE REAL ACS TO USER AREA
          MOVE 0,USRS0V       ;MOVE USER 17 TO USERS AREA
          MOVEM 0,17(17)

          MOVE JDAT,JOB0AT    ;LOAD UP JOB DATA AREA ADDRES
          MOVSI PDP,MJ0R0D    ;LOAD UP PUSH DOWN AC AND
          HRRI PDP,J0BP0L(JDAT) ;MAKE ABSOLUTE RATH
          SKIPA PROG,17      ;PROGRAM BASE ADDRESS
UUOSY1:  MOVE 17,USRS0V       ;RESTORE AC17 IF UUO FROM SYS
          PUSH PDP,UUO0       ;SAVE RETURN ON PUSH DOWN LIS
          MOVE UUO,40         ;GET THE UUO INTO AC(UUO)
          LDB TAC1,[POINT 9,UUO,8] ;PICK UP UUO OP COD
          CAIL TAC1,100       ;ILLEGAL INSTRUCTION?
          JRST ILLINS         ;YES
          CAIGE TAC1,40       ;SYSTEM UUO?
          JRST UUOERR        ;NO, ILLEGAL

          LDB TAC,PUUOAC      ;GET DDB
          MOVE DEV0AT,USRJDA(TAC) ;AN IO UUO?
          CAIGE TAC1,100-UUOT2L ;NO
          JRST UUODSP        ;CLOSE AND RELEASE ARE ALWAYS LEGAL
          CAIE TAC1,70
          CAIN TAC1,71
          JUMPE DEV0AT,UXIT
          JUMPE DEV0AT,IOIERR ;CHANNEL MUST BE ASSIGNED
          MOVE IOS,DEVIOS(DEV0AT) ;GET DATA BLOCK STA
          JRST UUOT2-77+UUOT2L-1(TAC1) ;DISPATCH

UUODSP:  CAIGE TAC1,40+UUOT1L ;LEGAL SYSTEM UUO?
          JRST UUOT1-40(TAC1) ;YES, DISPATCH
          JRST UUOERR

```

		01200		
		01210		
000073	254000 000162'	01220	UUOT1: JRST UCALL	;40
000074	254000 000000	01230	JRST UINIT	
		01240	;ADD NON IO UUOS HERE	
		01250		
		01260	UUOT1L=-UUOT1	
		01270		
		01280	UUOT2:	
		01290	;ADD IO UUOS HERE	
000075	254000 000000	01300	JRST USETST	
000076	254000 000000	01310	JRST USTAT0	
000077	254000 000000	01320	JRST USTATS	
000100	254000 000000	01330	JRST USTATZ	
000101	254000 000000	01340	JRST UINBF	
000102	254000 000000	01350	JRST UOUTBF	
000103	254000 000000	01360	JRST IN	
000104	254000 000000	01370	JRST OUT	
000105	254000 000000	01380	JRST CLOSE1	
000106	254000 000000	01390	JRST RELEA1	
000107	254000 000000	01400	JRST MTAPE1	
000110	254000 000160'	01410	JRST UDGf	
000111	254000 000156'	01420	JRST UDSI	
000112	254000 000154'	01430	JRST UDSO	
000113	254000 000143'	01440	JRST UDLK	
000114	254000 000131'	01450	JRST UDEN	;77
		01460	UUOT2L=-UUOT2	

		01470	
		01480	,DISPATCH TO SPECIAL ROUTINE
		01490	DEFINE DSPT(A)
		01500	<U'A: PUSHJ PDP,UDSP
		01510	JRST A(TAC)
		01520	>
000115	200046 000003	01530	UDSP: MOVE TAC,DEVSR(DEV DAT)
000116	200106 000001	01540	MOVE TAC1,DEVCHR(DEV DAT)
000117	607100 000020	01550	TLNN TAC1,IORET
000120	201040 000116'	01560	MOVEI TAC,NRTDSP-4; IGNORE THESE CALLS FOR NON-
000121	263140 000000	01570	POPJ PDP,
000122	254000 000235'	01580	NRTDSP: JRST CUXIT1 ;SKIP RETURN
000123	254000 000235'	01590	NRTSRP: JRST CUXIT1 ;SKIP RETURN
000124	265240 000000	01600	JSP DAT,ERROR ;DUMPO
000125	265240 000124'	01610	JSP DAT,ERROR ;DUMPI
000126	254000 000072'	01620	JRST UUOERR ;USETO
000127	254000 000126'	01630	JRST UUOERR ;USETI
000130	254000 000127'	01640	JRST UUOERR ;GETF
000131	260140 000000	01650	UDEN: PUSHJ PDP,WAIT1
000132	661000 000002	01660	TLO IOS,IOBEG
000133	620000 776000	01670	TRZ IOS,776000
000134	202006 000002	01680	MOVEM IOS,DEV IOS(DEV DAT)
000135	135040 000056'	01690	LDB TAC,PUUOAC
000136	661300 020000	01700	TLO DEV DAT,ENTRB
000137	621300 002000	01710	TLZ DEV DAT,CLOSB
000140	502301 000057'	01720	HLLM DEV DAT,USRJDA(TAC)
000141	260140 000115'	01730	PUSHJ PDP,UDSP
000142	254001 000004	01740	JRST DEN(TAC)
		01750	
000143	260140 000131'	01760	UDLK: PUSHJ PDP,WAIT1
000144	630000 000251'	01770	TDZ IOS,[XWD IOEND,776000]
000145	202006 000002	01780	MOVEM IOS,DEV IOS(DEV DAT)
000146	135040 000135'	01790	LDB TAC,PUUOAC
000147	661300 040000	01800	TLO DEV DAT,LOOKB
000150	621300 002000	01810	TLZ DEV DAT,CLOSB
000151	502301 000140'	01820	HLLM DEV DAT,USRJDA(TAC)
000152	260140 000115'	01830	PUSHJ PDP,UDSP
000153	254001 000005	01840	JRST DLK(TAC)
		01850	
		01860	DSPT(DSO)
000154	260140 000115'	UDSO:	PUSHJ PDP,UDSP
000155	254001 000010		JRST DSO(TAC)
		01870	
		01880	DSPT(DSI)
000156	260140 000115'	UDSI:	PUSHJ PDP,UDSP
000157	254001 000011		JRST DSI(TAC)
		01890	DSPT(DGF)
000160	260140 000115'	UDGF:	PUSHJ PDP,UDSP
000161	254001 000012		JRST DGF(TAC)

```

01900
01910 , 6-CSS-DEC-CALL-PL-PRE2
01920 , H. R. MORSE 64-11-17
01930 , CALLING SEQUENCE
01940 , CALL D,[SIXBIT/NAME/]
01950 , WHERE NAME IS THE NAME OF A SYSTEM ROUTINE.
01960 , IF NO SYSTEM ROUTINE WITH THE SPECIFIED NAME IF FOUND, THIS ROUTINE
01970 , EXITS TO ERROR.
01980 , MONITOR INTERFACE
01990 , ROUTINES CALLED: ERROR, HASH, SYSTEM ROUTINES DEFINED BY
02000 , USE OF UCALIN.
02010 , SYMBOLS SET/USED:
02020 , ACCUMULATORS: DAT S/U PROG U
02030 , PDP U UUO S/U
02040 ;CONTENTS OF USER AC PLACED IN AC TAC
02050
02060
000162 661600 000011 02070 UCALL: TLO UUO,JDAT ;RELATIVIZE UUO ADDRESS
000163 200260 000014 02080 MOVE DAT,@UUO; DAT:=NAME OF SYSTEM ROUTINE C
000164 205100 777760 02090 MOVSI TAC1,-UCLLEN
000165 312242 000174' 02100 CAME DAT,UCLTAB(TAC1); SEARCH SYSTEM TOUTINE NAME TA
000166 253100 000165' 02110 AOBJN TAC1,.-1
000167 135240 000146' 02120 LDB DAT,PUUOAC ;USER UUO AC FIELD
000170 505240 000011 02130 HRLI DAT,JDAT
000171 200060 000005 02140 MOVE TAC,@DAT ;PICK UP CONTENTS OF USER AC
000172 321122 000214' 02150 JUMPL TAC1,@UCLJMP(TAC1)
000173 254000 000130' 02160 JRST UUOERR
02170
02180
02190 DEFINE NAMES
02200 < X DDTIN,DDTIN
02210 X DDTOUT,DDTOUT
02220 X DDTGT,DDTGT
02230 X DDTRL,DDTRL
02240 X SETDDT,SETDDT
02250 X DEVCHR,DVCHR
02260 X GETCHR,DVCHR
02270 X WAIT,WAIT
02280 X RESET,RESET
02290 X EXIT,EXIT
02300 X LDRBLT,LDRBLT
02310 X UTPCLR,UTPCLR
02320 X DATE,DATE
02330 X SETPOV,SETPOV
02340 X SWITCH,SWITCH
02350 X TIMER,TIMER
02360 >
02370 DEFINE X (A,B)
02380 < SIXBIT /A/
02390 >
02400 UCLTAB: NAMES
000174 444464 515600 SIXBIT /DDTIN/
000175 444464 576564 SIXBIT /DDTOUT/
000176 444464 476400 SIXBIT /DDTGT/
000177 444464 625400 SIXBIT /DDTRL/
000200 634564 444464 SIXBIT /SETDDT/
000201 444566 435062 SIXBIT /DEVCHR/

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000202 474564 435062
000203 674151 640000
000204 624563 456400
000205 457051 640000
000206 544462 425464
000207 656460 435462
000210 444164 450000
000211 634564 605766
000212 636751 644350
000213 645155 456200

SIXBIT /GETCHR/
SIXBIT /WAIT/
SIXBIT /RESET/
SIXBIT /EXIT/
SIXBIT /LDRBLT/
SIXBIT /UTPCLR/
SIXBIT /DATE/
SIXBIT /SETPOV/
SIXBIT /SWITCH/
SIXBIT /TIMER/

02410 UCLLEN=-UCLTAB

02420

02430 DEFINE X(A,B)

02440 < JRST B

02450 EXTERNAL B

02460 >

02470 UCLJMP: NAMES

000214 254000 000000
000215 254000 000000
000216 254000 000000
000217 254000 000000
000220 254000 000000
000221 254000 000000
000222 254000 000221
000223 254000 000000
000224 254000 000000
000225 254000 000000
000226 254000 000000
000227 254000 000000
000230 254000 000000
000231 254000 000000
000232 254000 000000
000233 254000 000000

JRST DDTIN
JRST DDTOUT
JRST DDTGT
JRST DDTRL
JRST SETDDT
JRST DVCHR
JRST DVCHR
JRST WAIT
JRST RESET
JRST EXIT
JRST LDRBLT
JRST UTPCLR
JRST DATE
JRST SETPOV
JRST SWITCH
JRST TIMER

02480			
02490			
02500	,	DEC 06 00 EX COM L PT PRE 02 UXIT	
02510	,	H. R. MORSE 64-12-26	
02520	,	CALLING SEQUENCE	
02530	,	ANY TRANSFER OF CONTROL TO UXIT	
02540	,	EXITS THIS UUO CALL.	
02550	,	MONITOR INTERFACE	
02560	,	SYMBOLS SET/USED:	
02570	,	ACCUMULATORS:	MAY RESTORE ALL ACCUMULATORS
02580	,		JDAT U
02590	,		PDP U
02600	,		17 S/U
02610	,	JOB AREA:	JOBAC U
02620	,	SYSTEM ADDRESSES:	USRXT U
02630	,		USRLEV S/U

			02640		
			02650	INTERN UXIT,CUXIT1,CUXIT2	
			02660		
000234	350003	000000	02670	CUXIT2: AOS (PDP)	
000235	350003	000000	02680	CUXIT1: AOS (PDP)	
000236	262140	000046'	02690	UXIT: POP PDP,USRSAV	;RESTORE UUO EXIT ADDRESS FRO
000237	250040	000236'	02700	EXCH TAC,USRSAV	
000240	607040	010000	02710	TLNN TAC,USRMOD	;WAS ENTRY FROM USER MODE?
000241	254000	000246'	02720	JRST UXIT2	
000242	202040	000237'	02730	MOVEM TAC,USRSAV	;SET UP RETURN
000243	205751	000000	02740	MOVSI 17, JOBAC(JDAT)	;RESTORE ACCUMULATO
000244	251740	000017	02750	BLT 17,17	
000245	254120	000242'	02760	UXIT1: JRST 2,@USRSAV	;RETURN TO USERS PROGRAM
			02770		
000246	250040	000245'	02780	UXIT2: EXCH TAC,USRSAV	
000247	254120	000246'	02790	JRST 2,@USRSAV	
			02800		
000250	331100	000014	02810	END,	
000251	000040	776000			

THERE ARE NO ERRORS

PROGRAM BREAK IS 000252

SYSCON - UUD HANDLER
SYMBOL TABLE

PAGE 12

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
RUFPNT	000012	INT
RUFWRD	000013	INT
CLDS	000000	EXT
CLFN	000000	EXT
CLOSP	002000	INT
CLOSE1	000105'	EXT
CLSIN	000002	INT
CLSOUT	000001	INT
CUXIT1	000235'	INT
CUXIT2	000234'	INT
D	000017	INT
DAT	000005	INT
DATE	000230'	EXT
DCL	000001	INT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDTGT	000216'	EXT
DDTIN	000214'	EXT
DDTMEM	000037	INT
DDTOUT	000215'	EXT
DDTRL	000217'	EXT
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

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 13

DVCDR	100000	INT
DVCHR	000222'	EXT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
FNTRB	020000	INT
FRROR	000125'	EXT
EXIT	000225'	EXT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
ILLINS	000053'	EXT
IN	000103'	EXT
INITB	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
IOIERR	000065'	EXT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITEM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOBAC	000243'	EXT
JOBADR	000034'	EXT
JORDAT	000042'	EXT
JORPDL	000044'	EXT

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 14

LDRBLT	000226'	EXT
LOOKR	040000	INT
MJOBPD	000043'	EXT
MTAPE1	000107'	EXT
MTW	010000	INT
NRTDSP	000122'	
NRTSRP	000123'	
OBUFR	100000	INT
OUT	000104'	EXT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
PUUOAC	000167'	EXT
RELEA1	000106'	EXT
RESET	000224'	EXT
RUN	200000	INT
RUNARL	204000	INT
SETDDT	000220'	EXT
SETPOV	000231'	EXT
SWITCH	000232'	EXT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TIMER	000233'	EXT
TTYATC	020000	INT
TTYUSE	010000	INT
UCALL	000162'	
UCLJMP	000214'	
UCLLEN	000020	
UCLTAB	000174'	
UDFN	000131'	
UDGF	000160'	
UDLK	000143'	
UDSI	000156'	
UDSO	000154'	
UDSP	000115'	
UINBF	000101'	EXT
UINIT	000074'	EXT
UOUTBF	000102'	EXT
USETST	000075'	EXT
USRJDA	000151'	EXT
USRMOD	010000	INT
USRREL	000021'	EXT
USRSV	000247'	EXT
USTATO	000076'	EXT
USTATS	000077'	EXT
USTATZ	000100'	EXT
UTPCLR	000227'	EXT
UUO	000014	INT
UUO0	000000'	INT
UUODSP	000070'	
UUOERR	000173'	EXT
UUOSY1	000046'	
UUOSYS	000030'	

SYSCON - UUO HANDLER
SYMBOL TABLE

PAGE 15

UUOT1	000073'
UUOT1L	000002
UUOT2	000075'
UUOT2L	000020
UXIT	000236' INT
UXIT1	000245'
UXIT2	000246'
WAIT	000223' EXT
WAIT1	000143' EXT

END OF ASSEMBLY

00010

XLIST

01970

		00030	
		00040	EXTERNAL APRCHN,ERROR,IOINI
		00050	EXTERNAL DDT,NULJOB,SYMAK,ONCE,SYSBEG,SYSBG1,SYSEND
		00060	EXTERNAL CORTAB,CORLST,CORTAL,CORBLK,SYSSIZ,LINKSR
		00070	
		00080	;SYSTEM INITIALIZATION DISPATCHTABLE, STARTING AT LOC. 140
		00090	;THIS SUBROUTINE MUST BY LOADED FIRST
		00100	;ROUTINE ONCE IS ONCE ONLY CODE. IT CONVERTS THE DATE
		00110	;AND SETS UP IO SERVICE CHAIN.
		00120	
		00130	
		00140	
		00150	INTERNAL SYSDSP
		00160	
000000	254000	000010'	00170 SYSDSP: JRST SYSINI ;INITIALIZE SYSTEM VARIABLES ONCE ONLY
000001	254000	000000	00180 JRST DDT ;EXEC DD
000002	254000	000000	00190 JRST SYMAK ;MAKE NEW SYSTEM
000003	254000	000010'	00200 JRST SYSINI ;INITIALIZE SYSTEM VARIABLES ALWAYS
000004	254500	000000	00210 JEN NULJOB ;ERROR RECOVERY
000005	254000	000007'	00220 JRST SYSONE ;DO ONCE ONLY CODE OVER AGAIN
000006	254000	000012'	00230 JRST JSR2 ;BYPASS ONCE ONLY OPERATOR DIALOGUE
		00240	; (IN CASE CONSOLE TTY DOWN)

		00250	
		00260	; INITIALIZE SYSTEM DATA STORAGE
		00270	
		00280	INTERNAL SYSINI
		00290	NXM=10000 ;NON EX MEM FLAG
		00300	
000007	264000	000000	00310
000010	700200	200000	00320
000011	264000	000007	00330
000012	264000	000000	00340
000013	204040	000014	00350
000014	403100	000000	00360
000015	206040	000011	00370
000016	206040	000012	00380
000017	541040	000000	00390
000020	251040	000000	00400
000021	205040	430000	00410
000022	541040	600000	00420
000023	554300	000000	00430
000024	412046	000004	00440
			00450
000025	402006	000005	00460
000026	554306	000003	00470
000027	326300	000024	00480
000030	200440	000105	00490
000031	202440	000000	00500
000032	201040	000000	00510
000033	700200	010000	00520
000034	133000	000011	00530
000035	510242	000000	00540
000036	313100	000000	00550
000037	700300	010000	00560
000040	344240	000043	00570
000041	350000	000000	00580
000042	202440	000031	00590
000043	137240	000011	00600
000044	271100	002000	00610
000045	367040	000033	00620
000046	133000	000042	00630
000047	541040	000051	00640
000050	542040	000000	00650
			SYSONE: JSR ONCE ;ONCE ONLY CODE
			SYSINI: CONO APR,200000 ;IO RESET
			JSR1: JSR ONCE ;DO ONCE ONLY CODE ONCE
			JSR2: JSR LINKSR ;LINK IO SERVICE ROUTINES
			MOVS TAC, .+1
			SETZB TAC1, SYSBEG
			MOVSM TAC, JSR1
			MOVSM TAC, JSR2
			HRRI TAC, SYSBG1 ;CLEAR SYSTEM DATA STORAGE
			BLT TAC, SYSEND
			MOVSI TAC, DVDIRIN+TTYATC+TTYUSE
			HRRI TAC, ASSCON+ASSPRG
			HLRZ DEVDAT, DEVLST ;SCAN ALL DEVICES
			SYS1: ANDCAM TAC, DEVMOD(DEVDAT) ;CLEAR DIRECTORY IN CORE BIT,
			;ASSIGNED BY CONSOLE & PROGRAM
			SETZM DEVLOG(DEVDAT) ;CLEAR LOGICAL NAME
			HLRZ DEVDAT, DEVSER(DEVDAT)
			JUMPN DEVDAT, SYS1
			MOVE JDAT, COREP ;SET UP CORE USE BIT TABLE
			MOVEM JDAT, CORLST
			MOVEI TAC, CORBLK ;NO. OF 1K BLOCKS IN TABLE
			SYS2: CONO APR, NXM ;CLEAR NON EX MEM
			IBP JDAT ;MOVE BYTE POINTER
			HLLZ DAT, (TAC1) ;REFERENCE MEMORY, CLEAR RT. OF DAT
			CAMLE TAC1, SYSSIZ ;HIGHEST LOC IN EXEC.
			CONSZ APR, NXM ;CAN MEMORY BE USED FOR USER PROG?
			AOJA DAT, SYS3 ;NO, MARK AS INACCESSIBLE (1 BIT)
			AOS CORTAL
			MOVEM JDAT, CORLST ;AND SET LAST FREE BLOCK POINTER
			SYS3: DPB DAT, JDAT ;STORE 0 OR 1 BIT IN TABLE
			ADDI TAC1, 2000 ;INCREMENT MEMORY REF
			SOJG TAC, SYS2
			IBP CORLST ;SET TO FIRST UNAVAILABLE BLOCK
			HRRI 1, IOGO
			HRRM 1, SYSDSP ;FALINTO IOGO

			00660	
			00670	
			00680	
			00690	
			00700	;INITIALIZE ALL IODEVICES
			00710	
			00720	INTERNAL IOGO
			00730	EXTERNAL DEVLST, MJOBN, JBTADR, JBTSTS, IOINI
			00740	EXTERNAL DCREQ, MTREQ, DTREQ
			00750	
			00760	
			00770	IOGO: MOVEI TAC, APRCHN
			00780	CONO APR, 633440(TAC)
			00790	HLRZ TAC, DEVLST ;CHAIN OF DEVICE DATA BLOKS
000051	201040	000000	00800	IOGO: MOVEI TAC1, ASSPRG ;CLEAR ASSIGNED BY PROGRAM BIT
000052	700201	633440	00810	ANDCAB TAC1, DEVMOD(TAC)
000053	554040	000023	00820	HRLOI ITEM, IORET+7*PICHN ;CLEAR JOB NO., USER CHANNEL
000054	201100	200000	00830	TRNE TAC1, ASSCON
000055	413101	000004	00840	TLO ITEM, 777000
000056	525200	000720	00850	ANDM ITEM, DEVCHR(TAC) ;BUT NOT IORET BIT OR PII CHA
000057	602100	400000	00860	SETZM DEVIOS(TAC) ;CLEAR IO STATUS WORD
000060	661200	777000	00870	SETZM DEVBUF(TAC) ;CLEAR BUFFER ADDRESSES
000061	406201	000001	00880	HLRZ TAC, DEVSER(TAC)
000062	402001	000002	00890	JUMPN TAC, IOGO
000063	402001	000006	00900	SETOM DCREQ ;CLEAR DEVICE REQUEST COUNTS
000064	554041	000003	00910	SETOM MTREQ
000065	326040	000054	00920	SETOM DTREQ
000066	476000	000000	00930	MOVEI PDP, IOPDL-1
000067	476000	000000	00940	PUSHJ PDP, IOINI ;INITIALIZE IO DEVICES
000070	476000	000000	00950	MOVSI DAT, MJOBN ;JOB NUMBER ASSIGNED BIT
000071	201140	000100	00960	MOVE TAC, [XWD JERR, 1] ;SET ERROR BIT, CLEAR ALL OTH
000072	260140	000000	00970	IOG1: MOVEM TAC, JBTSTS(DAT)
000073	205240	000000	00980	AOBJN DAT, IOG1
000074	200040	000106	00990	CONO PI, 12377
000075	202045	000000	01000	JRST NULJOB ;START THE NULL JOB
000076	253240	000075	01010	IOPLD: BLOCK 4
000077	700600	012377	01020	COREP: POINT 1, CORTAB ;1 BIT BYTE POINTER TO CORE USE TABLE
000100	254000	000004	01030	
			01040	
000106	002000	000001	01050	END SYSINI

THERE ARE NO ERRORS

PROGRAM BREAK IS 000107

SYSINI - SYSTEM INITIALIZATION
SYMBOL TABLE

PAGE 6

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
APRCHN	000051'	EXT
ASSCON	400000	INT
ASSPRG	200000	INT
B	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSE	002000	INT
CLSIN	000002	INT
CLSOUT	000001	INT
CORBLK	000032'	EXT
COREP	000105'	
CORLST	000046'	EXT
CORTAB	000105'	EXT
CORTAL	000041'	EXT
D	000017	INT
DAT	000005	INT
DCL	000001	INT
DCREQ	000066'	EXT
DCW	020000	INT
DDI	000007	INT
DDO	000006	INT
DDT	000001'	EXT
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
DEVLST	000053'	EXT
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
DTREQ	000070'	EXT
DTW	040000	INT
DVAVAL	000040	INT

SYSINI - SYSTEM INITIALIZATION
SYMBOL TABLE

PAGE 7

DVCDR	100000	INT
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTTY	000010	INT
ENTRR	020000	INT
ERROR	000000	EXT
I	000010	INT
IB	000013	INT
IBUFR	200000	INT
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
IOG0	000054'	
IOG1	000075'	
IOG0	000051'	INT
IOIMPM	400000	INT
IOINI	000072'	EXT
IONRCK	000100	INT
IOPDL	000101'	
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFA DR	000000	INT
JBFC TR	000002	INT
JBFP TR	000001	INT
JBTADR	000000	EXT
JBTSTS	000075'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JSR1	000011'	
JSR2	000012'	

SYSINI - SYSTEM INITIALIZATION
SYMBOL TABLE

PAGE 8

LINKSR	000012'	EXT
LOOKR	040000	INT
MJOBN	000073'	EXT
MTREQ	000067'	EXT
MTW	010000	INT
NULJOB	000100'	EXT
NXM	010000	
OBUFR	100000	INT
ONCE	000011'	EXT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RUN	200000	INT
RUNABL	204000	INT
SYS1	000024'	
SYS2	000033'	
SYS3	000043'	
SYSBEG	000014'	EXT
SYSBG1	000017'	EXT
SYSDSP	000000'	INT
SYSEND	000020'	EXT
SYSINI	000010'	INT
SYSMAK	000002'	EXT
SYSONE	000007'	
SYSSIZ	000036'	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

00010

XLIST

SYSMAK - MAKE NEW SYSTEM WITH THE OLD

PAGE 2

01900

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000000 200040 000000
000001 200301 000002
000002 271301 000000
000003 200101 000006
000004 271101 000000
000005 564140 000002
000006 213000 000003
000007 200200 000037
000010 202206 000037
000011 275200 000200
000012 202206 000036
000013 200240 000002
000014 270240 000003
000015 504240 000003
000016 274200 000005
000017 553000 000004
000020 270100 000004
000021 202105 000000
000022 542200 000023'
000023 262245 000000
000024 325240 000023'
000025 200400 000034'
000026 200440 000035'
000027 541140 000030
000030 505146 000030
000031 550101 000006
000032 540441 000000
000033 254000 000010
000034 251142 000000
000035 254200 000000

```

,SYSMAK ASSUMES AN EXISTING SYSTEM WITH A LOADER IN CORE FOR JOB 1
,AND HIGHEST EMORY ADDRESS IN REAL 37. TO CREATE A NEW SYSTEM, SET
,37 AS DESIRED, LOAD NEW SYSTEM (WITHOUT GOING INTO EXECUTION), AND
,START AT REAL 62. THE COMPUTER WILL HALT AFTER THE NEW SYSTEM
,HAS BEEN BLOCKED DOWN. TO START, PRESS CONTINUE OR START AT REAL
,60. EXEC DDT (IF LOADED WITH THE NEW SYSTEM) STARTS AT REAL 141.
;FROM REL. LOC. 30 ON UP IS BLOCKED DOWN

,WHEN LOADING A NEW SYSTEM, LOAD SYSINI FIRST.
;SYSINI CONTAINS A DISPATCH TABLE DOCUMENTED TO BE AT LOC. 60
;ALSO LOAD IOINIT LAST SINCE IT CONTAIN SOME ONCE ONLY CODE AT END
;THEN LOAD SYSMAK FOLLOWED BY DDT(EXEC)
;BE SURE THAT LOC SYSSIZ(SIZE OF SYSTEM) IS GREATER THAN
;LAST LOC IN SYSMAK BEFORE STARTING TO LOAD.
;LOC SYSSIZ IS IN LOWER CORE AND MAY HAVE TO BE PATCHED
;USING CONSOLE SWITCHES.

INTERNAL SYSMAK,MAKEND
EXTERNAL JBTADR,JBTAD1

```

SYSMAK:  MOVE 1,JBTAD1      ;LOADER BLOCK ADDRESS FROM JOB ADDRESS
        MOVE 6,2(1)        ;LOADER OFFSET
        ADDI 6,(1)         ;BLOCK ADDRESS+OFFSET
        MOVE 2,6(1);      SYMBOL TABLE POINTER: -N,L = LOWEST AD
        ADDI 2,(1)
        HLRO 3,2
        MOVNS 3      ;N = SYMBOL TABLE LENGTH
        MOVE 4,DDTMEM      ;MEMORY SIZE(LOC 37)
        MOVEM 4,DDTMEM(6)  ;STORE IN NEW DDTMEM
        SUBI 4,200        ;ROOM FOR DECDUMP
        MOVEM 4,DDTSYM(6)  ;ALSO STORE IN WHAT WILL BECOME DDTSYM
        MOVE 5,2      ;LEAVES ROOM FOR DECDMP
        ADD 5,3
        HRL 5,3      ;C(5):=N,L+N
        SUB 4,5
        HRRZS 4      ;C(4):=0,C(37)-200-(L+N)
        ADD 2,4      ;C(2):=-N,C(37)-200-N
        MOVEM 2,(5)
        HRRM 4,.,+1
        POP 5,(5) ;MOVE SYMBOL TABLE TO TOP OF MEORY
        JUMPGE 5,.-1
        MOVE 10,[BLT 3,(2)]
        MOVE 11,[JRST 4,]
        HRRI 3,30
        HRLI 3,30(6)      ;C(3):=LOADER OFFSET+LOADER BLOCK ADDRE
        HRRZ 2,6(1)      ;C(2):=LOWEST LOCATION IN SYMBOL TABLE
        HRR 11,(1)      ;C(11):=JRST 4,START ADDRESS
        JRST 10      ;MOVE SYSTEM TO BOTTOM OF MEMORY AND HALT

        LIT

```

MAKEND: END,

PROGRAM BREAK IS 000036

A	000000	INT
AC1	000015	INT
AC2	000016	INT
AC3	000017	INT
AL	000001	INT
ASSCON	400000	INT
ASSPRG	200000	INT
R	000014	INT
BUFPNT	000012	INT
BUFWRD	000013	INT
CLOSE	002000	INT
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
DVDIR	000004	INT
DVDIRI	400000	INT
DVIN	000002	INT
DVLPT	040000	INT
DVMTA	000020	INT
DVOUT	000001	INT
DVTY	000010	INT
ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT
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
IONONE	400000	INT
IONTER	100000	INT
IOEND	000040	INT
IOFST	000004	INT
IOIMPM	400000	INT
IONRCK	000100	INT
IORDEL	000100	INT
IORET	000020	INT
IOS	000000	INT
IOSTRT	000010	INT
IOUSE	400000	INT
IOW	000001	INT
IOWC	000020	INT
IOWS	400000	INT
ITFM	000004	INT
JBFADR	000000	INT
JBFCTR	000002	INT
JBFPTR	000001	INT
JBTAD1	000000	FXT
JBTADR	000000	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
LOOKR	040000	INT
MAKEND	000036	INT
MTW	010000	INT
OBUF	100000	INT
OUTPR	004000	INT
PDP	000003	INT
PICHN	000100	INT
PROG	000007	INT
RUN	200000	INT
RUNARL	204000	INT
SYSMAK	000000	INT
TAC	000001	INT
TAC1	000002	INT
TEM	000010	INT
TTYATC	020000	INT
TTYUSE	010000	INT
USRMOD	010000	INT
UUO	000014	INT

END OF ASSEMBLY