

00010

XLIST

01970

00030	
00040	EXTERNAL APRCHN, APRCHL, CH6SAC, JBTADR, JOB, JOBAC, JOB DAT, JOBN
00050	EXTERNAL JOBPDP, USRDDT, USRPDP, JOBDDT
00060	EXTERNAL IORELS, JBTSTS, JOBADR, JOBCDP, JOBPC, JOBREL, 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, MJOBDP, JOBPD, IOCOMP, PJOBN, USRLO, USRLO1, USRHI
00110	EXTERNAL TTYFNU, RSCHED

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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

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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 UO0 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 HOLDSB:  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

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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

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,BLOCK TRANSFER PROGRAM OVER LOADER

INTERNAL LDRBLT
EXTERNAL USRREL

PGADR=2 ;AC CONTAINING BEGINNING OF PROGRAM(LOA

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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,JOBDDT(JDAT)
        MOVEM TAC,USRDDT
        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 UO
000115	263140 000000	01730	POPJ PDP, ;RETURN HERE WHEN JOB RUNABLE AGAIN

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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
MOVSI TAC1, MJOBDP ;SET UP PD LIST IN JOB DATA AREA
HRRI 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
;CR-LF AND INITIALIZE TTY
02200
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

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000137 254000 000000

02310
02320
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02340
02350

INTERNAL CONTU
EXTERNAL TTYUSR

CONTU: JRST TTYUSR

;SET SCANNER TO CALL SETRUN WHEN CR-LF

		02360	
		02370	
		02380	;ROUTINE TO SET JOB STATE TO BE SCHEDULED TO RUN
		02390	;WITH SPECIFIED STARTING ADDRESS INCLUDING PC FLAGS
		02400	;CALL: MOVE TAC1,STARTING PC
		02410	; MOVE ITEM, JOB NUMBER
		02420	; MOVE JDAT, ADDRESS OF JOB DATA AREA(THERE MUST BE ONE)
		02430	; PUSHJ PDP, START1
		02440	; EXIT RETURN HERE IMMEDIATELY
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,JOBDBHI(JDAT)
000150	205100 172000	02530	START2: MOVSI TAC1,JERR+DCW+DTW+MTW+J1OW ;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,

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02640
02650
02660
02670
02680
02690
02700
02710
02720
000153 205040 200000 02730
000154 437044 000151' 02740
000155 607040 020000 02750
000156 254000 000161' 02760
000157 357000 000102' 02770
000160 476000 000000 02780
000161 607040 040000 02790
000162 254000 000165' 02800
000163 357000 000100' 02810
000164 476000 000000 02820
000165 607040 010000 02830
000166 254000 000171' 02840
000167 357000 000104' 02850
000170 476000 000000 02860
000171 603040 400000 02870
000172 350000 000000 02880
000173 201040 000000 02890
000174 542044 000154' 02900
000175 332000 000110' 02910
000176 263140 000000 02920
000177 254000 000112' 02930
02940

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;ROUTINE TO SET JOB STATUS RUN BIT
;CALL:  MOVE ITEM, JOB NUMBER
;        PUSHJ PDP, SETRUN

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INTERNAL SETRUN
SETRUN:  MOVSI TAC, RUN
        IORB TAC, JBTSTS(ITEM)
        TLNN TAC, DCW          ;IS JOB WAITING FOR DATA CONTROL?
        JRST CONT2            ;NO
        AOSG DCREQ            ;YES, INCREMENT REQUEST COUNT
        SETOM DCAVAL          ;AND SET DC AS AVAIL IF NOT IN USE
CONT2:   TLNN TAC, DTW          ;DECTAPE?
        JRST CONT3            ;NO
        AOSG DTREQ
        SETOM DTAVAL
CONT3:   TLNN TAC, MTW          ;MAG TAPE?
        JRST CONT4
        AOSG MTREQ
        SETOM MTAVAL
CONT4:   TLNE TAC, IOWS          ;IO WAIT SATISFIED?
        AOS IOCOMP            ;YES
        MOVEI TAC, QUANT1      ;SET TIME TO RUN FOR STRAIGHT QUEUE COM
        HRRM TAC, JBTSTS(ITEM) ;RESPONSE IS FINISHED
        SKIPE JOB ;IS NULL JOB RUNNING?
        POPJ PDP,              ;NO
        JRST STOP2            ;YES, RESCHEDULE

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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

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,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

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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: DEVDAT 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

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			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: HRR I TAC,USRL01
HRL I TAC,USRL0
SETZM USRL0
BLT TAC,USRHI
MOVSI TAC,MJORPD
HRR I TAC,JOBPDL
MOVEM TAC,USRPDP
MOVE JDAT,JOB DAT
HLR TAC,JOB SA(JDAT)
HRRZM TAC,JOBFF(JDAT)
POPJ PDP,

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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: DEVIOS S/U
03850 , IO STATUS WORD: IOACT U
03860 , IOW S/U

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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

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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
BUFWRD	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
IOBKTL	040000	INT
IOCOMP	000217'	EXT
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	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
JBFADR	000000	INT
JBFCR	000002	INT
JBFPTR	000001	INT
JBTADR	000117'	EXT
JBTSTS	000260'	EXT
JBUF	000005	INT
JDAT	000011	INT
JERR	002000	INT
JIOW	100000	INT
JNA	004000	INT
JOB	000252'	EXT
JOBAC	000000	EXT
JOBADR	000000	EXT
JORCDP	000000	EXT
JORDAC	000146'	EXT
JORDAT	000237'	EXT
JORDDT	000055'	EXT
JORDHI	000147'	EXT
JORFF	000241'	EXT
JORN	000000	EXT
JORPC	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
OBUEB	100000	INT
OUTPB	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
USRLO1	000230'	EXT
USRMOD	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