

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
000000 254000 000004' 00420 LPTDSP: JRST LPTINI ;RELEASE
000001 254000 000007' 00430 JRST LPTCLS ;CLOSE
000002 254000 000013' 00440 JRST LPTOUT ;OUTPUT
000003 254000 000000 00450 JRST ILLINP ;INPUT
00460
000004 712600 002000 00470 LPTINI: CONO LPT,LPTCLR ;LPT INITIALIZE
000005 513000 000034' 00480 HLLZS LPTINT
000006 263140 000000 00490 POPJ PDP,

```

```

00500
000007 260140 000000 00510
000010 260140 000000 00520
000011 712540 000126' 00530
000012 263140 000000 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 LPTERI          ;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
LPTERX:  MOVE TAC,LPTSV1     ;RESTORE TAC
          JEN @LPTCHL          ;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
			01250
			01260
000102	202040	000051'	01270
000103	712740	001000	01280
000104	254000	000111'	01290
000105	210040	000137'	01300
000106	272040	000043'	01310
000107	712540	000140'	01320
000110	254000	000051'	01330
			01340
000111	712740	000070	01350
000112	254000	000117'	01360
000113	712600	000000	01370
000114	201040	000100	01380
000115	542040	000034'	01390
000116	254000	000051'	01400
			01410
000117	712640	000001	01420
000120	405040	000300	01430
000121	712601	000032'	01440
000122	201040	001500	01450
000123	542040	000034'	01460
000124	200040	000102'	01470
000125	254000	000041'	01480
000126	064300	000000	01490

```

;HERE ON EITHER OVERFLOW OR ERROR(OFFLINE) OR ERROR CHANNEL
;NOT ASSIGNED.

LPTER1:  MOVEM TAC,LPTSV1      SAVE TAC
          CONSO LPT,LPTLOV      ;LINE OVERFLOW?
          JRST LPTER1           ;NO
          MOVN TAC,[EXP 1000001] ;YES, DECREMENT POINTER
          ADDM TAC,LPTPTR
          DATAO LPT,[EXP 15B6+12B13] ;PRINT CARRIAGE RETURN, LINE
          JRST LPTERX

LPTER1:  CONSO LPT,70          ;ERROR INTERRUPT ASSIGNED?
          JRST LPTER2          ;NO
          CONO LPT,LPTCLB      ;YES, DEASSIGN IT,SET BUSY,CLEAR REST
          MOVEI TAC,LPTDON      ;ENABLE FOR DONE FLAG ONLY

LPTERA:  HRRM TAC,LPTINT
          JRST LPTERX

LPTER2:  CONI LPT,TAC
          ANDI TAC,300
          CONO LPT,LPTCHB(TAC)
          MOVEI TAC,LPTDON+LPTERR+LPTLOV
          HRRM TAC,LPTINT
          MOVE TAC,LPTSV1
          JRST LPTIN1

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

LPTSER - LINE PRINTER SERVICE ROUTINE
 SYMBOL TABLE

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
RUFPT	000012	INT
BUFWRD	000013	INT
CLOSB	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
DVTTY	000010	INT
ENTRB	020000	INT
I	000010	INT
IB	000013	INT
IBUFB	200000	INT

ILLINP	000003'	EXT
INITB	400000	INT
INPB	010000	INT
IO	000020	INT
IOACT	010000	INT
IOBEG	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
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
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'	
LPTIN1	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
OUTPB	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