```
0000                            IDENT   ALCU                                    ASM 7.1
0001                    *
0002                    *LOAD DEVICE ADDRESS IN REGISTER A8
0003                    *LOAD INT. LEVEL     IN REGISTER A9
0004                    *
0005       0000         ZERO    EQU     *
0006                            RORG    ZERO+/1FE
0007 01FE 207F          START   HLT
0008 0200 20BF                  INH
0009 0202 87A0 0150             LDKL    A15,/150        INITIALIZE STACK POINTER A15
0010 0206 0184                  LDK     A1,/84
0011 0208 0200                  LDK     A2,0
0012 020A 8241 0600 R           ST      A2,PASS         CLEAR PASS COUNTER
0013 020E 8129          INIT    STR     A1,A2           LOAD ALL INT. LOCATIONS WITH /84
0014 0210 1202                  ADK     A2,2
0015 0212 EA20 0080             CWK     A2,/80
0016 0216 5C0A                  RB(4)   INIT
0017 0218 8120 207F             LDKL    A1,/207F        STOP AT LOCATION /84 IN CASE
0018 021C 8141 0084             ST      A1,/84          OF AN ILLEGAL INT.
0019 0220 5700                  RF(7)   CLAD
0020                    *
0021                    *CLEAR ADDRESS PART OF I/O INSTRUCTIONS
0022                    *
0023 0222 8220 FFC0     CLAD    LDKL    A2,/FFC0
0024 0226 8120 03DA R           LDKL    A1,TST
0025 022A A225          CLAD2   ANRS    A2,A1
0026 022C 1102                  ADK     A1,2
0027 022E E920 03E8 R           CWK     A1,SST+2
0028 0232 5C0A                  RB(4)   CLAD2
0029 0234 5700                  RF(7)   MODDA
0030                    *
0031                    *MODIFY ADDRESS OF I/O INSTRUCTIONS
0032                    *
0033 0236 8102          MODDA   LDR     A1,A8
0034 0238 8220 03DA R           LDKL    A2,TST
0035 023C 213F                  ANK     A1,/3F
0036 023E 9129          MODDA2  ADRS    A1,A2
0037 0240 1202                  ADK     A2,2
0038 0242 EA20 03E8 R           CWK     A2,SST+2
0039 0246 5C0A                  RB(4)   MODDA2
0040 0248 5700                  RF(7)   INTAD
0041                    *
0042                    *CALCULATE AND LOAD ALCU INT. ADDRESS
0043                    *
0044 024A 8106          INTAD   LDR     A1,A9
0045 024C 213F                  ANK     A1,/3F
0046 024E 3941                  SLL     A1,1
0047 0250 8220 0374 R           LDKL    A2,ALCINT
0048 0254 8225                  STR     A2,A1
0049 0256 8F20 02FE R           ABL(7)  RESTRT
0050                    *
0051                    *MAIN PROGRAM STARTS HERE
0052                    *
0053                    *TRANSMIT CONTENTS OF BUFOUT TO THE LINE
0054                    *
0055                            RORG    ZERO+/2FE
0056 02FE 207F          RESTRT  HLT
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0057 0300 20BF                    INH
0058 0302 0300                    LDK     A3,0
0059 0304 82A0 0000               LDKL    A10,0           "0"=OUTPUT;"1"=INPUT
0060 0308 0204                    LDK     A2,4            OUTPUT MODE;EVEN PARITY
0061 030A F041 03DE R             EX      CIOOUT          START TRANSMISSION
0062 030E 5002                    RF(0)   *+4
0063 0310 207F                    HLT
0064 0312 2840                    ENB
0065 0314 F041 03DA R  TRSMT      EX      TST
0066 0318 8618                    LDR     A6,A6           TRANSMISSION FINISHED?
0067 031A 5C08                    RB(4)   TRSMT           NO
0068 031C 8F20 0320 R             ABL(7)  RCPT            YES
0069                    *
0070                    *RECEIVE MESSAGE FROM THE LINE
0071                    *
0072 0320 20BF          RCPT      INH
0073 0322 0300                    LDK     A3,0            CLEAR "INDEX" REGISTER
0074 0324 82A0 0001               LDKL    A10,1           SET FLAG FOR INPUT
0075 0328 0105                    LDK     A1,5            INPUT MODE :EVEN PARITY
0076 032A F041 03DC R             EX      CIOIN           START RECEPTION
0077 032E 5002                    RF(0)   *+4
0078 0330 207F                    HLT
0079 0332 2840                    ENB
0080 0334 F041 03DA R  RCPT2      EX      TST
0081 0338 8618                    LDR     A6,A6           RECEPTION FINISHED?
0082 033A 5C08                    RB(4)   RCPT2           NO
0083 033C 8F20 0340 R             ABL(7)  COMP            YES
0084                    *
0085                    *COMPARE BUFIN WITH BUFOUT
0086                    *
0087 0340 8120 004E     COMP      LDKL    A1,/4E          OUTPUT BUFFER IS 40 WORDS LONG
0088 0344 824C 0400 R             LD      A2,BUFIN,A3
0089 0348 8444 0500 R             LD      A4,BUFOUT,A1
0090 034C EA10                    CWR     A2,A4
0091 034E 5002                    RF(0)   OK
0092 0350 207F                    HLT                     NOT EQUAL! , OBSERVE A2 AND A4
0093 0352 1B02          OK        SUK     A3,2
0094 0354 1902                    SUK     A1,2
0095 0356 5E16                    RB(6)   COMP+2
0096 0358 8F20 035C R             ABL(7)  CLBUF
0097                    *
0098                    *CLEAR INPUT BUFFER BUFIN(100 LOCATIONS)
0099                    *AND UPDATE PASS COUNTER
0100                    *
0101 035C 0100          CLBUF     LDK     A1,0
0102 035E 0200                    LDK     A2,0
0103 0360 8149 0400 R   CLBUF2    ST      A1,BUFIN,A2     CLEAR 100 CONSECUTIVE LOCATIONS
0104 0364 1202                    ADK     A2,2            STARTING WITH BUFIN
0105 0366 EA20 00C8               CWK     A2,/C8
0106 036A 5C0C                    RB(4)   CLBUF2
0107 036C 9041 0600 R             IM      PASS            INCREMENT PASS COUNTER
0108 0370 8F20 0300 R             ABL(7)  RESTRT+2
0109                    *
0110                    *ALCU INTERRUPT ROUTINE
0111                    *
0112 0374 828A          ALCINT    LDR     A10,A10         "1"=INPUT , "0"=OUTPUT
0113 0376 5428                    RF(4)   INPA
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0114 0378 F041 03E6 R  OTPA    EX      SST
0115 037C 5408                 RF(4)   OTPA2
0116 037E ED20 0000            CWK     A5,0
0117 0382 5054                 RF(0)   RET
0118 0384 207F                 HLT
0119 0386 844C 0500 R  OTPA2   LD      A4,BUFOUT,A3
0120 038A F041 03E4 R          EX      OTR             OUTPUT A CHARACTER
0121 038E 1302                 ADK     A3,2
0122 0390 EC20 000D            CWK     A4,/0D          WAS IT A "CR" ?
0123 0394 5442                 RF(4)   RET             NO
0124 0396 0100                 LDK     A1,0            YES
0125 0398 F041 03E0 R          EX      CIOHLT          STOP TRANSMISSION
0126 039C 503A                 RF(0)   RET
0127 039E 207F                 HLT                     CIO STOP NOT ACCEPTED!
0128 03A0 F041 03E6 R  INPA    EX      SST
0129 03A4 540E                 RF(4)   INPA2
0130 03A6 ED20 0000            CWK     A5,0
0131 03AA 502C                 RF(0)   RET
0132 03AC 8114                 LDR     A1,A5
0133 03AE 2120                 ANK     A1,/20          BIT 10 IN STATUS SET ?
0134 03B0 541E                 RF(4)   CARR            YES:CARRIER DROPPED!
0135 03B2 207F                 HLT                     OBSERVE STATUS IN A5!
0136 03B4 F041 03E2 R  INPA2   EX      INR             INPUT A CHARACTER
0137 03B8 844D 0400 R          ST      A4,BUFIN,A3
0138 03BC 1302                 ADK     A3,2
0139 03BE EC20 000D            CWK     A4,/0D          WAS IT A "CR"?
0140 03C2 5414                 RF(4)   RET             NO,CONTINUE
0141 03C4 1B02                 SUK     A3,2            YES
0142 03C6 0100                 LDK     A1,0
0143 03C8 F041 03E0 R          EX      CIOHLT          STOP RECEPTION
0144 03CC 500A                 RF(0)   RET
0145 03CE 207F                 HLT                     CIO STOP NOT ACCEPTED!
0146 03D0 EC20 000D    CARR    CWK     A4,/0D          INPUT FINISHED?
0147 03D4 5002                 RF(0)   RET             YES
0148 03D6 207F                 HLT                     NO:CARRIER LOST BEFORE END OF INPUT!
0149 03D8 F03E         RET     RTN     A15
0150                   *
0151                   *ALCU I/O COMMANDS
0152                   *
0153 03DA 4E80         TST     TST     A6,0
0154 03DC 41C0         CIOIN   CIO     A1,1,0
0155 03DE 42C0         CIOOUT  CIO     A2,1,0
0156 03E0 4180         CIOHLT  CIO     A1,0,0
0157 03E2 4C00         INR     INR     A4,0,0
0158 03E4 4400         OTR     OTR     A4,0,0
0159 03E6 4DC0         SST     SST     A5,0
0160                   *
0161                   *RESERVE FOR BUFFERS
0162                   *
0163                           RORG    ZERO+/400               INPUT BUFFER STARTS AT /400
0164 0400              BUFIN   RES     100
0165                           RORG    ZERO+/500               OUTPUT BUFFER STARTS AT /500
0166 0500 0030 0031    BUFOUT  DATA    /30,/31,/32,/33,/34,/35,/36,/37,/38,/39
     0504 0032 0033
     0508 0034 0035
     050C 0036 0037
     0510 0038 0039
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0167 0514 0041 0042          DATA    /41,/42,/43,/44,/45,/46,/47,/48,/49,/4A
     0518 0043 0044
     051C 0045 0046
     0520 0047 0048
     0524 0049 004A
0168 0528 004B 004C          DATA    /4B,/4C,/4D,/4E,/4F,/50,/51,/52,/53,/54
     052C 004D 004E
     0530 004F 0050
     0534 0051 0052
     0538 0053 0054
0169 053C 0055 0056          DATA    /55,/56,/57,/58,/59,/5A,/7F,/7F,/7F,/0D
     0540 0057 0058
     0544 0059 005A
     0548 007F 007F
     054C 007F 000D
0170                         RORG    ZERO+/600          LOCATION /600 IS PASS COUNTER
0171 0600              PASS  RES     1
0172                         END     START
```

SYMBOL TABLE

ALCINT	0374	R	BUFIN	0400	R	BUFOUT	0500	R	CARR	03D0	R
CIOHLT	03E0	R	CIOIN	03DC	R	CIOOUT	03DE	R	CLAD	0222	R
CLAD2	022A	R	CLBUF	035C	R	CLBUF2	0360	R	COMP	0340	R
INIT	020E	R	INPA	03A0	R	INPA2	03B4	R	INR	03E2	R
INTAD	024A	R	MODDA	0236	R	MODDA2	023E	R	OK	0352	R
OTPA	0378	R	OTPA2	0386	R	OTR	03E4	R	PASS	0600	R
RCPT	0320	R	RCPT2	0334	R	RESTRT	02FE	R	RET	03D8	R
SST	03E6	R	START	01FE	R	TRSMT	0314	R	TST	03DA	R
ZERO	0000	R									

ASS.ERR. 0000

:EOF

PROG ELAPSED TIME: 00H-01M-09S-320MS-