

ASSMX 0 9000

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0000 0010 *****
0000 0020 *          EXATRON STRINGY FLOPPY MONITOR          *
0000 0030 * P A R T 1  -  B A S I C  S Y S T E M  *
0000 0040 * VERSION 2.2      (RAM VERSION)      10-15-78 *
0000 0050 *****
0000 0060 *
0000 0070 * WRITTEN BY: CHARLIE PACK
0000 0080 *                25470 ELENA ROAD
0000 0090 *                LOS ALTOS HILLS, CA.  94022
0000 0100 *                (415) 941-0495  EVENINGS
0000 0110 *
0000 0120 * CHANGES FROM VERSION 2.1 ARE:
0000 0130 * 1. REFERENCE TO SOLOS REMOVED FROM "QUIT"
0000 0140 *     ROUTINE.
0000 0150 * 2. LOADER CONTROL BYTES CHANGED TO BE
0000 0160 *     COMPATIBLE WITH NEW LINKING LOADER.
0000 0170 * 3. EXTERNAL REFERENCE TABLE ADDED FOR USE
0000 0180 *     BY PARTS 2 AND 3 OF THE MONITOR.
0000 0190 * 4. UPPER BOUND OF PROTECTED AREA CHANGED
0000 0200 *     TO INCLUDE PART 3 OF MONITOR.
0000 0210 *
0000 0220 PSW EQU 6 ;PROGRAM STATUS WORD
0000 0230 SP EQU 6 ;STACK POINTER
0000 0240 LF EQU 0AH ;LINE FEED (CONTROL-J)
0000 0250 CR EQU 0DH ;CARRIAGE RETURN (CONTROL-M)
0000 0260 *
0000 0270 * INITIAL PROGRAM START IS HERE.
0000 0280 *
0000 F3 0290 START DI ;DISABLE INTERRUPTS
0001 C3 08 00 0300 JMP STRT1
0004 0310 *
0004 0320 * NORMAL RE-START IS AT THIS POINT.
0004 0330 *
0004 F3 0340 DI ;DISABLE INTERRUPTS
0005 C3 23 00 0350 JMP MONTR
0008 0360 *
0008 31 40 FF 0370 STRT1 LXI SP,MNSTK ;LOAD STACK POINTER
000B CD AE 03 0380 CALL TINIT ;CONSOLE TERMINAL INIT.
000E 21 23 00 0390 LXI H,MONTR ;INITIALIZE THE
0011 22 F1 FF 0400 SHLD CURAD ;CURRENT OPEN ADDRESS
0014 21 6C 03 0410 LXI H,PGMHD ;PROGRAM HEADING
0017 C3 1D 00 0420 JMP MSOUT
001A 0430 *
001A 21 7D 03 0440 DONE LXI H,TMSGD ;DONE
001D CD 31 03 0450 MSOUT CALL OUTNL ;START A NEW LINE
0020 CD 15 03 0460 CALL OUTBL ;SHOW THE MESSAGE
0023
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|------|----------|------|---|
| 0023 | | 0470 | * |
| 0023 | | 0480 | ***** |
| 0023 | | 0490 | * C O M M A N D P R O C E S S O R * |
| 0023 | | 0500 | ***** |
| 0023 | | 0510 | * |
| 0023 | 31 40 FF | 0520 | MONTR LXI SP,MNSTK ;LOAD STACK POINTER |
| 0026 | CD 31 03 | 0530 | PROMP CALL OUTNL ;START A NEW LINE |
| 0029 | 06 3F | 0540 | MVI B,'?' |
| 002B | CD BA 03 | 0550 | CALL OUTCH ;DISPLAY PROMPT CHARACTER |
| 002E | CD 3E 03 | 0560 | GETCM CALL INASC ;GET COMMAND CHARACTER |
| 0031 | FE 0D | 0570 | CPI CR ;CARRIAGE RETURN? |
| 0033 | CA 26 00 | 0580 | JZ PROMP ;YES, PROMPT AGAIN. |
| 0036 | FE 0A | 0590 | CPI LF ;LINE FEED? |
| 0038 | CA 2E 00 | 0600 | JZ GETCM ;YES, IGNORE IT. |
| 003B | CD BA 03 | 0610 | CALL OUTCH ;ECHO THE CHARACTER |
| 003E | 78 | 0620 | MOV A,B ;RESTORE IT |
| 003F | FE 21 | 0630 | CPI 21H ;CONTROL CHARACTER? |
| 0041 | DA 26 00 | 0640 | JC PROMP ;YES, PROMPT AGAIN. |
| 0044 | CD 4A 00 | 0650 | CALL TESTC ;PROCESS THE COMMAND |
| 0047 | C3 23 00 | 0660 | JMP MONTR |
| 004A | | 0670 | * |
| 004A | FE 44 | 0680 | TESTC CPI 'D' ;D=DISPLAY MEMORY? |
| 004C | CA 87 00 | 0690 | JZ DISPM ;YES |
| 004F | FE 46 | 0700 | CPI 'F' ;F=FILL MEMORY? |
| 0051 | CA F9 01 | 0710 | JZ FILL ;YES |
| 0054 | FE 4A | 0720 | CPI 'J' ;J=JUMP TO PROGRAM? |
| 0056 | CA 28 02 | 0730 | JZ JUMP ;YES |
| 0059 | FE 4D | 0740 | CPI 'M' ;M=MEMORY MODIFY/SEARCH? |
| 005B | CA 77 00 | 0750 | JZ MMORS ;YES |
| 005E | FE 51 | 0760 | CPI 'Q' ;Q=QUIT? |
| 0060 | CA 17 02 | 0770 | JZ QUIT ;YES |
| 0063 | FE 54 | 0780 | CPI 'T' ;T=BLOCK TRANSFER? |
| 0065 | CA 9F 01 | 0790 | JZ TXFER ;YES |
| 0068 | FE 56 | 0800 | CPI 'V' ;V=BLOCK VERIFY? |
| 006A | CA BF 01 | 0810 | JZ VERFY ;YES |
| 006D | 3A 00 04 | 0820 | LDA START+400H ;CHECK FOR SECOND |
| 0070 | FE F3 | 0830 | CPI 0F3H ;PART OF ESF MONITOR |
| 0072 | C0 | 0840 | RNZ ;RETURN IF NOT PRESENT |
| 0073 | 78 | 0850 | MOV A,B ;RESTORE COMMAND CHAR. |
| 0074 | C3 00 04 | 0860 | JMP START+400H ;GO TO SECOND PART |
| 0077 | | 0870 | * |
| 0077 | CD 3E 03 | 0880 | MMORS CALL INASC ;GET 2ND CHAR. OF COMMAND |
| 007A | FE 53 | 0890 | CPI 'S' ;MEMORY SEARCH? |
| 007C | CA 2E 01 | 0900 | JZ MSRCH ;YES |
| 007F | FE 4D | 0910 | CPI 'M' ;MEMORY MODIFY? |
| 0081 | CA D7 00 | 0920 | JZ MODFY ;YES |
| 0084 | C3 77 00 | 0930 | JMP MMORS |
| 0087 | | | |

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|------|----------|------|--|
| 0087 | | 0940 | * |
| 0087 | | 0950 | * DISPLAY MEMORY BLOCK |
| 0087 | CD 67 02 | 0960 | * |
| 008A | CA 87 00 | 0970 | DISPM CALL ADRIN ;GET BEGIN. ADDR IN H-L |
| 008D | EB | 0980 | JZ DISPM ;MUST ENTER |
| 008E | 26 00 | 0990 | XCHG ;BEGIN. ADDR TO D-E |
| 0090 | 2E 0F | 1000 | DSPM2 MVI H,0 |
| 0092 | 19 | 1010 | MVI L,15 |
| 0093 | CD 67 02 | 1020 | DAD D ;HL=DEFAULT ENDING ADDR. |
| 0096 | CA A2 00 | 1030 | CALL ADRIN ;GET OPTIONAL ENDING ADDR |
| 0099 | CD D8 02 | 1040 | JZ DSPM3 ;JUMP IF NOTHING ENTERED |
| 009C | D2 61 02 | 1050 | CALL ADCMP ;VALID ADDRESS RANGE? |
| 009F | CD 01 03 | 1060 | JNC BADRN ;NO |
| 00A2 | CD DE 02 | 1070 | CALL WAIT ;ABORT OR CONTINUE |
| 00A5 | 06 3A | 1080 | DSPM3 CALL ADNEW ;DISPLAY THE ADDRESS |
| 00A7 | CD BA 03 | 1090 | MVI B,':' |
| 00AA | 06 04 | 1100 | CALL OUTCH ;FOLLOWED BY A COLON |
| 00AC | 3E 01 | 1110 | MVI B,4 ;COUNTER FOR FOUR GROUPS |
| 00AE | CD 24 03 | 1120 | DSPM4 MVI A,1 |
| 00B1 | 0E 04 | 1130 | CALL OUTSP ;1 EXTRA SPACE BETWEEN GRPS |
| 00B3 | 3E 01 | 1140 | MVI C,4 ;FOUR BYTES PER GROUP |
| 00B5 | CD 24 03 | 1150 | DSPM5 MVI A,1 |
| 00B8 | 1A | 1160 | CALL OUTSP ;1 SPACE BETWEEN BYTES |
| 00B9 | CD E6 02 | 1170 | LDAX D |
| 00BC | CD 59 03 | 1180 | CALL OUTHX ;DISPLAY A BYTE IN HEX |
| 00BF | CD D8 02 | 1190 | CALL PANIC ;"PANIC CHECK" |
| 00C2 | 13 | 1200 | CALL ADCMP ;CHECK FOR END OF RANGE |
| 00C3 | D2 D1 00 | 1210 | INX D ;INCR. MEMORY POINTER |
| 00C6 | 0D | 1220 | JNC DSPM9 ;JUMP IF AT ENDING ADDR |
| 00C7 | C2 B3 00 | 1230 | DCR C ;AT END OF GROUP? |
| 00CA | 05 | 1240 | JNZ DSPM5 ;NO |
| 00CB | C2 AC 00 | 1250 | DCR B ;AT END OF LINE? |
| 00CE | C3 A2 00 | 1260 | JNZ DSPM4 ;NO |
| 00D1 | CD 31 03 | 1270 | JMP DSPM3 ;JUMP HERE IF LINE IS FULL |
| 00D4 | C3 8E 00 | 1280 | DSPM9 CALL OUTNL ;START NEW LINE |
| 00D7 | | 1290 | JMP DSPM2 ;LOOK FOR NEW BEGIN. ADDR |

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| 00D7 | | 1300 | * |
| 00D7 | | 1310 | * MODIFY AND/OR EXAMINE MEMORY. |
| 00D7 | | 1320 | * |
| 00D7 | CD BA 03 | 1330 | MODIFY CALL OUTCH ;"ECHO" 2ND CHAR. OF COMMAND |
| 00DA | 2A F1 FF | 1340 | LHLD CURAD ;LOAD CURRENT OPEN ADDR |
| 00DD | CD 67 02 | 1350 | CALL ADRIN ;GET OPTIONAL ADDRESS |
| 00E0 | CA E6 00 | 1360 | JZ MOD1 ;JUMP IF NOT ENTERED |
| 00E3 | CD 01 03 | 1370 | CALL WAIT ;CONTINUE OR ABORT |
| 00E6 | 54 | 1380 | MOD1 MOV D,H |
| 00E7 | 5D | 1390 | MOV E,L |
| 00E8 | CD DE 02 | 1400 | CALL ADNEW ;DISPLAY THE ADDRESS |
| 00EB | 06 3A | 1410 | MVI B,':' |
| 00ED | CD BA 03 | 1420 | CALL OUTCH ;COLON |
| 00F0 | 06 20 | 1430 | MVI B,20H |
| 00F2 | CD BA 03 | 1440 | CALL OUTCH ;SPACE |
| 00F5 | 7E | 1450 | MOV A,M |
| 00F6 | CD E6 02 | 1460 | CALL OUTHX ;DISPLAY THE CONTENTS |
| 00F9 | 06 2D | 1470 | MVI B,'-' |
| 00FB | CD BA 03 | 1480 | CALL OUTCH ;DISPLAY A HYPHEN |
| 00FE | 22 F1 FF | 1490 | SHLD CURAD ;UPDATE CURRENT OPEN ADDR |
| 0101 | CD 74 02 | 1500 | CALL INPHX ;LOOK FOR DATA |
| 0104 | C2 0B 01 | 1510 | JNZ MOD2 ;DATA FOUND, GO MODIFY |
| 0107 | 23 | 1520 | INX H ;INCR. MEMORY POINTER |
| 0108 | C3 E6 00 | 1530 | JMP MOD1 ;AND GO EXAMINE NEXT. |
| 010B | | 1540 | * |
| 010B | 4F | 1550 | MOD2 MOV C,A ;SAVE DATA |
| 010C | 54 | 1560 | MOV D,H |
| 010D | 5D | 1570 | MOV E,L ;MAKE SURE ADDRESS IS |
| 010E | CD C0 02 | 1580 | CALL ADRCH ;NOT WITHIN MONITOR AREA. |
| 0111 | 79 | 1590 | MOV A,C ;RESTORE DATA |
| 0112 | 77 | 1600 | MOD3 MOV M,A ;STORE NEW DATA IN MEMORY |
| 0113 | 23 | 1610 | INX H ;INCR. MEMORY POINTER |
| 0114 | 22 F1 FF | 1620 | SHLD CURAD ;UPDATE CURRENT OPEN ADDR |
| 0117 | 7D | 1630 | MOV A,L |
| 0118 | B4 | 1640 | ORA H ;OUT OF ADDRESSABLE MEMORY? |
| 0119 | CA 1A 00 | 1650 | JZ DONE ;YES |
| 011C | 11 00 FF | 1660 | LXI D,MNBEG |
| 011F | CD D8 02 | 1670 | CALL ADCMP ;DID WE RUN INTO MONITOR? |
| 0122 | CA 1A 00 | 1680 | JZ DONE ;YES |
| 0125 | CD 74 02 | 1690 | CALL INPHX ;LOOK FOR MORE DATA |
| 0128 | CA E6 00 | 1700 | JZ MOD1 ;NO DATA, GO EXAM NEXT |
| 012B | C3 12 01 | 1710 | JMP MOD3 ;ELSE, GO DEPOSIT NEXT. |
| 012E | | | |

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|------|----|----|----|------|---|
| 012E | | | | 1720 | * |
| 012E | | | | 1730 | * MEMORY SEARCH |
| 012E | CD | BA | 03 | 1740 | * |
| 0131 | CD | 50 | 02 | 1750 | MSRCH CALL OUTCH ;"ECHO" 2ND CHAR. OF COMMAND |
| 0134 | | | | 1760 | CALL ADRNG ;GET BEGIN. & ENDING ADDR |
| 0134 | CD | 74 | 02 | 1770 | * ;OF SEARCH FIELD IN DE, HL |
| 0137 | CA | 34 | 01 | 1780 | MSRC CALL INPHX ;GET 1ST BYTE OF SEARCH ARG. |
| 013A | 47 | | | 1790 | JZ MSRC ;MUST ENTER |
| 013B | CD | 74 | 02 | 1800 | MOV B,A |
| 013E | C2 | 50 | 01 | 1810 | CALL INPHX ;GET 2ND BYTE OF SEARCH ARG. |
| 0141 | | | | 1820 | JNZ MSRC2 ;JUMP IF IT WAS ENTERED |
| 0141 | | | | 1830 | * |
| 0141 | | | | 1840 | * ONE-BYTE SEARCH - SEARCH ARGUMENT IN REG. B |
| 0141 | | | | 1850 | * |
| 0141 | 1A | | | 1860 | MSRC1 LDAX D |
| 0142 | B8 | | | 1870 | CMP B ;LOOK FOR MATCH |
| 0143 | CC | 6D | 01 | 1880 | CZ MSDSP ;DISPLAY MEMORY IF FOUND |
| 0146 | CD | D8 | 02 | 1890 | CALL ADCMP ;END OF SEARCH FIELD? |
| 0149 | D2 | 1A | 00 | 1900 | JNC DONE ;YES |
| 014C | 13 | | | 1910 | INX D ;INCR. MEMORY POINTER |
| 014D | C3 | 41 | 01 | 1920 | JMP MSRC1 ;AND LOOP AGAIN |
| 0150 | | | | 1930 | * |
| 0150 | | | | 1940 | * TWO-BYTE SEARCH - SEARCH ARGUMENT IN B-C |
| 0150 | | | | 1950 | * |
| 0150 | 4F | | | 1960 | MSRC2 MOV C,A |
| 0151 | CD | 01 | 03 | 1970 | CALL WAIT ;ABORT OR CONTINUE |
| 0154 | 1A | | | 1980 | MSR2L LDAX D |
| 0155 | B8 | | | 1990 | CMP B ;LOOK FOR MATCH ON 1ST BYTE |
| 0156 | C2 | 63 | 01 | 2000 | JNZ MSR2N ;JUMP IF NO MATCH |
| 0159 | 13 | | | 2010 | INX D |
| 015A | 1A | | | 2020 | LDAX D |
| 015B | 1B | | | 2030 | DCX D |
| 015C | B9 | | | 2040 | CMP C ;LOOK FOR MATCH ON 2ND BYTE |
| 015D | C2 | 63 | 01 | 2050 | JNZ MSR2N ;JUMP IF NO MATCH |
| 0160 | CD | 6D | 01 | 2060 | CALL MSDSP ;DISPLAY MEMORY |
| 0163 | 13 | | | 2070 | MSR2N INX D ;INCR. MEMORY POINTER |
| 0164 | CD | D8 | 02 | 2080 | CALL ADCMP ;END OF SEARCH FIELD? |
| 0167 | DA | 54 | 01 | 2090 | JC MSR2L ;NO |
| 016A | C3 | 1A | 00 | 2100 | JMP DONE ;YES |
| 016D | | | | | |

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| 016D | | 2110 | * |
| 016D | | 2120 | * DISPLAY MEMORY AROUND THE MATCHING DATA. |
| 016D | | 2130 | * SHOWS FIVE BYTES BEFORE THE MATCHING DATA |
| 016D | | 2140 | * AND NINE OR TEN BYTES AFTER IT. |
| 016D | | 2150 | * |
| 016D | C5 | 2160 | MSDSP PUSH B |
| 016E | D5 | 2170 | PUSH D |
| 016F | 1B | 2180 | DCX D ;BACK UP 5 BYTES |
| 0170 | 1B | 2190 | DCX D |
| 0171 | 1B | 2200 | DCX D |
| 0172 | 1B | 2210 | DCX D |
| 0173 | 1B | 2220 | DCX D |
| 0174 | CD DE 02 | 2230 | CALL ADNEW ;DISPLAY THE ADDRESS |
| 0177 | 06 3A | 2240 | MVI B,':' |
| 0179 | CD BA 03 | 2250 | CALL OUTCH ;FOLLOWED BY A COLON |
| 017C | 06 04 | 2260 | MVI B,4 ;COUNTER FOR FOUR GROUPS |
| 017E | 3E 01 | 2270 | MSDS2 MVI A,1 |
| 0180 | CD 24 03 | 2280 | CALL OUTSP ;1 EXTRA SPACE BETWEEN GRPS |
| 0183 | 0E 04 | 2290 | MVI C,4 ;FOUR BYTES PER GROUP |
| 0185 | 3E 01 | 2300 | MSDS3 MVI A,1 |
| 0187 | CD 24 03 | 2310 | CALL OUTSP ;1 SPACE BETWEEN BYTES |
| 018A | 1A | 2320 | LDAX D |
| 018B | CD E6 02 | 2330 | CALL OUTHX ;DISPLAY A BYTE IN HEX |
| 018E | CD 59 03 | 2340 | CALL PANIC ;"PANIC CHECK" |
| 0191 | 13 | 2350 | INX D ;INCR. MEMORY POINTER |
| 0192 | 0D | 2360 | DCR C ;AT END OF GROUP? |
| 0193 | C2 85 01 | 2370 | JNZ MSDS3 ;NO |
| 0196 | 05 | 2380 | DCR B ;AT END OF LINE? |
| 0197 | C2 7E 01 | 2390 | JNZ MSDS2 ;NO |
| 019A | D1 | 2400 | POP D |
| 019B | C1 | 2410 | POP B |
| 019C | C3 01 03 | 2420 | JMP WAIT ;ABORT OR CONTINUE |
| 019F | | | |

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|------|----------|------|---|---|
| 019F | | 2430 | * | |
| 019F | | 2440 | * | TRANSFER (BLOCK MOVE). MOVE IS FROM SOURCE |
| 019F | | 2450 | * | TO RESULT FIELD, PROCEEDING FROM LEFT TO |
| 019F | | 2460 | * | RIGHT. |
| 019F | | 2470 | * | |
| 019F | CD 50 02 | 2480 | | TXFER CALL ADRNG ;GET BEGIN. & ENDING ADDR |
| 01A2 | | 2490 | * | ;OF RESULT FIELD IN DE, HL |
| 01A2 | CD C0 02 | 2500 | | CALL ADRCH ;MAKE SURE RESULT FIELD IS |
| 01A5 | | 2510 | * | ;OUTSIDE MONITOR AREA. |
| 01A5 | E5 | 2520 | | PUSH H ;SAVE ENDING ADDR |
| 01A6 | CD 67 02 | 2530 | | TXFR2 CALL ADRIN ;GET BEGIN. ADDR OF SOURCE |
| 01A9 | CA A6 01 | 2540 | | JZ TXFR2 ;MUST ENTER |
| 01AC | 44 | 2550 | | MOV B,H |
| 01AD | 4D | 2560 | | MOV C,L ;BC=BEGIN. ADDR OF SOURCE |
| 01AE | | 2570 | * | ;DE=BEGIN. ADDR OF RESULT |
| 01AE | E1 | 2580 | | POP H ;HL=ENDING ADDR OF RESULT |
| 01AF | CD 01 03 | 2590 | | CALL WAIT ;ABORT OR CONTINUE |
| 01B2 | 0A | 2600 | | TXLUP LDAX B ;MOVE ONE BYTE FROM |
| 01B3 | 12 | 2610 | | STAX D ;SOURCE TO RESULT FIELD |
| 01B4 | CD D8 02 | 2620 | | CALL ADCMP ;AT END OF RESULT FIELD? |
| 01B7 | D2 1A 00 | 2630 | | JNC DONE ;YES |
| 01BA | 03 | 2640 | | INX B ;INCR. SOURCE AND |
| 01BB | 13 | 2650 | | INX D ;RESULT POINTERS |
| 01BC | C3 B2 01 | 2660 | | JMP TXLUP ;AND LOOP UNTIL DONE. |
| 01BF | | 2670 | * | |
| 01BF | | 2680 | * | VERIFY (BLOCK COMPARE) |
| 01BF | | 2690 | * | |
| 01BF | CD 50 02 | 2700 | | VERFY CALL ADRNG ;GET BEGIN. & ENDING ADDR |
| 01C2 | | 2710 | * | ;OF RESULT FIELD IN DE, HL |
| 01C2 | E5 | 2720 | | PUSH H ;SAVE ENDING ADDR |
| 01C3 | CD 67 02 | 2730 | | VFY2 CALL ADRIN ;GET BEGIN. ADDR OF SOURCE |
| 01C6 | CA C3 01 | 2740 | | JZ VFY2 ;MUST ENTER |
| 01C9 | 44 | 2750 | | MOV B,H |
| 01CA | 4D | 2760 | | MOV C,L ;BC=BEGIN. ADDR OF SOURCE |
| 01CB | | 2770 | * | ;DE=BEGIN. ADDR OF RESULT |
| 01CB | E1 | 2780 | | POP H ;HL=ENDING ADDR OF RESULT |
| 01CC | CD 01 03 | 2790 | | CALL WAIT ;ABORT OR CONTINUE? |
| 01CF | 0A | 2800 | | VFLUP LDAX B |
| 01D0 | C5 | 2810 | | PUSH B |
| 01D1 | 47 | 2820 | | MOV B,A ;B=SOURCE BYTE |
| 01D2 | 1A | 2830 | | LDAX D ;A=RESULT BYTE |
| 01D3 | B8 | 2840 | | CMP B ;ARE THEY EQUAL? |
| 01D4 | C1 | 2850 | | POP B |
| 01D5 | CA EE 01 | 2860 | | JZ VFNXT ;YES |
| 01D8 | CD DE 02 | 2870 | | CALL ADNEW ;DISPLAY RESULT ADDR |
| 01DB | C5 | 2880 | | PUSH B |
| 01DC | 06 3A | 2890 | | MVI B, ':' |
| 01DE | CD BA 03 | 2900 | | CALL OUTCH ;COLON |
| 01E1 | 06 20 | 2910 | | MVI B, 20H |
| 01E3 | CD BA 03 | 2920 | | CALL OUTCH ;SPACE |
| 01E6 | C1 | 2930 | | POP B |
| 01E7 | 1A | 2940 | | LDAX D |
| 01E8 | CD E6 02 | 2950 | | CALL OUTHX ;DISPLAY RESULT BYTE |
| 01EB | CD 01 03 | 2960 | | CALL WAIT ;ABORT OR CONTINUE |
| 01EE | CD D8 02 | 2970 | | VFNXT CALL ADCMP ;AT ENDING ADDRESS? |
| 01F1 | D2 1A 00 | 2980 | | JNC DONE ;YES |
| 01F4 | 03 | 2990 | | INX B ;INCR. SOURCE AND |
| 01F5 | 13 | 3000 | | INX D ;RESULT POINTERS |
| 01F6 | C3 CF 01 | 3010 | | JMP VFLUP ;AND LOOP UNTIL DONE. |
| 01F9 | | | | |

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|------|----|----|----|------|---|
| 01F9 | | | | 3020 | * |
| 01F9 | | | | 3030 | * FILL MEMORY WITH A CONSTANT. |
| 01F9 | CD | 50 | 02 | 3040 | * |
| 01FC | | | | 3050 | FILL CALL ADRNG ;GET BEGIN. & ENDING ADDR |
| 01FC | CD | C0 | 02 | 3060 | * ;OF RESULT FIELD IN DE, HL |
| 01FF | | | | 3070 | CALL ADRCH ;MAKE SURE RESULT FIELD IS |
| 01FF | 06 | 00 | | 3080 | * ;OUTSIDE MONITOR AREA |
| 0201 | CD | 74 | 02 | 3090 | MVI B,0 ;SET DEFAULT FILLER BYTE |
| 0204 | CA | 0B | 02 | 3100 | CALL INPHX ;GET OPTIONAL FILLER BYTE |
| 0207 | 47 | | | 3110 | JZ FILLP ;JUMP IF NOTHING ENTERED |
| 0208 | CD | 01 | 03 | 3120 | MOV B,A ;IT WAS ENTERED, SAVE IT |
| 020B | 78 | | | 3130 | CALL WAIT ;ABORT OR CONTINUE |
| 020C | 12 | | | 3140 | FILLP MOV A,B ;RESTORE FILLER BYTE |
| 020D | CD | D8 | 02 | 3150 | STAX D ;STORE FILL CHARACTER |
| 0210 | D2 | 1A | 00 | 3160 | CALL ADCMP ;AT ENDING ADDRESS? |
| 0213 | 13 | | | 3170 | JNC DONE ;YES |
| 0214 | C3 | 0B | 02 | 3180 | INX D ;INCR. MEMORY POINTER |
| 0217 | | | | 3190 | JMP FILLP ;AND LOOP UNTIL DONE. |
| 0217 | | | | 3200 | * |
| 0217 | | | | 3210 | * GO TO EXTERNAL MONITOR OR OPERATING SYSTEM. |
| 0217 | | | | 3220 | * USER SHOULD PATCH THE NOP, LXI AND MVI INS- |
| 0217 | | | | 3230 | * TRUCTIONS AS NEEDED FOR HIS SYSTEM. |
| 0217 | | | | 3240 | * |
| 0217 | CD | 01 | 03 | 3250 | QUIT CALL WAIT ;ABORT OR CONTINUE |
| 021A | 00 | | | 3260 | NOP ;FOR LOADER CONTROL BYTE |
| 021B | 21 | 04 | 00 | 3270 | LXI H,START+4 ;ADDR OF EXTERNAL PGM |
| 021E | 3E | F3 | | 3280 | MVI A,0F3H ;FIRST BYTE OF EXTRNL PGM |
| 0220 | BE | | | 3290 | CMP M ;IS EXTERNAL PGM LOADED? |
| 0221 | C2 | 46 | 02 | 3300 | JNZ NOPGM ;NO |
| 0224 | CD | 31 | 03 | 3310 | CALL OUTNL ;START NEW LINE |
| 0227 | E9 | | | 3320 | PCHL ;JUMP TO EXTERNAL PGM |
| 0228 | | | | 3330 | * |
| 0228 | | | | 3340 | * JUMP TO USER PROGRAM ENTRY POINT. AN OR- |
| 0228 | | | | 3350 | * DERLY RETURN WILL GET BACK TO COMMAND MODE. |
| 0228 | | | | 3360 | * |
| 0228 | 2A | F1 | FF | 3370 | JUMP LHLD CURAD ;LOAD CURRENT OPEN ADDR |
| 022B | CD | 67 | 02 | 3380 | CALL ADRIN ;GET OPTIONAL ADDRESS |
| 022E | CA | 34 | 02 | 3390 | JZ JMP2 ;JUMP IF NOTHING ENTERED |
| 0231 | CD | 01 | 03 | 3400 | CALL WAIT ;CONTINUE OR ABORT |
| 0234 | 54 | | | 3410 | JMP2 MOV D,H |
| 0235 | 5D | | | 3420 | MOV E,L ;MAKE SURE ADDR IS |
| 0236 | CD | C0 | 02 | 3430 | CALL ADRCH ;OUTSIDE MONITOR AREA. |
| 0239 | 3E | F3 | | 3440 | MVI A,0F3H |
| 023B | BE | | | 3450 | CMP M ;DOES A PROGRAM EXIST HERE? |
| 023C | C2 | 46 | 02 | 3460 | JNZ NOPGM ;NO |
| 023F | 22 | F1 | FF | 3470 | SHLD CURAD ;UPDATE CURRENT OPEN ADDR |
| 0242 | CD | 31 | 03 | 3480 | CALL OUTNL ;START NEW LINE |
| 0245 | E9 | | | 3490 | PCHL ;JUMP TO USER ROUTINE |
| 0246 | | | | 3500 | * |
| 0246 | 21 | 82 | 03 | 3510 | NOPGM LXI H,TMSGP ;SHOW ERROR MESSAGE AND |
| 0249 | C3 | 1D | 00 | 3520 | JMP MSOUT ;GO BACK TO COMMAND MODE. |
| 024C | | | | 3530 | * |
| 024C | | | | 3540 | DS 4 ;FOR EXPANSION |
| 0250 | | | | | |

| | | | |
|------|----------|------|--|
| 0250 | | 3550 | * |
| 0250 | | 3560 | ***** |
| 0250 | | 3570 | * S Y S T E M S U B R O U T I N E S * |
| 0250 | | 3580 | ***** |
| 0250 | | 3590 | * |
| 0250 | | 3600 | * GET REQUIRED ADDRESS RANGE FROM KEYBOARD. |
| 0250 | | 3610 | * EXIT: DE = BEGIN. ADDR, HL = ENDING ADDR |
| 0250 | | 3620 | * |
| 0250 | CD 67 02 | 3630 | ADRNG CALL ADRIN ;GET BEGIN. ADDR |
| 0253 | CA 50 02 | 3640 | JZ ADRNG ;MUST ENTER |
| 0256 | EB | 3650 | XCHG ;BEGIN. ADDR TO D-E |
| 0257 | CD 67 02 | 3660 | ADRN2 CALL ADRIN ;GET ENDING ADDR |
| 025A | CA 57 02 | 3670 | JZ ADRN2 ;MUST ENTER |
| 025D | CD D8 02 | 3680 | CALL ADCMP ;IS HL > DE? |
| 0260 | D8 | 3690 | RC ;YES, RETURN TO CALLER |
| 0261 | | 3700 | * |
| 0261 | 21 A4 03 | 3710 | BADRN LXI H,TMSGR ;NO, SHOW ERROR MSG. AND |
| 0264 | C3 1D 00 | 3720 | JMP MSOUT ;RETURN TO COMMAND MODE. |
| 0267 | | 3730 | * |
| 0267 | | 3740 | * GET ADDRESS IN H-L FROM KEYBOARD. USER MAY |
| 0267 | | 3750 | * INSTEAD TYPE CR TO BYPASS OPTIONAL ENTRY. |
| 0267 | | 3760 | * AT EXIT: IF NO DATA WAS ENTERED, ZERO FLAG |
| 0267 | | 3770 | * IS SET AND CONTENTS OF H-L ARE PRESERVED. |
| 0267 | | 3780 | * OTHERWISE, ZERO FLAG IS RE-SET AND H-L CON- |
| 0267 | | 3790 | * TAINS VALID DATA. |
| 0267 | | 3800 | * |
| 0267 | CD 74 02 | 3810 | ADRIN CALL INPHX ;GET HIGH ADDR BYTE |
| 026A | C8 | 3820 | RZ ;RETURN IF NO ENTRY |
| 026B | 67 | 3830 | MOV H,A |
| 026C | CD 74 02 | 3840 | ADIN2 CALL INPHX ;GET LOW ADDR BYTE |
| 026F | CA 6C 02 | 3850 | JZ ADIN2 ;MUST ENTER IT! |
| 0272 | 6F | 3860 | MOV L,A |
| 0273 | C9 | 3870 | RET |
| 0274 | | | |

| | | | | |
|------|----------|------|-------|---|
| 0274 | | 3880 | * | |
| 0274 | | 3890 | * | INPUT 2 HEX DIGITS AND ASSEMBLE SINGLE BYTE |
| 0274 | | 3900 | * | IN ACCUMULATOR. INVALID HEX CHARACTERS ARE |
| 0274 | | 3910 | * | NOT ECHOED AND NOT USED. |
| 0274 | | 3920 | * | AT EXIT: IF NO DATA WAS ENTERED, ZERO FLAG |
| 0274 | | 3930 | * | IS SET. OTHERWISE, ZERO FLAG IS RE-SET |
| 0274 | | 3940 | * | AND ACCUMULATOR CONTAINS VALID DATA. |
| 0274 | | 3950 | * | |
| 0274 | C5 | 3960 | INPHX | PUSH B |
| 0275 | D5 | 3970 | | PUSH D |
| 0276 | 16 01 | 3980 | | MVI D,1 ;BYTE COUNTER |
| 0278 | 1E 00 | 3990 | | MVI E,0 ;WORK REGISTER |
| 027A | CD 3E 03 | 4000 | INP2A | CALL INASC ;GET CHARACTER FROM KEYBOARD |
| 027D | 4A | 4010 | | MOV C,D |
| 027E | 0D | 4020 | | DCR C ;AT FIRST HEX CHAR.? |
| 027F | C2 92 02 | 4030 | JNZ | INP2B ;NO, CR & SP NOT ALLOWED. |
| 0282 | FE 0D | 4040 | | CPI CR ;CARRIAGE RETURN? |
| 0284 | CA BD 02 | 4050 | JZ | INPXT ;YES, RETURN WITH Z FLAG SET |
| 0287 | FE 20 | 4060 | | CPI 20H ;SPACE? |
| 0289 | C2 92 02 | 4070 | JNZ | INP2B ;NO |
| 028C | CD BA 03 | 4080 | | CALL OUTCH ;ECHO THE SPACE |
| 028F | C3 7A 02 | 4090 | JMP | INP2A ;AND GO BACK FOR NEXT CHAR. |
| 0292 | FE 30 | 4100 | INP2B | CPI '0' ;VALID DIGIT 0-9? |
| 0294 | DA 7A 02 | 4110 | JC | INP2A ;NO, TRY AGAIN. |
| 0297 | FE 3A | 4120 | | CPI 3AH |
| 0299 | DA A8 02 | 4130 | JC | INP2C ;YES |
| 029C | FE 41 | 4140 | | CPI 'A' ;VALID HEX DIGIT A-F? |
| 029E | DA 7A 02 | 4150 | JC | INP2A ;NO, TRY AGAIN. |
| 02A1 | FE 47 | 4160 | | CPI 'G' |
| 02A3 | D2 7A 02 | 4170 | JNC | INP2A |
| 02A6 | C6 09 | 4180 | | ADI 9 ;A-F BECOMES BINARY 10-15 |
| 02A8 | E6 0F | 4190 | INP2C | ANI 0FH ;ZERO LEFTMOST 4 BITS |
| 02AA | 4A | 4200 | | MOV C,D |
| 02AB | 0D | 4210 | | DCR C ;AT FIRST HEX CHAR.? |
| 02AC | C2 B3 02 | 4220 | JNZ | INP2D ;NO |
| 02AF | 07 | 4230 | | RLC ;SHIFT LEFT 4 BITS |
| 02B0 | 07 | 4240 | | RLC |
| 02B1 | 07 | 4250 | | RLC |
| 02B2 | 07 | 4260 | | RLC |
| 02B3 | B3 | 4270 | INP2D | ORA E ;"OR" HEX DIGIT WITH |
| 02B4 | 5F | 4280 | | MOV E,A ;BYTE BEING ASSEMBLED |
| 02B5 | CD BA 03 | 4290 | | CALL OUTCH ;ECHO THE ORIGINAL CHAR. |
| 02B8 | 15 | 4300 | | DCR D ;DECREMENT DIGIT COUNTER |
| 02B9 | CA 7A 02 | 4310 | JZ | INP2A ;AND GO BACK ONCE MORE. |
| 02BC | 7B | 4320 | | MOV A,E ;DATA TO ACCUMULATOR |
| 02BD | D1 | 4330 | INPXT | POP D |
| 02BE | C1 | 4340 | | POP B |
| 02BF | C9 | 4350 | | RET |
| 02C0 | | | | |

| | | | | |
|------|----|-------|------|--|
| 02C0 | | | 4360 | * |
| 02C0 | | | 4370 | * DETERMINE WHETHER OR NOT PART OR ALL OF AN |
| 02C0 | | | 4380 | * ADDR. RANGE FALLS WITHIN THE MONITOR AREA. |
| 02C0 | | | 4390 | * IF SO, SHOW ERROR MESSAGE AND GO BACK TO |
| 02C0 | | | 4400 | * COMMAND MODE. |
| 02C0 | | | 4410 | * ENTRY: DE = BEGIN. ADDR, HL = ENDING ADDR |
| 02C0 | | | 4420 | * ASSUMES HL >= DE. |
| 02C0 | | | 4430 | * |
| 02C0 | E5 | | 4440 | ADRCH PUSH H |
| 02C1 | 21 | 00 0C | 4450 | LXI H,MNEND+1 |
| 02C4 | CD | D8 02 | 4460 | CALL ADCMP ;IS BEGIN. ADDR ABOVE MONTR? |
| 02C7 | E1 | | 4470 | POP H |
| 02C8 | D0 | | 4480 | RNC ;YES, RETURN TO CALLER. |
| 02C9 | D5 | | 4490 | PUSH D |
| 02CA | 11 | FF FE | 4500 | LXI D,MNBEG-1 |
| 02CD | CD | D8 02 | 4510 | CALL ADCMP ;IS ENDING ADDR BELOW MONTR? |
| 02D0 | D1 | | 4520 | POP D |
| 02D1 | D0 | | 4530 | RNC ;YES, RETURN TO CALLER. |
| 02D2 | | | 4540 | * |
| 02D2 | 21 | 94 03 | 4550 | LXI H,TMSGV ;NO, SHOW ERROR MSG. AND |
| 02D5 | C3 | 1D 00 | 4560 | JMP MSOUT ;RETURN TO COMMAND MODE. |
| 02D8 | | | 4570 | * |
| 02D8 | | | 4580 | * COMPARE CONTENTS OF D-E WITH CONTENTS OF |
| 02D8 | | | 4590 | * H-L. RESULT SHOWN BY CARRY AND ZERO FLAGS. |
| 02D8 | | | 4600 | * CARRY FLAG IS SET TO 1 IF H-L > D-E. |
| 02D8 | | | 4610 | * |
| 02D8 | 7A | | 4620 | ADCMP MOV A,D |
| 02D9 | BC | | 4630 | CMP H ;D:H |
| 02DA | C0 | | 4640 | RNZ |
| 02DB | 7B | | 4650 | MOV A,E |
| 02DC | BD | | 4660 | CMP L ;E:L |
| 02DD | C9 | | 4670 | RET |
| 02DE | | | 4680 | * |
| 02DE | | | 4690 | * DISPLAY THE ADDRESS IN D-E. |
| 02DE | | | 4700 | * |
| 02DE | CD | 31 03 | 4710 | ADNEW CALL OUTNL ;START NEW LINE FIRST |
| 02E1 | 7A | | 4720 | ADOUT MOV A,D ;HIGH BYTE |
| 02E2 | CD | E6 02 | 4730 | CALL OUTHX |
| 02E5 | 7B | | 4740 | MOV A,E ;LOW BYTE |
| 02E6 | | | 4750 | * |
| 02E6 | | | 4760 | * DISPLAY THE CONTENTS OF THE ACCUMULATOR AS |
| 02E6 | | | 4770 | * TWO HEXADECIMAL DIGITS. |
| 02E6 | | | 4780 | * |
| 02E6 | F5 | | 4790 | OUTHX PUSH PSW ;SAVE ORIGINAL DATA |
| 02E7 | 0F | | 4800 | RRC ;SHIFT LEFT NYBBLE |
| 02E8 | 0F | | 4810 | RRC ;INTO POSITION FOR OUTPUT |
| 02E9 | 0F | | 4820 | RRC |
| 02EA | 0F | | 4830 | RRC |
| 02EB | CD | EF 02 | 4840 | CALL OUTX ;OUTPUT LEFT DIGIT |
| 02EE | F1 | | 4850 | POP PSW ;RESTORE ORIGINAL DATA |
| 02EF | | | 4860 | * OUTPUT RIGHT DIGIT AND RETURN. |
| 02EF | E6 | 0F | 4870 | OUTX ANI 0FH ;STRIP LEFTMOST 4 BITS |
| 02F1 | F6 | 30 | 4880 | ORI 30H ;CONVERT TO ASCII CHAR. |
| 02F3 | FE | 3A | 4890 | CPI 3AH ;10-15? |
| 02F5 | DA | FA 02 | 4900 | JC OUTXT ;NO |
| 02F8 | C6 | 07 | 4910 | ADI 7 ;YES, CONVERT TO ALPHA |
| 02FA | C5 | | 4920 | OUTXT PUSH B |
| 02FB | 47 | | 4930 | MOV B,A ;B=ASCII CHAR. FOR ECHO |
| 02FC | CD | BA 03 | 4940 | CALL OUTCH ;DISPLAY IT |
| 02FF | C1 | | 4950 | POP B |
| 0300 | C9 | | 4960 | RET |

| | | | | | |
|------|----|----|----|------|---|
| 0301 | | | | 4970 | * |
| 0301 | | | | 4980 | * GET USER TO ENTER CR TO CONTINUE PROCESS-- |
| 0301 | | | | 4990 | * ING, OR @ TO ABORT. |
| 0301 | | | | 5000 | * |
| 0301 | CD | B4 | 03 | 5010 | WAIT CALL INPCH ;GET A CHARACTER |
| 0304 | CA | 01 | 03 | 5020 | JZ WAIT ;LOOP IF NOT AVAILABLE |
| 0307 | E6 | 7F | | 5030 | ANI 7FH ;STRIP PARITY BIT |
| 0309 | FE | 0D | | 5040 | CPI CR ;CARRIAGE RETURN? |
| 030B | C8 | | | 5050 | RZ ;YES, RETURN TO CALLER |
| 030C | FE | 40 | | 5060 | CPI '@' ;WANT TO ABORT? |
| 030E | C2 | 01 | 03 | 5070 | JNZ WAIT ;NO, TRY AGAIN |
| 0311 | 47 | | | 5080 | MOV B,A |
| 0312 | C3 | 63 | 03 | 5090 | JMP ABORT ;YES |
| 0315 | | | | 5100 | * |
| 0315 | | | | 5110 | * OUTPUT A CHARACTER STRING (BLOCK) UP TO 256 |
| 0315 | | | | 5120 | * BYTES IN LENGTH. THE STRING TO BE OUTPUT |
| 0315 | | | | 5130 | * MUST BE PRECEDED BY A 1-BYTE LENGTH FIELD. |
| 0315 | | | | 5140 | * ENTRY: HL POINTS TO LENGTH FIELD + STRING |
| 0315 | | | | 5150 | * |
| 0315 | E5 | | | 5160 | OUTBL PUSH H |
| 0316 | C5 | | | 5170 | PUSH B |
| 0317 | 4E | | | 5180 | MOV C,M ;C=BYTE COUNT |
| 0318 | 23 | | | 5190 | OUTB2 INX H ;INCR. POINTER |
| 0319 | 46 | | | 5200 | MOV B,M ;B=CHAR. TO OUTPUT |
| 031A | CD | BA | 03 | 5210 | CALL OUTCH ;OUTPUT IT |
| 031D | 0D | | | 5220 | DCR C ;DECREMENT COUNTER |
| 031E | C2 | 18 | 03 | 5230 | JNZ OUTB2 ;NO, LOOP UNTIL DONE |
| 0321 | C1 | | | 5240 | POP B |
| 0322 | E1 | | | 5250 | POP H |
| 0323 | C9 | | | 5260 | RET |
| 0324 | | | | 5270 | * |
| 0324 | | | | 5280 | * OUTPUT BLANK SPACES. |
| 0324 | | | | 5290 | * ENTRY: ACC. HAS NUMBER OF SPACES TO OUTPUT. |
| 0324 | | | | 5300 | * |
| 0324 | C5 | | | 5310 | OUTSP PUSH B |
| 0325 | 4F | | | 5320 | MOV C,A ;COUNTER |
| 0326 | 06 | 20 | | 5330 | MVI B,20H ;SPACE |
| 0328 | CD | BA | 03 | 5340 | OUTS2 CALL OUTCH |
| 032B | 0D | | | 5350 | DCR C |
| 032C | C2 | 28 | 03 | 5360 | JNZ OUTS2 |
| 032F | C1 | | | 5370 | POP B |
| 0330 | C9 | | | 5380 | RET |
| 0331 | | | | 5390 | * |
| 0331 | | | | 5400 | * START NEW LINE ON CONSOLE OUTPUT DEVICE. |
| 0331 | | | | 5410 | * CR AND LF ARE OUTPUTTED. |
| 0331 | | | | 5420 | * |
| 0331 | C5 | | | 5430 | OUTNL PUSH B |
| 0332 | 06 | 0D | | 5440 | MVI B,CR |
| 0334 | CD | BA | 03 | 5450 | CALL OUTCH |
| 0337 | 06 | 0A | | 5460 | MVI B,LF |
| 0339 | CD | BA | 03 | 5470 | CALL OUTCH |
| 033C | C1 | | | 5480 | POP B |
| 033D | C9 | | | 5490 | RET |
| 033E | | | | | |

```

033E
033E
033E
033E
033E
033E CD B4 03
0341 CA 3E 03
0344 E6 7F
0346 FE 61
0348 DA 52 03
034B FE 7B
034D D2 52 03
0350 E6 5F
0352 47
0353 FE 40
0355 CA 63 03
0358 C9
0359
0359
0359
0359 CD B4 03
035C C8
035D E6 7F
035F FE 40
0361 C0
0362 47
0363 CD BA 03
0366 C3 23 00
0369
0369
0369
0369
0369 49
036A 42 00
036C 10
036D 45 53 46 20
      4D 4F 4E 49
      54 4F 52 20
      56 32 2E 32
037D 04
037E 44 4F 4E 45
0382 11
0383 50 52 4F 47
      52 41 4D 20
      4E 4F 54 20
      46 4F 55 4E
      44
0394 0F
0395 56 49 4F 4C
      41 54 45 53
      20 53 59 53
      54 45 4D
03A4 09
03A5 42 41 44 20
      52 41 4E 47
      45
03AE
5500 *
5510 * GET AN ASCII CHARACTER FROM KEYBOARD.
5520 * LOWERCASE A-Z ARE CONVERTED TO UPPERCASE.
5530 * RE-STARTS SYSTEM IF PANIC CHARACTER HIT.
5540 * EXIT: CHARACTER IS IN ACC. AND REG. B.
5550 *
5560 INASC CALL INPCH ;GET A CHARACTER
5570      JZ   INASC ;LOOP IF NOT AVAILABLE
5580      ANI  7FH  ;STRIP PARITY BIT.
5590      CPI  61H  ;LOWERCASE A-Z?
5600      JC   INAS2 ;NO
5610      CPI  7AH+1
5620      JNC  INAS2
5630      ANI  5FH  ;YES, MAKE IT UPPERCASE
5640 INAS2 MOV  B,A  ;FOR "ECHO"
5650      CPI  '@'  ;WANT TO ABORT?
5660      JZ   ABORT ;YES
5670      RET  ;NO
5680 *
5690 * RE-START SYSTEM IF PANIC CHARACTER HIT
5700 * IF NOT, RETURN TO CALLER.
5710 *
5720 PANIC CALL INPCH ;LOOK FOR CHARACTER
5730      RZ           ;RETURN IF NOTHING ENTERED
5740      ANI  7FH  ;STRIP PARITY BIT
5750      CPI  '@'  ;PANIC CHARACTER?
5760      RNZ           ;RETURN IF NOT
5770      MOV  B,A
5780 ABORT CALL OUTCH ;"ECHO" THE PANIC CHAR.
5790      JMP  MONTR
5800 *
5810 *****
5820 * SYSTEM MESSAGES AND PROMPTS *
5830 *****
5840 *
5850      DB   49H  ;LOADER CONTROL BYTE
5860      DW   TINIT-PGMHD ;DATA BYTE COUNT
5870 PGMHD DB   16
5880      ASC  'ESF MONITOR V2.2'
5890 TMSGD DB   4
5900      ASC  'DONE'
5910 TMSGP DB   17
5920      ASC  'PROGRAM NOT FOUND'
5930 TMSGV DB   15
5940      ASC  'VIOLATES SYSTEM'
5950 TMSGR DB   9
5960      ASC  'BAD RANGE'

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03AE          5970 *
03AE          5980 *****
03AE          5990 * JUMP TABLE FOR CONSOLE TERMINAL I/O          *
03AE          6000 * COMPATIBLE WITH PROCESSOR TECH. "SOLOS"          *
03AE          6010 *****
03AE          6020 *
03AE          6030 * USER MUST PLACE JUMPS TO CUSTOM I/O
03AE          6040 * ROUTINES AT TINIT, INPCH AND OUTCH.
03AE          6050 * EXTERNAL SUBROUTINES MUST RETURN WITH CON-
03AE          6060 * TENTS OF REGISTER PAIRS BC, DE AND HL LEFT
03AE          6070 * INTACT.
03AE          6080 *
03AE          6090 * TERMINAL DEVICE INITIALIZATION
03AE          6100 *
03AE C3 AE 03 6110 TINIT JMP TINIT ;FOR SOLOS: C9 00 00
03B1          6120          DS 3 ;NOT USED IN THIS VERSION
03B4          6130 *
03B4          6140 * INPUT ONE BINARY CHARACTER (ALL 8 BITS)
03B4          6150 * FROM CONSOLE KEYBOARD INTO THE ACCUMULATOR.
03B4          6160 * EXIT: ZERO FLAG OFF = ACC. HAS VALID CHAR.
03B4          6170 *          ZERO FLAG SET = DATA NOT AVAILABLE
03B4          6180 *
03B4 C3 B4 03 6190 INPCH JMP INPCH ;FOR SOLOS: C3 1F C0
03B7          6200          DS 3 ;NOT USED IN THIS VERSION
03BA          6210 *
03BA          6220 * OUTPUT THE CHARACTER IN REG. B (ALL 8 BITS)
03BA          6230 * TO THE CONSOLE OUTPUT DEVICE.
03BA          6240 *
03BA C3 BA 03 6250 OUTCH JMP OUTCH ;FOR SOLOS: C3 19 C0
03BD          6260          DS 3 ;NOT USED IN THIS VERSION
03C0          6270 *
03C0          6280 * THIS AREA RESERVED FOR CUSTOM I/O ROUTINES.
03C0          6290 * ENOUGH SPACE IS PROVIDED FOR A DRIVER FOR
03C0          6300 * ALMOST ANY DEVICE EXCEPT VIDEO DISPLAY
03C0          6310 * MEMORY. DRIVERS FOR VDM, VTI, ETC. WILL
03C0          6320 * HAVE TO BE LOCATED ELSEWHERE.
03C0          6330 *
03C0          6340          DS 36 ;64+ERTBG-ERTEN-3
03E4          6350 *
03E4          6360 * EXTERNAL REFERENCE TABLE FOR PARTS 2 AND 3
03E4          6370 *
03E4          6380 * ONCE THE MONITOR HAS BEEN RE-LOCATED AS
03E4          6390 * REQUIRED, THIS TABLE IS NO LONGER NEEDED
03E4          6400 * AND MAY BE OVERLAYED BY I/O ROUTINES.
03E4          6410 *
03E4 64          6420          DB 64H ;LOADER CONTROL BYTES
03E5 19 00          6430          DW ERTEN-ERTBG
03E7          6440 ERTBG EQU $
03E7 45 43 41 54 6450 ECAT ASC 'ECAT '
          20
03EC 45 47 45 54 6460 EGET ASC 'EGET '
          20
03F1 45 53 41 56 6470 ESAV ASC 'ESAV '
          20
03F6 45 43 45 52 6480 ECER ASC 'ECER '
          20
03FB 45 57 54 50 6490 EWTP ASC 'EWTP '
          20
0400

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0400      6500  ERTEN EQU  $
0400      6510  *
0400      6520  * SYSTEM WORK AREAS
0400      6530  *
0400      6540  MNBEG EQU  START-256 ;SYSTEM BEGINS HERE
0400      6550  MNSTK EQU  START-192 ;TOP OF STACK + 1
0400      6560  CURAD EQU  START-015 ;CURRENT OPEN ADDR
0400      6570  FCB    EQU  START-013 ;FILE CONTROL BLOCK
0400      6580  MNEND EQU  START+0C00H-1 ;SYSTEM ENDS HERE
0400      6590  *

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ABORT      0363      5090 5660
ADCMP      02D8      1050 1200 1670 1890 2080 2620 2970 3160 3680 4460 4510
ADIN2      026C      3850
ADNEW      02DE      1080 1400 2230 2870
ADOUT      02E1
ADRCH      02C0      1580 2500 3070 3430
ADRIN      0267      0970 1030 1350 2530 2730 3380 3630 3660
ADRN2      0257      3670
ADRNG      0250      1760 2480 2700 3050 3640
BADRN      0261      1060
CR         000D      0570 4040 5040 5440
CURAD      FFF1      0400 1340 1490 1620 3370 3470
DISPM      0087      0690 0980
DONE       001A      1650 1680 1900 2100 2630 2980 3170
DSPM2      008E      1290
DSPM3      00A2      1040 1270
DSPM4      00AC      1260
DSPM5      00B3      1240
DSPM9      00D1      1220
ECAT       03E7
ECER       03F6
EGET       03EC
ERTBG      03E7      6430
ERTEN      0400      6430
ESAV       03F1
EWTP       03FB
FCB        FFF3
FILL       01F9      0710
FILLP      020B      3110 3190
GETCM      002E      0600
INAS2      0352      5600 5620
INASC      033E      0560 0880 4000 5570
INP2A      027A      4090 4110 4150 4170 4310
INP2B      0292      4030 4070
INP2C      02A8      4130
INP2D      02B3      4220
INPCH      03B4      5010 5560 5720 6190
INPHX      0274      1500 1690 1780 1810 3100 3810 3840
INPXT      02BD      4050
JMP2       0234      3390
JUMP       0228      0730
LF         000A      0590 5460
MMORS      0077      0750 0930
MNBEG      FF00      1660 4500
MNEND      0BFF      4450
MNSTK      FF40      0370 0520
MOD1       00E6      1360 1530 1700
MOD2       010B      1510

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|-------|------|------|------|------|------|------|------|------|------|------|------|------|--|--|--|--|--|--|--|--|--|
| MOD3 | 0112 | 1710 | | | | | | | | | | | | | | | | | | | |
| MODFY | 00D7 | 0920 | | | | | | | | | | | | | | | | | | | |
| MONTR | 0023 | 0350 | 0390 | 0660 | 5790 | | | | | | | | | | | | | | | | |
| MSDS2 | 017E | 2390 | | | | | | | | | | | | | | | | | | | |
| MSDS3 | 0185 | 2370 | | | | | | | | | | | | | | | | | | | |
| MSDSP | 016D | 1880 | 2060 | | | | | | | | | | | | | | | | | | |
| MSOUT | 001D | 0420 | 3520 | 3720 | 4560 | | | | | | | | | | | | | | | | |
| MSR2L | 0154 | 2090 | | | | | | | | | | | | | | | | | | | |
| MSR2N | 0163 | 2000 | 2050 | | | | | | | | | | | | | | | | | | |
| MSRC | 0134 | 1790 | | | | | | | | | | | | | | | | | | | |
| MSRC1 | 0141 | 1920 | | | | | | | | | | | | | | | | | | | |
| MSRC2 | 0150 | 1820 | | | | | | | | | | | | | | | | | | | |
| MSRCH | 012E | 0900 | | | | | | | | | | | | | | | | | | | |
| NOPGM | 0246 | 3300 | 3460 | | | | | | | | | | | | | | | | | | |
| OUTB2 | 0318 | 5230 | | | | | | | | | | | | | | | | | | | |
| OUTBL | 0315 | 0460 | | | | | | | | | | | | | | | | | | | |
| OUTCH | 03BA | 0550 | 0610 | 1100 | 1330 | 1420 | 1440 | 1480 | 1750 | 2250 | 2900 | 2920 | | | | | | | | | |
| | | 4080 | 4290 | 4940 | 5210 | 5340 | 5450 | 5470 | 5780 | 6250 | | | | | | | | | | | |
| OUTHX | 02E6 | 1180 | 1460 | 2330 | 2950 | 4730 | | | | | | | | | | | | | | | |
| OUTNL | 0331 | 0450 | 0530 | 1280 | 3310 | 3480 | 4710 | | | | | | | | | | | | | | |
| OUTS2 | 0328 | 5360 | | | | | | | | | | | | | | | | | | | |
| OUTSP | 0324 | 1130 | 1160 | 2280 | 2310 | | | | | | | | | | | | | | | | |
| OUTX | 02EF | 4840 | | | | | | | | | | | | | | | | | | | |
| OUTXT | 02FA | 4900 | | | | | | | | | | | | | | | | | | | |
| PANIC | 0359 | 1190 | 2340 | | | | | | | | | | | | | | | | | | |
| PGMHD | 036C | 0410 | 5860 | | | | | | | | | | | | | | | | | | |
| PROMP | 0026 | 0580 | 0640 | | | | | | | | | | | | | | | | | | |
| PSW | 0006 | 4790 | 4850 | | | | | | | | | | | | | | | | | | |
| QUIT | 0217 | 0770 | | | | | | | | | | | | | | | | | | | |
| SP | 0006 | 0370 | 0520 | | | | | | | | | | | | | | | | | | |
| START | 0000 | 0820 | 0860 | 3270 | | | | | | | | | | | | | | | | | |
| STRT1 | 0008 | 0300 | | | | | | | | | | | | | | | | | | | |
| TESTC | 004A | 0650 | | | | | | | | | | | | | | | | | | | |
| TINIT | 03AE | 0380 | 5860 | 6110 | | | | | | | | | | | | | | | | | |
| TMSGD | 037D | 0440 | | | | | | | | | | | | | | | | | | | |
| TMSGP | 0382 | 3510 | | | | | | | | | | | | | | | | | | | |
| TMSGR | 03A4 | 3710 | | | | | | | | | | | | | | | | | | | |
| TMSGV | 0394 | 4550 | | | | | | | | | | | | | | | | | | | |
| TXFER | 019F | 0790 | | | | | | | | | | | | | | | | | | | |
| TXFR2 | 01A6 | 2540 | | | | | | | | | | | | | | | | | | | |
| TXLUP | 01B2 | 2660 | | | | | | | | | | | | | | | | | | | |
| VERFY | 01BF | 0810 | | | | | | | | | | | | | | | | | | | |
| VFLUP | 01CF | 3010 | | | | | | | | | | | | | | | | | | | |
| VFNXT | 01EE | 2860 | | | | | | | | | | | | | | | | | | | |
| VFY2 | 01C3 | 2740 | | | | | | | | | | | | | | | | | | | |
| WAIT | 0301 | 1070 | 1370 | 1970 | 2420 | 2590 | 2790 | 2960 | 3130 | 3250 | 3400 | 5020 | | | | | | | | | |
| | | 5070 | | | | | | | | | | | | | | | | | | | |

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