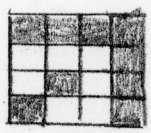
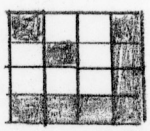
HIGH-RES "TEST ROTATE" ROUTINE (ROTATE 4x4 DIXEL PATTERN)

USE LOW-RES MLM AND CALL 8000_H

```
8000H F3          DI                    DISABLE ANY SCREEN INTERRUPT
       3E 01      LD A,01H              MAP SCREEN IN HIGH-RES
       D3 08      OUT (CONSM),A
8005H 11 00 40    LD DE,4000H           CLEAR TOP 10 LINES 80x10 = 800D
       01 20 03   LD BC,0320H           0320H
       AF         XOR A  A=0 FILL WITH
       EB         EX DE,HL              00H
MFILL
MFILL1 800DH 77   LD (HL),A
       ED A1      CPI
       EA 0D 80   JP PE,MFILL1          CLEAR SCREEN (SIMILAR TO ON-BOARD SUB#26)
8010H  3E 04      LD A,04               A=MAGIC REGISTER, SET ROTATE BIT, PLOP THE WRITE,
       D3 0C      OUT (MAGIC),A         OUTPUT "ROTATE" TO MAGIC REG
       31 70 7F   LD SP,7F70H           SET STACK POINTER
       11 27 00   LD DE,0027H           SET MAGIC ADDRESS HALFWAY, TOP LINE, BYTE 39D
       D5         PUSH DE               SAVE MAGIC ADDRESS
       21 2B 80   LD HL,IPAT            HL=PATTERN ADDRESS
8021H  E5         PUSH HL               SAVE PATTERN ADDRESS
       CD 2F 80   CALL WRITE            WRITE PATTERN
       E1         POP HL                DE=INITIAL MAGIC ADDRESS
       D1         POP DE                HL=PATTERN ADDRESS
       CD 2F 80   CALL WRITE            WRITE INITIAL PATTERN, 2ND TIME
       76         HALT                  HALT Z80, NOP'S NOW ON
IPAT   802BH 55   LINE 1
             01          2
             11          3
             41          4
WRITE  802FH 01 01 04    LD BC,0401H     B=YSIZE, C=XSIZE (PATTERN SIZE)
WRITE1 8032H C5          PUSH BC         SAVE YSIZE
       D5                PUSH DE         SAVE MAGIC ADDRESS
       06 00             LD B,00H
       ED B0             LDIR            WRITE A BYTE, (DE)←(HL)
       D1                POP DE          DE=MAGIC ADDRESS
8039H  EB                EX DE,HL        HL=
```



INITIAL PATTERN



ROTATED 90°

WRITE PATTERN SIMILAR TO SUB #38, MWRT

Address	Code	Low Res	Instruction	Comment
$803A_H$	0E 50	28	LD C, 50_H	HIGH-RES, 80_D BYTES/LINE
	09		ADD HL, BC	HL = MAGIC ADDRESS, NEXT LINE
	EB		EX DE, HL	DE =
	C1		POP BC	C = PATTERN X SIZE AGAIN
	10 F1		DJNZ WRITE 1	WRITE PATTERN NEXT LINE
8041_H	C9		RET	

15_D

0000 1111
1111 0000
+1
1111 0001 — 2's COMPLEMENT JMP BACK (NEG) 15 BYTES

F 1_H

COMMENTS:

THE ABOVE "ROTATE" ROUTINE ROTATES A 4×4 PIXEL PATTERN THAT RESIDES IN USER RAM AT $802B_H$. THE ROUTINE DOES THE FOLLOWING:

SETS MY HIGH-RES ASTROCADE SCREEN MAP TO "HIGH-RES".
CLEARS THE TOP 10 LINES ON SCREEN.
OUTPUTS "ROTATE" BIT TO MAGIC REGISTER.
SETS MAGIC ADDRESS TO DISPLAY ROTATED PATTERN MIDWAY AT TOP OF SCREEN
WRITES INITIAL PATTERN AT $802B_H$ BEGINNING AT THAT MAGIC ADDRESS.
WRITES THE INITIAL PATTERN A 2ND TIME AT THE SAME EXACT MAGIC ADDRESS
THE ASTROCADE HARDWARE THEN ROTATES THE INITIAL PATTERN 90 DEGREES.
THE Z80 HALTS AND CONTINUES EXECUTING NOP'S UNTIL YOU PRESS THE ASTROCADE RESET BUTTON.

NOTES: THE "ROTATE" FUNCTION ALSO OPERATES IN LOW-RESOLUTION. SEE NEXT PAGE,

THE ROTATE FUNCTION MOST LIKELY CAN BE COMBINED WITH OTHER MAGIC FUNCTIONS LIKE OR, XOR. THE SHIFT FUNCTION REQUIRES A "CLEAR" BYTE AFTER EACH PATTERN LINE IS WRITTEN TO COMPLETE THE SHIFT. WHETHER YOU CAN ROTATE AND FLOP, ROTATE AND EXPAND IS LEFT TO EXPERIMENTATION. REFER TO SUB#38, WRITA IN "NUTTING MANUAL'S" DISASSEMBLED LISTING TO EXAMINE HOW THESE FUNCTIONS CAN BE WRITTEN.

LOW-RES "TEST ROTATE" ROUTINE (PAGE 3 ROTATE 4×4 PIXEL PATTERN)

USE THE SAME HIGH-RES "TEST ROTATE" ROUTINE, BUT CHANGE THE FOLLOWING BYTES (4 BYTES CHANGED FOR LOW-RES TEST)

8001_H 3E 00 ← LOW RES (OUTPUT ZERO TO PORT 5)

8017_H 31 70 4F ← LOW RES SET STACK POINTER TO $4F70_H$

$801A_H$ 11 13 00 ← LOW RES HALFWAY, TOP LINE, BYTE 19_D

803A 0E 28 ← LOW RES LOW-RES, 40_D BYTES/LINE

GUESS WHAT? MAGIC "ROTATE" FUNCTION DOES WORK IN LOW-RES, BUT USER HAS TO WRITE ROUTINE TO TELL HARDWARE TO ROTATE THE PATTERN. THE ON-BOARD GRAPHIC SUBROUTINES IN LOW-RES ROM DO NOT SUPPORT THE "ROTATE" FUNCTION.

NOTE: WITH APPROPRIATE CHANGES, YOU COULD RE-WRITE THIS ROUTINE TO RESIDE AT $4E10_H$ FOR USE WITH BIT FIDDLER'S MLM. THE ROUTINE DOES NOT HAVE TO RESIDE AT 8000_H OR HIGHER FOR THE LOW-RES ROTATE TEST.