

low-chang display of  
Star of David on a star  
field

- 1.
- 2.
- 3.

4. STAR GRAPHIDS

```
5 CLEAR;BC=0;FC=235;RETURN;NT=0;&(10)=1
6 FOR A=1 TO 200;BOX RND(160)-80,RND(88)-44,1,1,1;NEXT A
7 FOR A=0 TO 180;&(10)=A; NEXT A
8 &(17)=50;&(18)=25;&(19)=100;&(16)=8;&(21)=240;&(22)=188;
  FOR A =1 TO 10;&(16)=10-A;&(23)=Ax5;NEXT A
9 &(21)=205;&(23)=0
10 B=RND(8);A=Bx2
15 &(16)=BxRND(10)x2
25 C=RND(3)
30 D=RND(4);IF D=1 C=3
32 E=RND(20);FOR F=1 TO E
40 A=A+Dx2;B=B+D
45 IF B>20 GOTO 10
50 LINE-A,-B,4
60 LINE 0,(Bx2),C
70 LINE A,-B,C
80 LINE-A,-B,C
90 LINE 0,-(Bx2),4
100 LINE A,B,C
110 LINE-A,B,C
125 &(18)=Bx5;&(19)=Bx10-A;&(17)=-Bx10+(-A)
130 NEXT F
140 GOTO 10
```

RAINBOW DISPLAY #2  
BY LARRY SMITH R&L IND.

- B=8438
- C=20084
- D=-6715
- E=8693
- F=20078
- G=-14722
- H=30472
- I=2054
- J=-11459
- K=4107
- L=9211
- M=-14722
- N=6 (192;#of bars)
- O=-16130
- P=824
- Q=30639
- R=-11477
- S=30479
- T=-7695
- U=-1087
- V=-3127
- W=20030
- X=18413
- Y=29246
- Z=3539
- BC=-13829

- 1.

2. RAINBOW DISPLAY #1

```
3 &(9)=0;&(10)=213
4 &(14)=255
5 CLEAR;A=20180;B=A;C=150
10 X=213;GOSUB C
20 X=5140;GOSUB C
30 X=5140;GOSUB C
40 X=5140;GOSUB C
50 X=5140;GOSUB C
80 X=-11398;GOSUB C
90 X=1039;GOSUB C
100 X=-11400;GOSUB C
110 X=-11776;GOSUB C
120 X=20182;GOSUB C
130 Call B
150 &(A)=X;A=A+2;RETURN
```

Lines 1&2 must be deleted before running. Start & stop tape to sync. middle of screen. (once run, program cannot be halted)

This mach. prog. is run in variable buffer space B→Z+BC which is the following byte) &(20130). Set NT to 0-Enter the variables & BC manually-&(9)=20-:INPUT;CALL 20121--& you get 64 colors. To add the 11 01 10 00 boxes, (to get almost all 256)-halt & enter this- 10 FOR X=16684TO19998STEP20;FOR Y=0TO4;&(X+Y)=255;NEXT Y;FOR Y=YTO9;&(X+Y)=170;NEXT Y;FOR Y=YTO14;&(X+Y)=85;NEXT Y;FOR Y=YTO19;&(X+Y)=0 20 NEXT Y;NEXT X;X=18413;Y=29246;Call 20121 Then-:INPUT;RUN(NT must be reset to 0 first) If you have a K:B. that plugs in light pen You can enter the above w/o line #'s while the program is running. (it has l.p. interup) Change to-"FOR X=16384..."&delete everithing after NEXT X...To print out variables to tape-:PRINT;FOR A=20080TO20128STEP 2;TV=A÷2-9974+RM;TV=61;PRINT #0,&(A);NEXTA;PRINT BC=-13829

OPCODE FOR RAINBOW DISPLAY #1

Address location	Opcode And mnemonic	Comments	Swap bytes	decimal " % " numbers
20180	D5 PUSH DE	Save basic pointer	00D5	213
	<del>00</del> NOP	Filler		
20182	14 INC D	Line # inc.'s	1414	5140
	14 "	↓		
20184	14 "		1414	5140
	14 "			
20186	14 "		1414	5140
	14 "			
20188	14 "		1414	5140
	14 "			
20190	7A LD A,D	Load acc. line#	D37A	-11398
	D3 OUT(<B2>),A	Send line# to		
20192	<del>0F</del> (<B2>)	port FH(line int.reg.)	<del>040F</del>	1039
	<del>04</del> INC B	Inc. color #		
20194	78 LD A,B	Load acc. w/color#	D378	-11400
	D3 OUT(<B2>),A	Send color to		
20196	<del>00</del> (<B2>)	port "0"	<del>D200</del>	-11776
	D2 JP NC<B3>,<B2>	Jump to"D"		
20198	D6 <B2>	increments	4ED6	20182
	4E <B3>	Address of jump 4ED6(20182)		

&(14) in program sets light pen interrupt bits. &(10) helps timing. Also allows more colors to be seen. 2-80 inc's. simply overflow to 0 after 255.

*T17*

METHOD OF RECORDING GRAPHICS ON TAPE

If you want to record a graphics picture, (or anything that's on the screen.), add this line to the program that produces it first.

```
IF TR(1) NT=1;:PRINT;FOR A =16384 TO 19983;CX=-76;CY=40;TV=%(N);NEXT N
```

After adding this to your program, punch in; B=%(20050) Then PRINT B . The number you get will be used again when inputting the picture.

When a pattern is produced that you want to record, start your tape, and pull the trigger. Only the upper left most corner will be disturbed as it dumps to tape. Be sure you have enough tape, as it takes ≈ 4 min. 37 sec. worth.

To input PX & prog. from tape, set up any colors etc. , first, then

```
CLEAR; :INPUT; FOR A = 16384 TO 19983; %(A)=KP; NEXT A; %(20050)="the number you got earlier for B " Then "GO" and start tape.
```

When the cursor appears in upper left, the dump is completed. HINT: Put your color #'s and "B" on a tag on your tape cassette with the picture on it , so you dont forget it. (Without %(20050) the computer doesn't know the last byte in your program , and you won't be able to change lines in it later.)

Both the record, and input procedure must be error free to get program intact.