

Ed Horger
1250 Dickens
Troy, Mich. 48084

4, 18, 83

Dear Bob,

Here is a portion of what I've been working on. If you think there is any interest in the monitoring of switch positions, this may be helpful to those who are.

With only a few minor changes, this scan can be tailored to fit almost any need. Such as, the HL register points to the note value for each key, or it could point to information regarding a particular switch. Example, "Back door is open". The time delay may have to be lengthened as wires get longer, (60B4, B5). The way in which the diodes and resistors are used insure against false readings. All resistors must be there, but only those output bits being used need a diode. Figure 2 shows all possible switches and is scanned from bottom to top and right to left. Therefore the first switch would be row 8, column 8.

The program was extracted from different areas of my 1K program and re numbered. Some instructions and data were zeroed out, as they were not essential for the execution of this scaled down version. This is also short enough to be run off the screen interrupt.

Thank you, and hope to see you at the Astrocade days.

all P. S. Dust covers have been discontinued.



TURN YOUR ARCADE
INTO A

MUSIC cade

FOR 3 VOICE MUSIC AND
MORE

Construction: 8 diodes (1N914 or 1N4148),
8 resistors (4.7K), ribbon cable, wire, one
SPST switch for each key in your
keyboard. A good electric key-
board is available by mail
from Poly Packs,
16-18 Del Carmine St.
Wakefield, MA. 01880

This keyboard will need to be
rewired according to Fig.2 at
the right, in order to work.

Diodes are installed with the
banded end towards port A.

Theory: Each row is grounded
one at a time, (ground is the
same as 0, low logic, as in
figure 1), then the results
are read from input port B.
Each column is held high by
tying it through a resistor
to 5 volts UNLESS a key is
pressed. Then what happens is
a 0 will show up in the column
or corresponding bit and will
represent a key closure when,
and ONLY when the appropriate
row is grounded. In this way
your ASTROCADE can read as
many as 64 different key or
switch positions hundreds of
times per second!!

Of course the Blue Ram is a
must or at least a PIO.
Perkins Eng. supplies the pin
configuration for their ZIF
socket. You should refer to
this when designing your own
keyboard. You need not have
all 64 switches, BUT, all diodes
and resistors must be in place
to prevent "stray pickup".

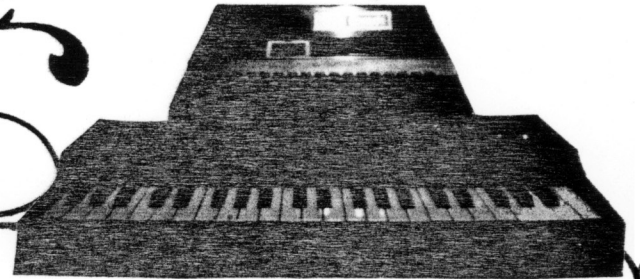


FIG. 1

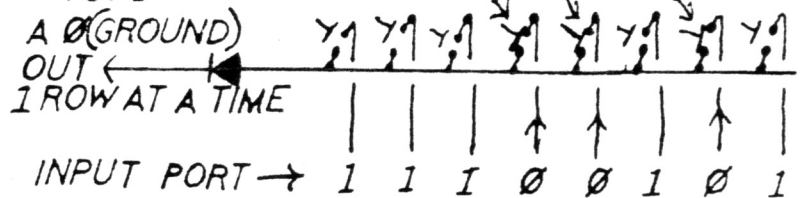
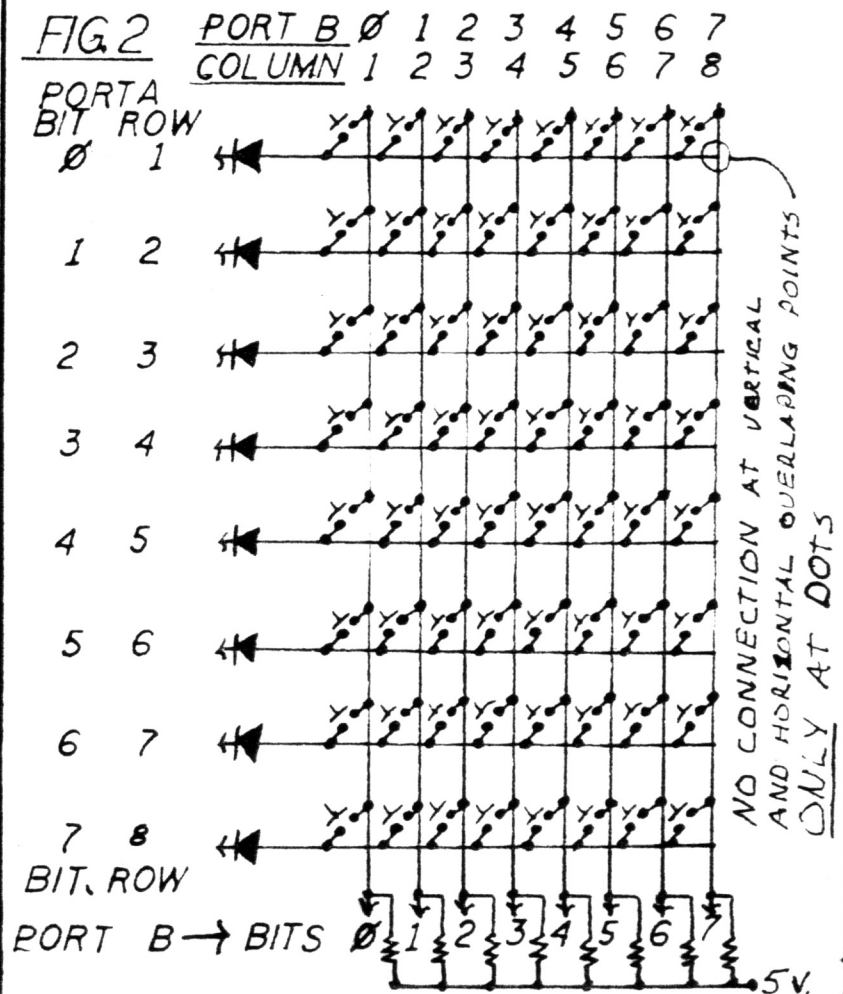


FIG. 2



Here's a 3 voice scan program that provides polyphonic music or with some modification and additions, a burglar alarm system for every window and door in your home.



ED HORGER
1250 Dickens
Troy, Michigan
48084

6000: F3 DI	602B: 77 FIRST	6056: 00	6082: 88	60AD: 00
01: 00	2C: 60 NOTE	57: 00	83: 80	AE: 00
02: 00	2D: 06 LD B	58: ED OUT (HL)	84: 78	AF: 00
03: 00	2E: 03 3	59: A3 PORT C	85: 72	B0: 00
04: 00	2F: 0E LD C	5A: C3 JUMP	86: 6B	B1: F5 PUSH AF
05: 00	30: 11 17	5B: 4B	87: 65	B2: C5 PUSH BC
06: 00	31: 08 EXX AF	5C: 60	88: 5F	B3: 01 LD BC
07: 00	32: D9 EXX RP	5D: 08 EXX AF	89: 5A	B4: 00
08: 00	33: CB ROTATE	5E: D9 EXX RP	8A: 55	B5: 02
09: 3E LD A	34: 13 E LEFT	5F: 60 NOP	8B: 50	B6: 0D DEC C
0A: FF 255	35: D2 JUMP NC	60: 88 NOP	8C: 4B	B7: CA JUMP Z
0B: D3 OUT A	36: 5D SHUT	61: AF XOR A	8D: 47	B8: BD
0C: 16 PORT 22	37: 60 OFF	62: 05 DEC B	8E: 43	B9: 60
0D: D3 OUT A	38: ED OUT C	63: CA JUMP	8F: 3F	BA: C3 JUMP
0E: A2 PORT 16	39: 59 E	64: 72	90: 3C	BB: B6
0F: 3E LD A	3A: 08 EXX AF	65: 60	91: 39	BC: 60
10: OF 15	3B: D9 EXX RP	66: 05 DEC B	92: 35	BD: 05 DEC B
11: D3 OUT A	3C: CD CALL	67: CA JUMP	93: 32	BE: C2 JUMP NZ
12: 15 PORT 21	3D: B1 TIME	68: 6E	94: 2F	BF: B6
13: 00	3E: 60 DELAY	69: 60	95: 2C	CO: 60
14: 00	3F: DB IN A	6A: AF XOR A	96: 2A	C1: C1 POP BC
15: 00	40: A1 PORT 161	6B: 00 NOP	97: 27	C2: F1 POP AF
16: 00	41: 16 LD D	6C: D3 OUT A	98: 25	C3: C9 RETURN
17: 3E LD A	42: 08 8	6D: 11	99: 23	C4: 00
18: 31 49	43: 1F ROTATE A	6E: D3 OUT A	9A: 21	
19: D3 OUT A	44: D2 JUMP NC	6F: 12	9B: 1F	Change 602B to point
1A: 10 PORT 16	45: 58 LD	70: 04 INC B	9C: 1D	to first (left most)
1B: 00	46: 60 NOTE	71: D3 OUT A	9D: 1C	key on your keyboard
1C: 00	47: 23 INC HL	72: 13	9E: 1A	CHANGE 6026 to adjust
1D: 00	48: C3 JUMP	73: 04 INC B	9F: 18	to your size keyboard
1E: 00	49: 4F	74: C3 JUMP	AO: 17	FE- 56 keys
1F: 37 SCF	4A: 60	75: 1F	A1: 16	FD- 48 "
20: 08 EXX AF	4B: CA JUMP Z	76: 60	A2: 14	FB- 40 "
21: D9 EXX RP	4C: 1F	77: FE NOTE	A3: 13	F7- 32 "
22: 0E LD C	4D: 60	78: F1 TABLE	A4: 12	EF- 24 "
23: AC 160	4E: 0C INC C	79: B6	A5: 11	DF- 16 "
24: 37 SCF	4F: 15 DEC D	7A: D8	A6: 10	BF- 8 keys
25: 1E LD E	50: CA JUMP Z	7B: CD	A7: 0F	For 64 keys, this
26: FE 254	51: 31	7C: C0	A8: 0E	location should be
27: D9 EXX RP	52: 60	7D: B4	A9: 0D	FF and add 3F to
28: 08 EXX AF	53: C3 JUMP	7E: AB	AA: 0C	location 6029
29: 00	54: 43	7F: A0	AB: 00	
2A: 21 LD HL	55: 60	80: 98	AC: 00	GOOD LUCK
		81: 8E		

Time Delay

6077
to
60AC

Change 602B to point to first (left most) key on your keyboard
CHANGE 6026 to adjust to your size keyboard
FE- 56 keys
FD- 48 "
FB- 40 "
F7- 32 "
EF- 24 "
DF- 16 "
BF- 8 keys
For 64 keys, this location should be FF and add 3F to location 6029
GOOD LUCK