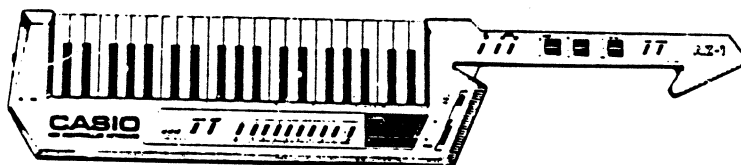


SERVICE MANUAL & PARTS LIST

AZ-1

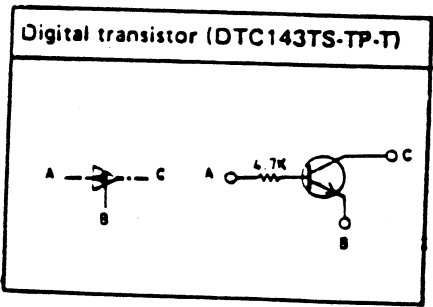
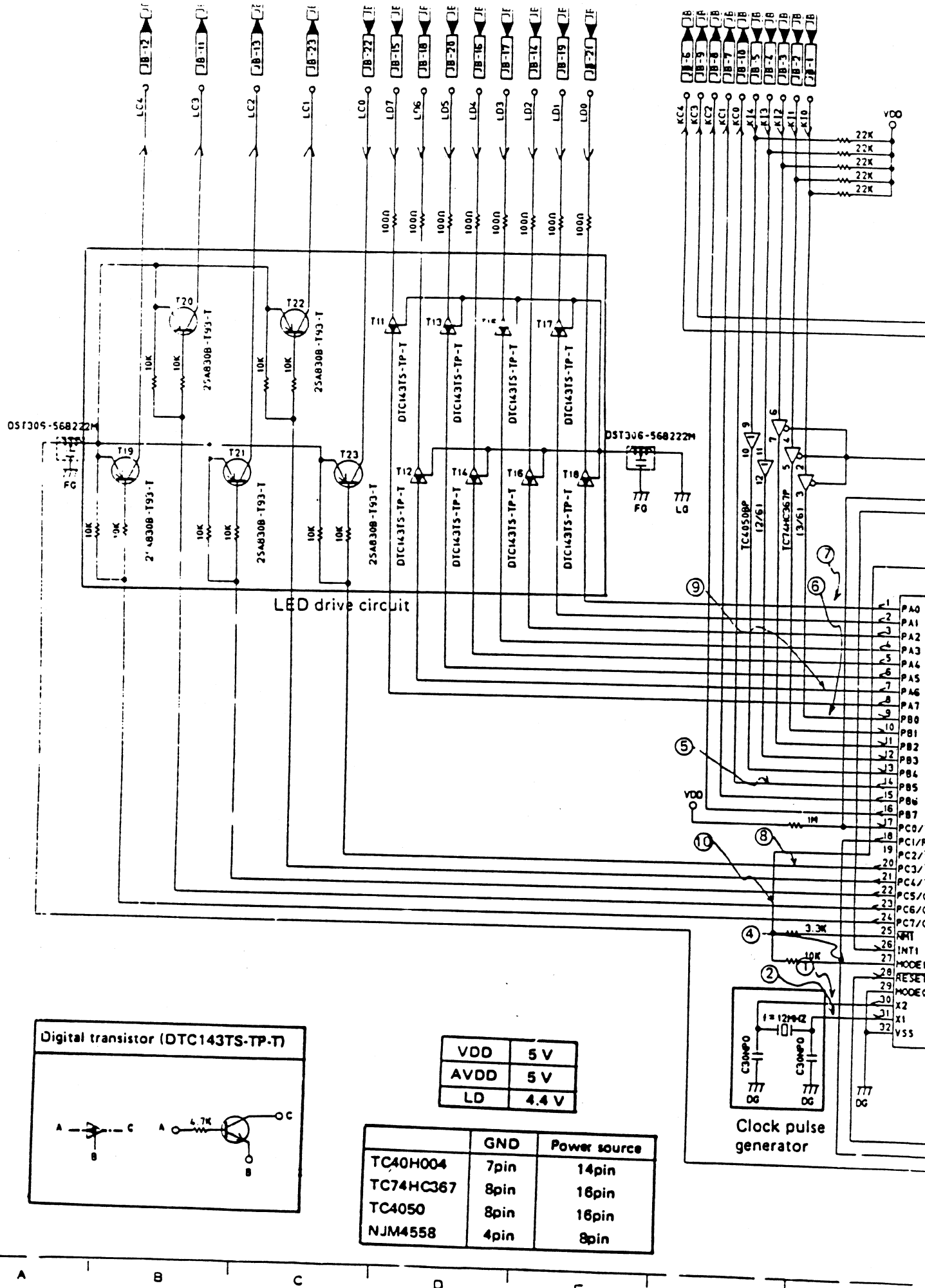


AZ-1

CASIO.

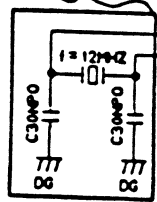
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VDD	5 V
AVDD	5 V
LD	4.4 V

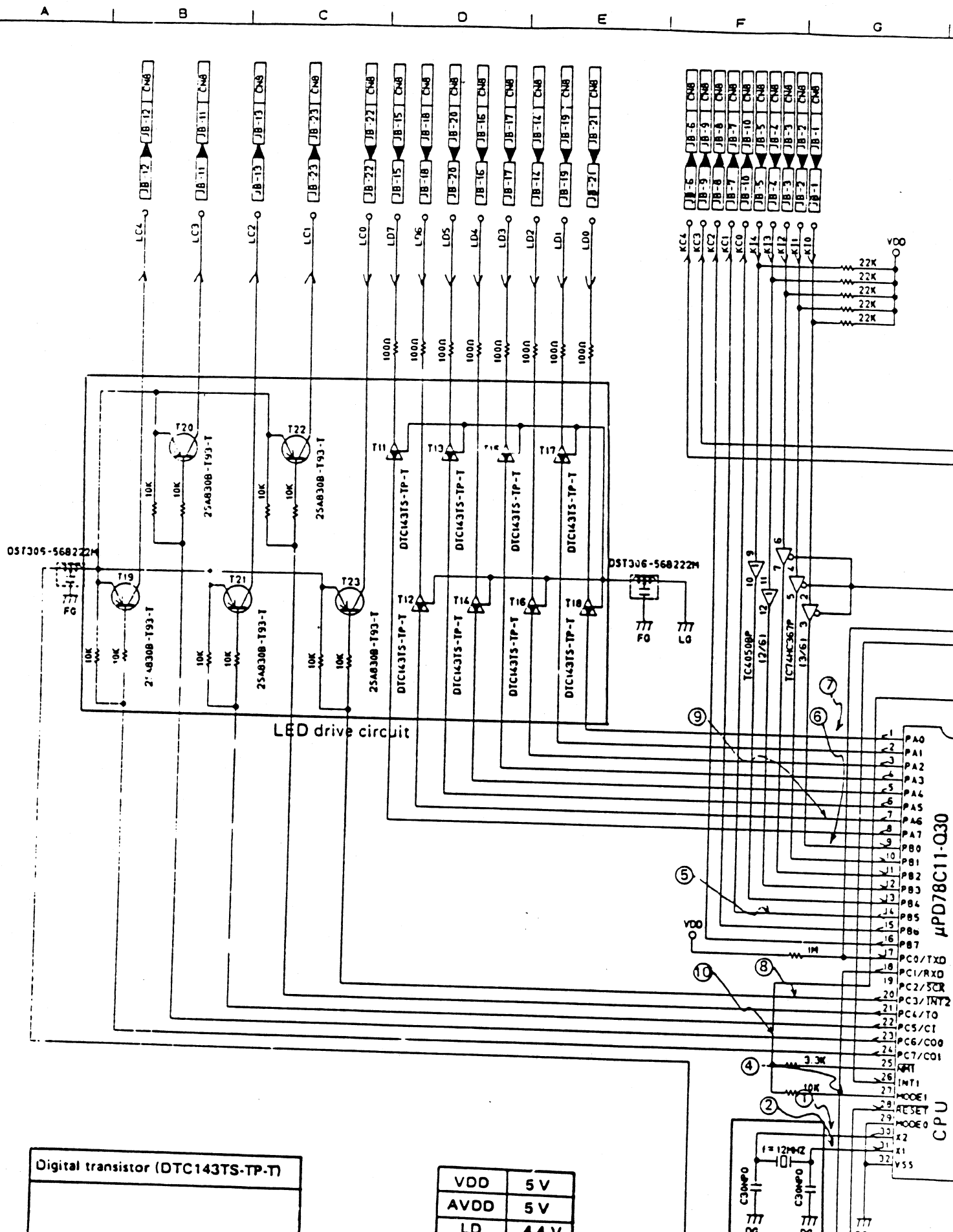
	GND	Power source
TC40H004	7pin	14pin
TC74HC367	8pin	16pin
TC4050	8pin	16pin
NJM4558	4pin	8pin



Clock pulse generator

1. SCHEMATIC DIAGRAM

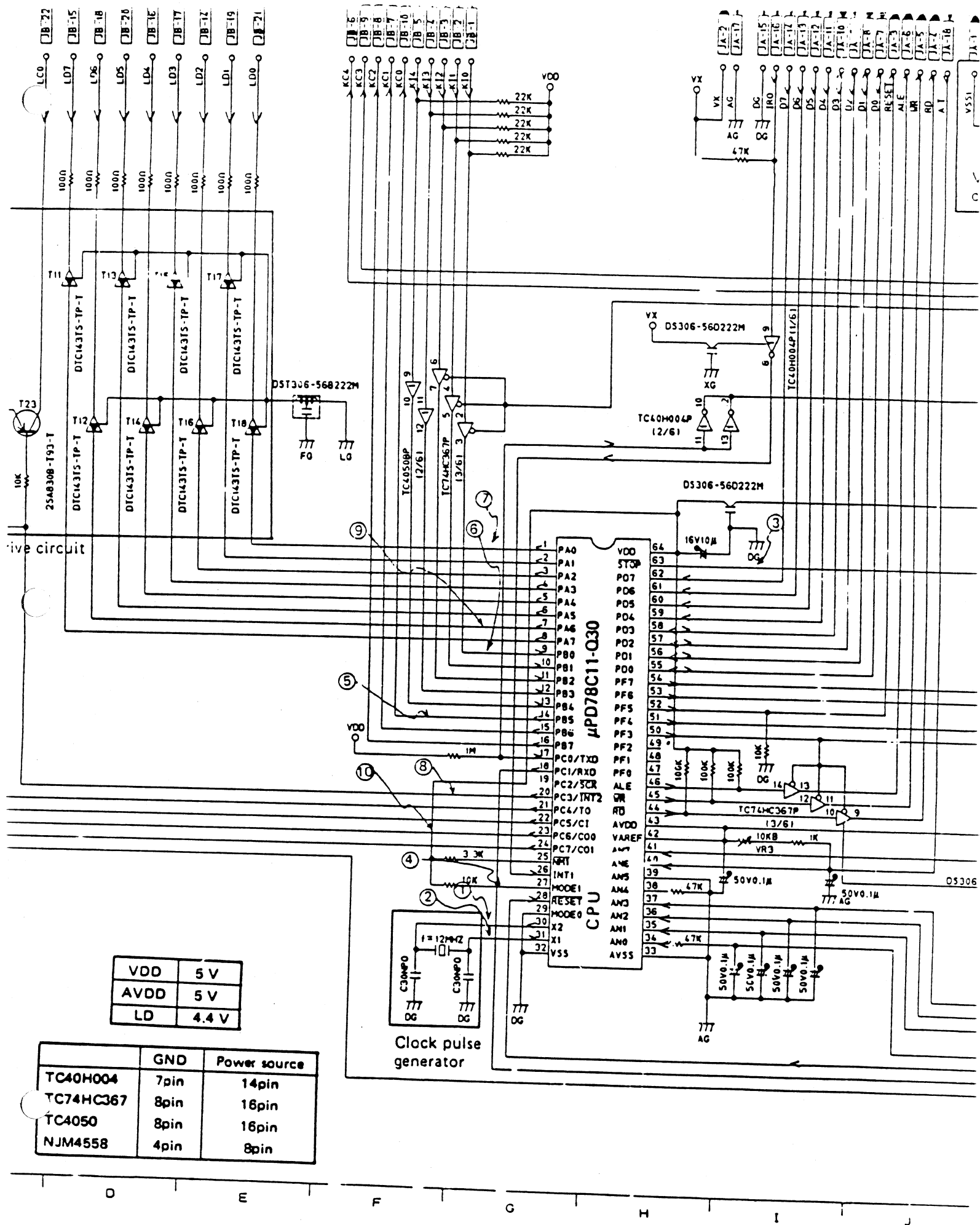
1-1. Main PCB M3267-MA1M



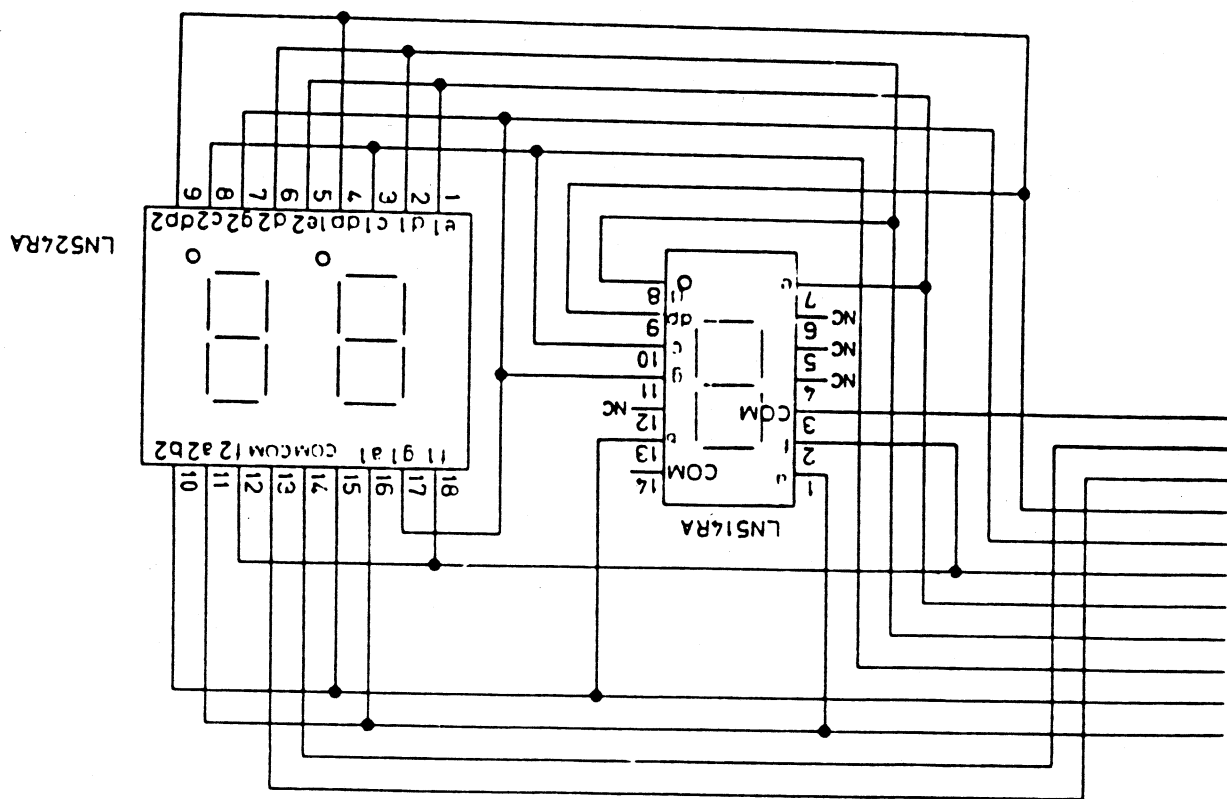
VDD	5 V
AVDD	5 V
LD	4.4 V

	GND	Power source
TC40H004	7pin	14pin
TC74HC367	8pin	16pin
TC4050	8pin	16pin
NJM4558	4pin	8pin

Clock pulse generator



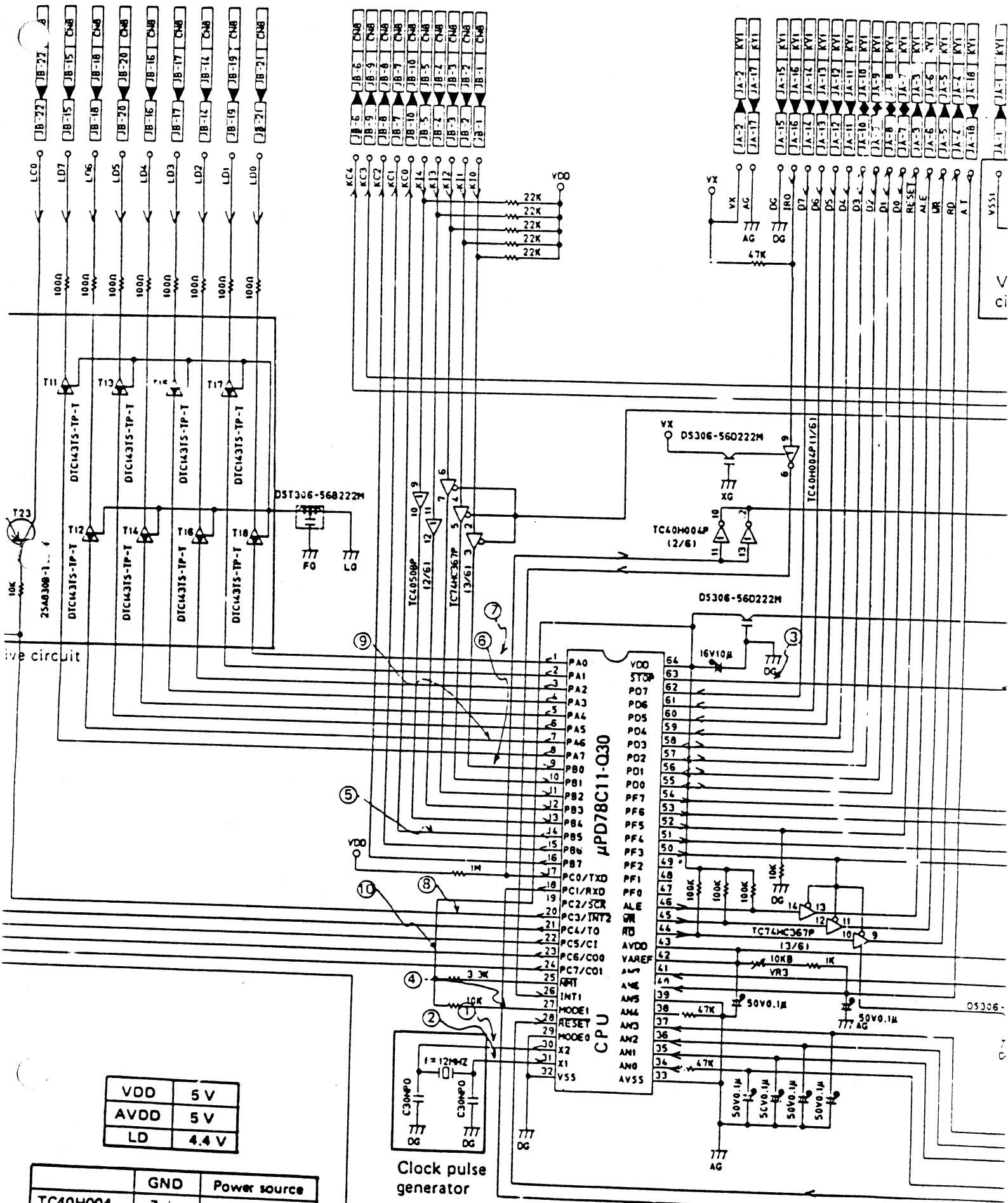
1-7. LED Display PCB M3267-CN9

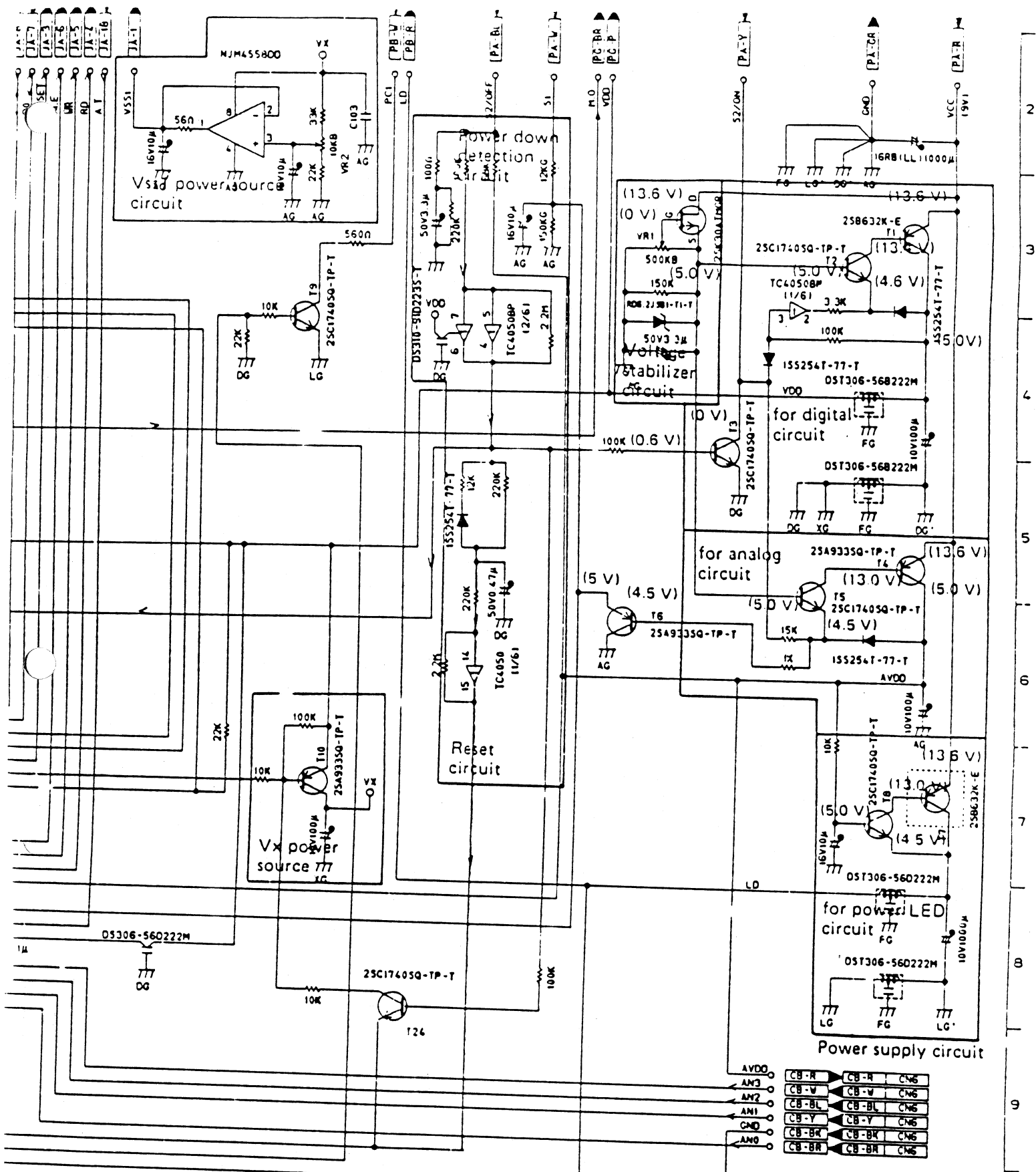


VDD	5 V
AVDD	5 V
LD	4.4 V

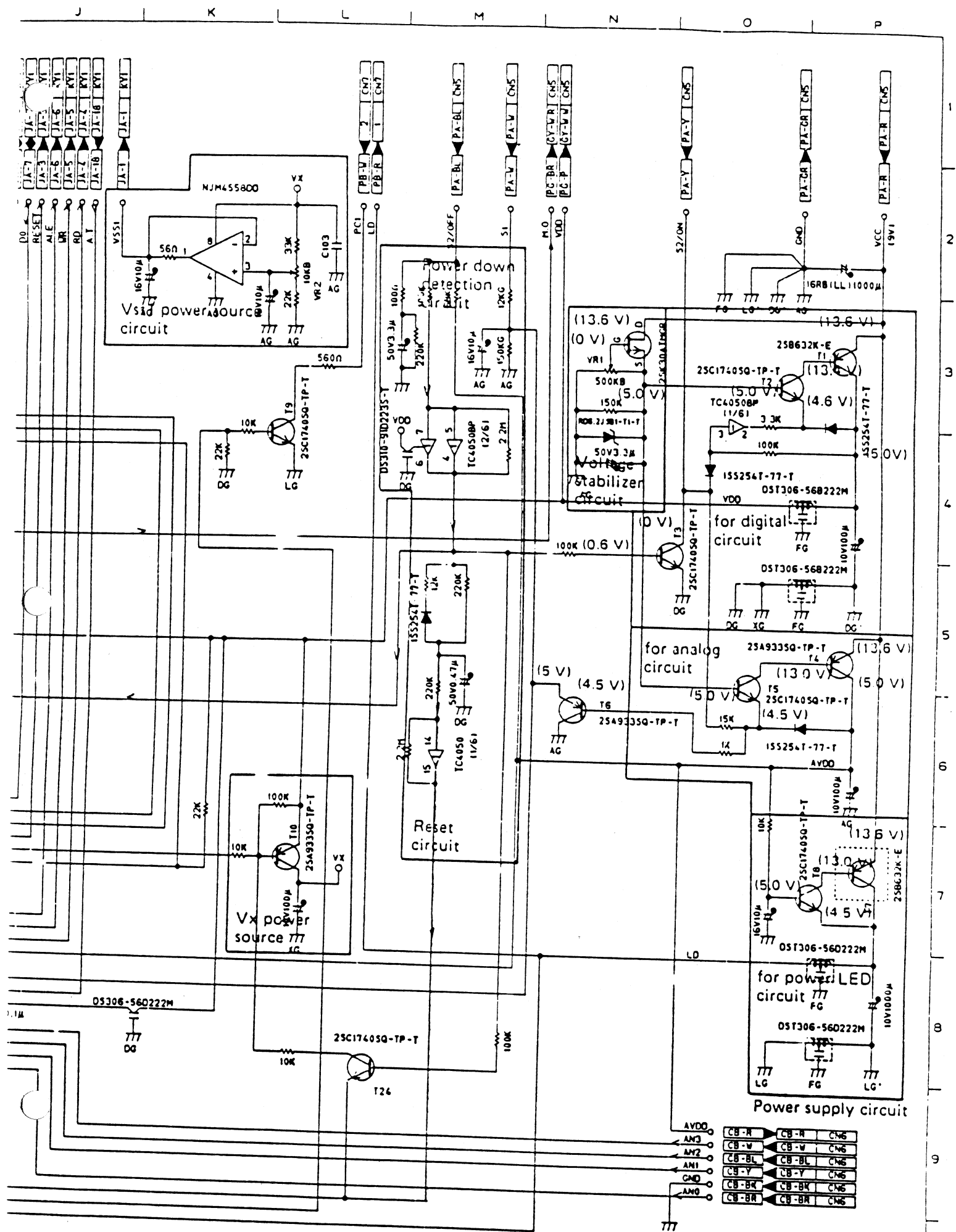
	GND	Power source
TC40H00M	7pin	14pin

Clock pulse generator





Note: Voltages in shown () is using AD-5.



After touch

AFTER +
AFTER -

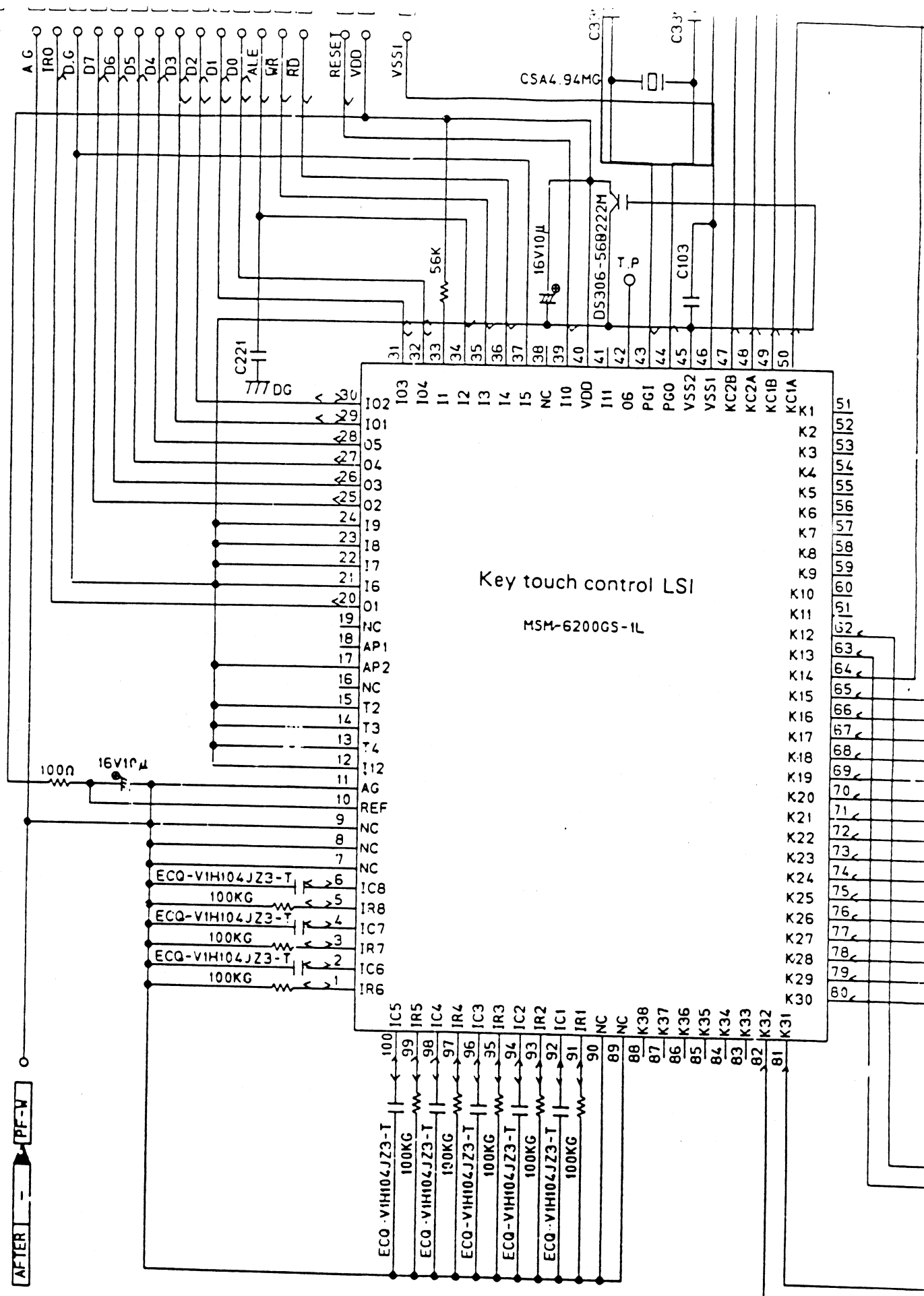
A

B

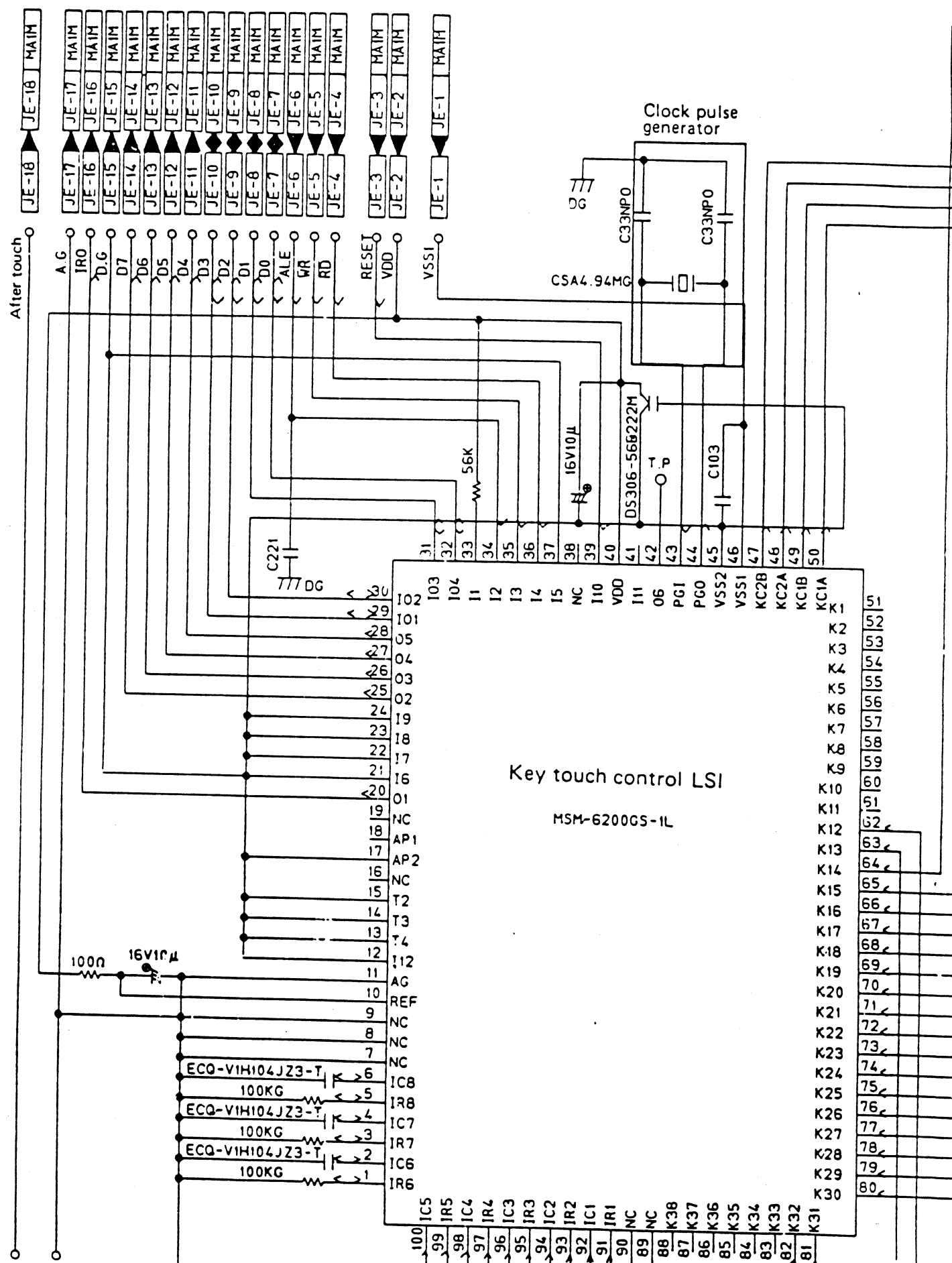
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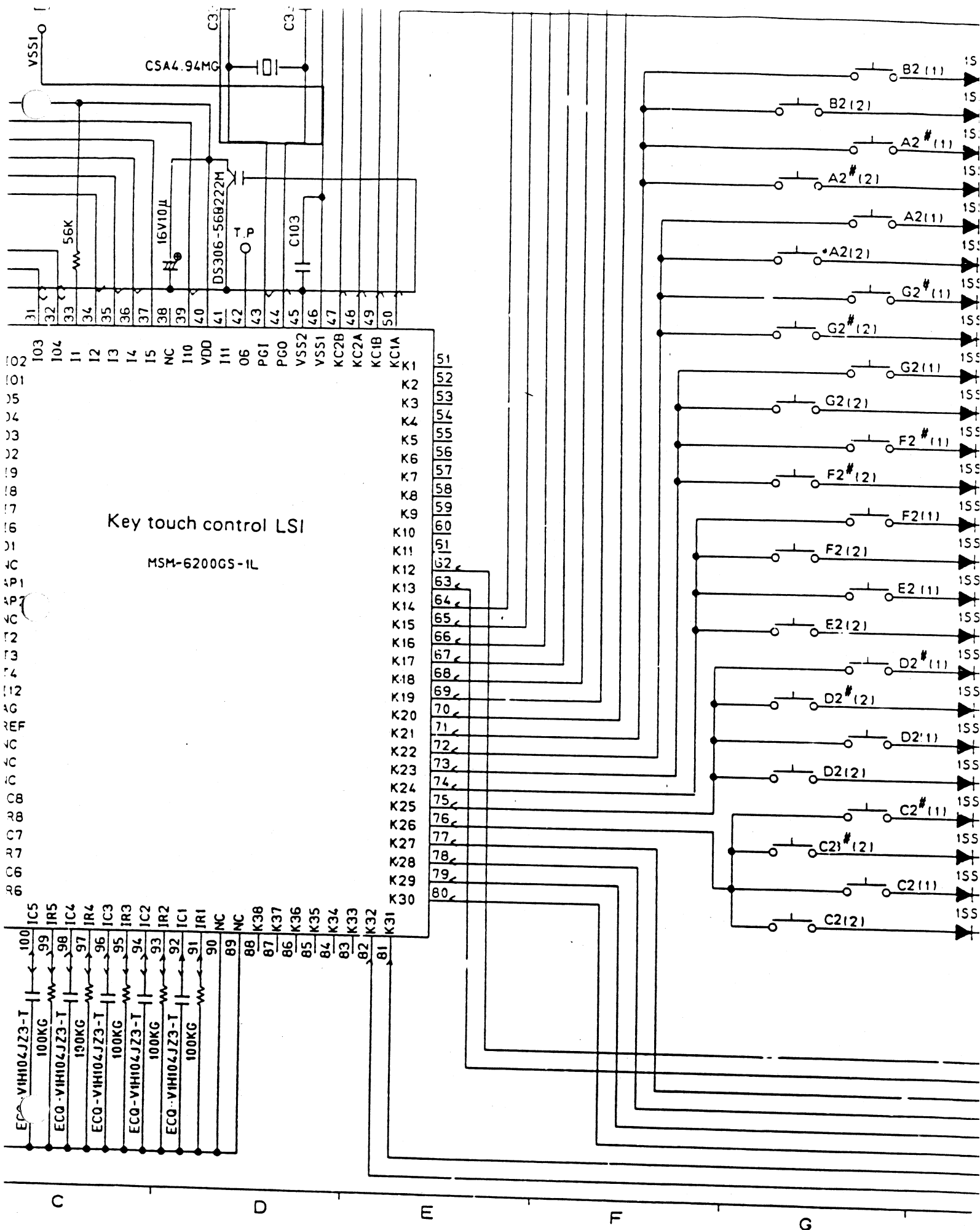
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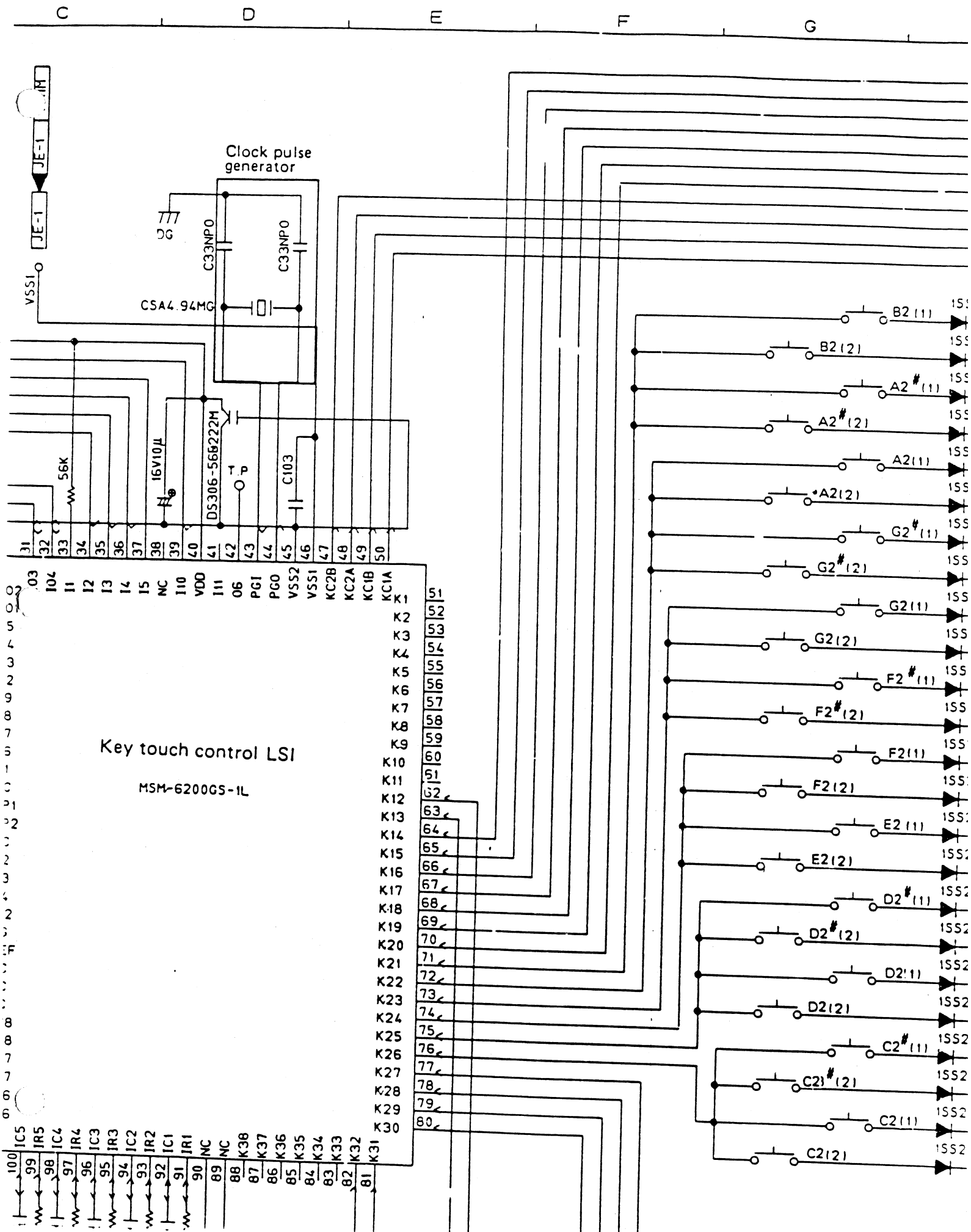
E

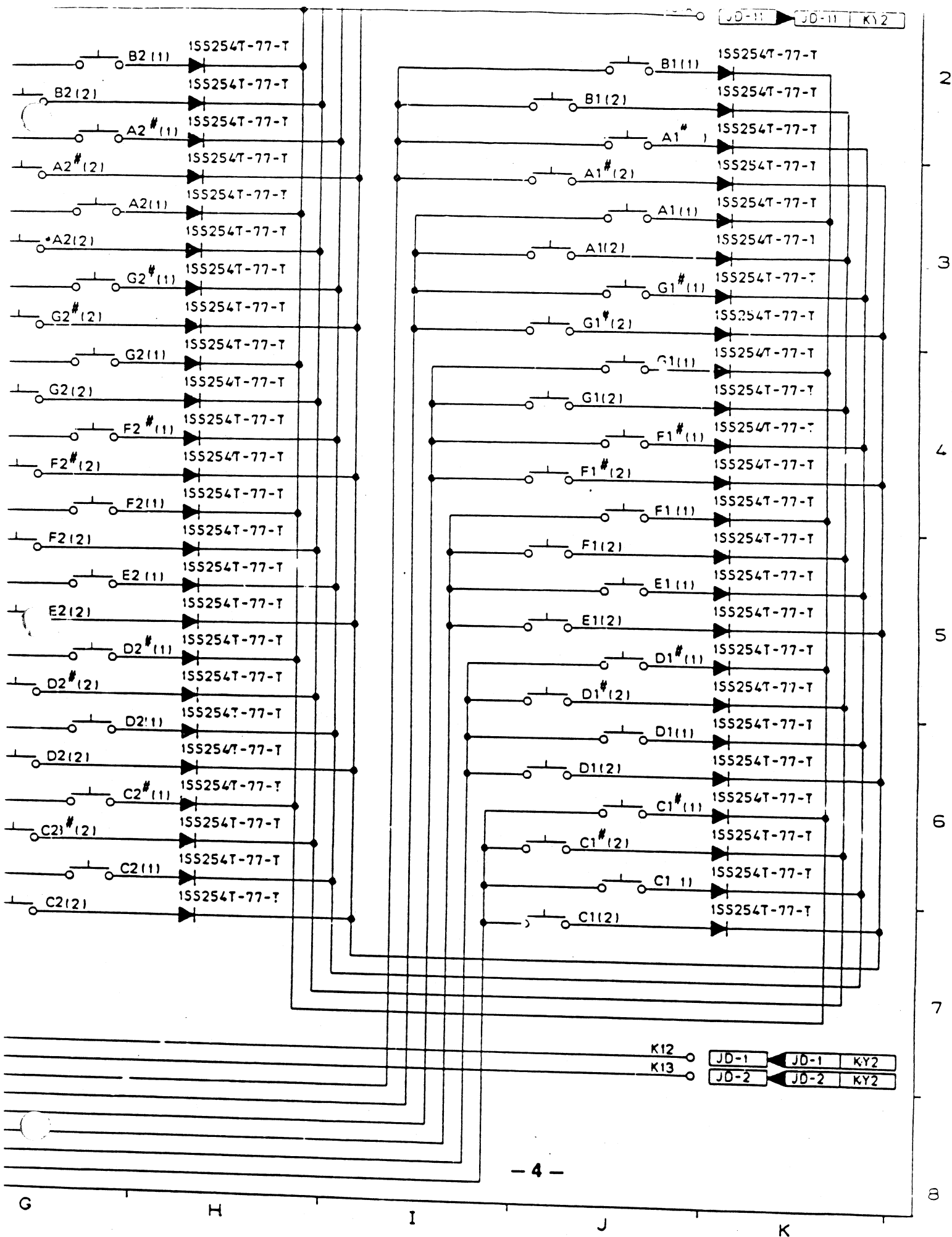


A number line with points A, B, C, D, and E marked. A is at 0, B is at 1, C is at 2, D is at 3, and E is at 4.



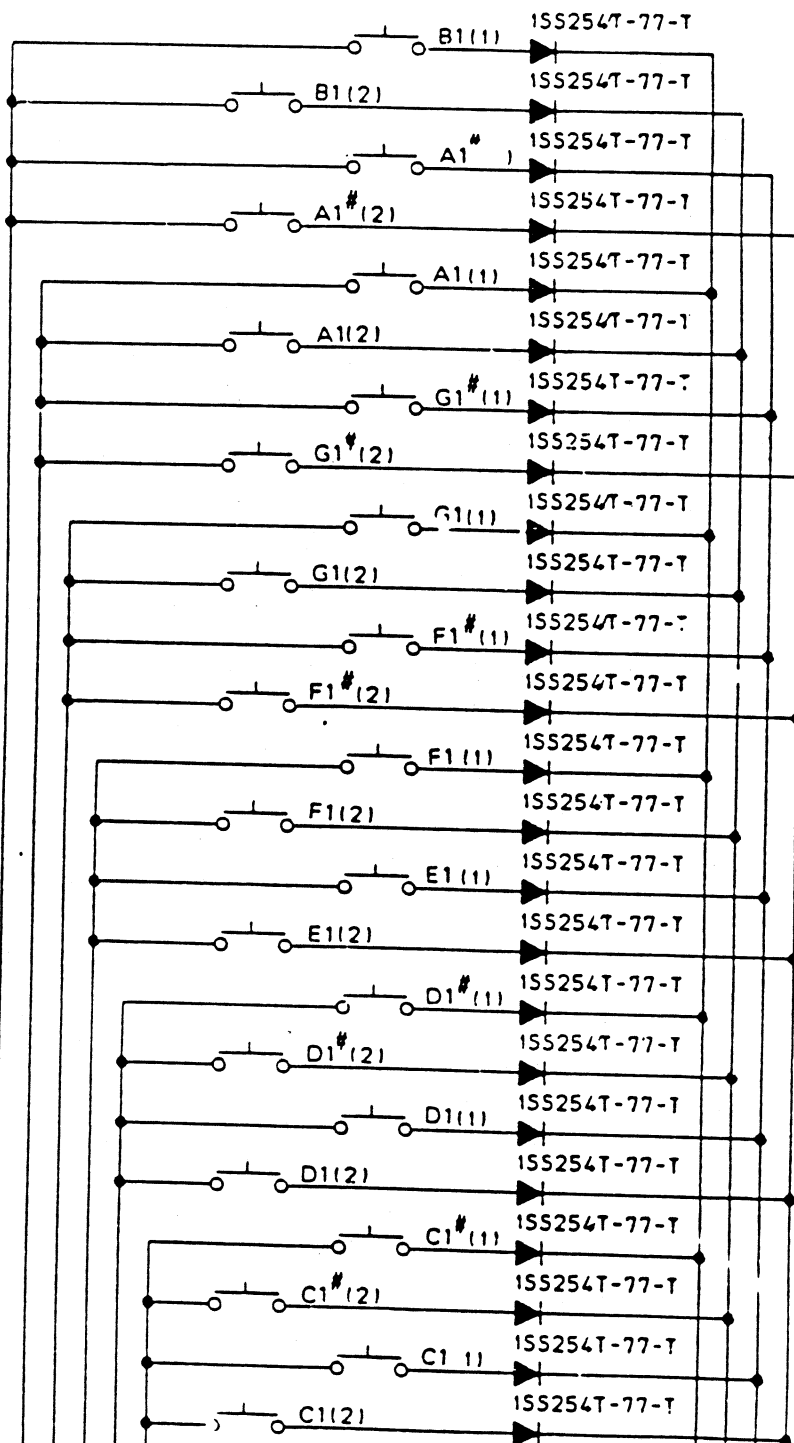
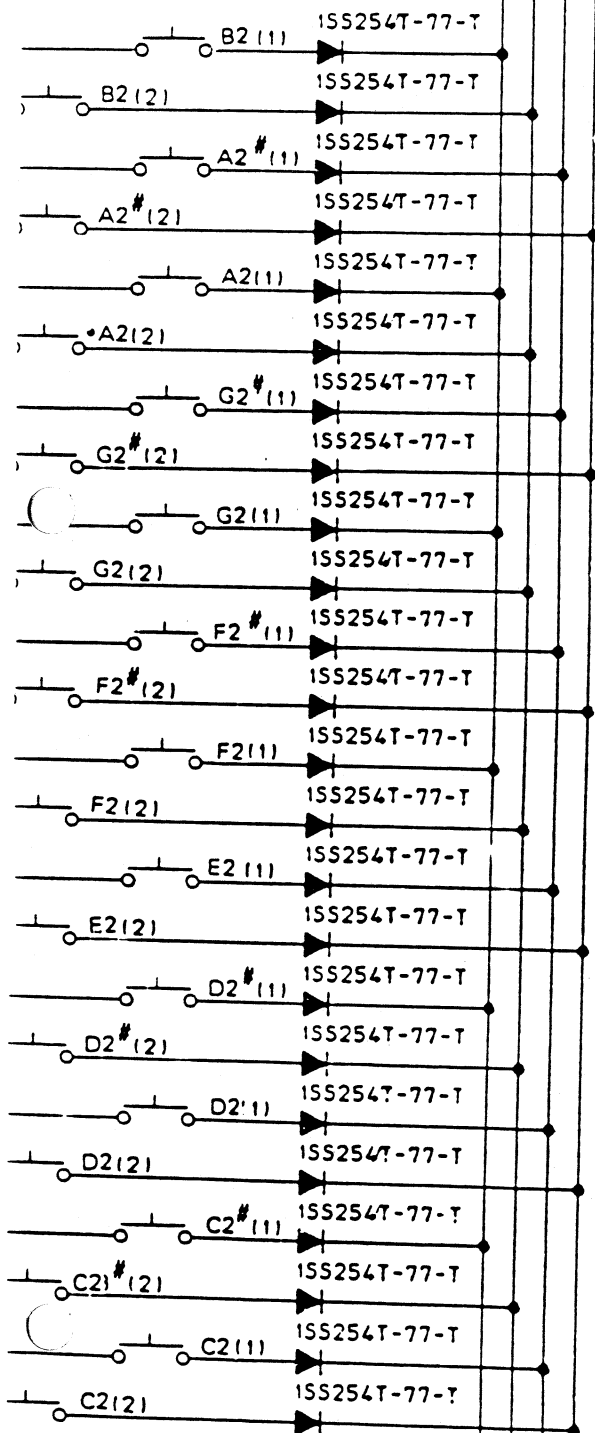






G H I J K

K14	JD-3	JD-3	KY2
K15	JD-4	JD-4	KY2
K16	JD-5	JD-5	KY2
K17	JD-6	JD-6	KY2
K18	JD-7	JD-7	KY2
K19	JD-8	JD-8	KY2
K20	JD-9	JD-9	KY2
KC2B	JD-13	JD-13	KY2
KC2A	JD-12	JD-12	KY2
KC1B	JD-10	JD-10	KY2
KC1A	JD-11	JD-11	KY2



1

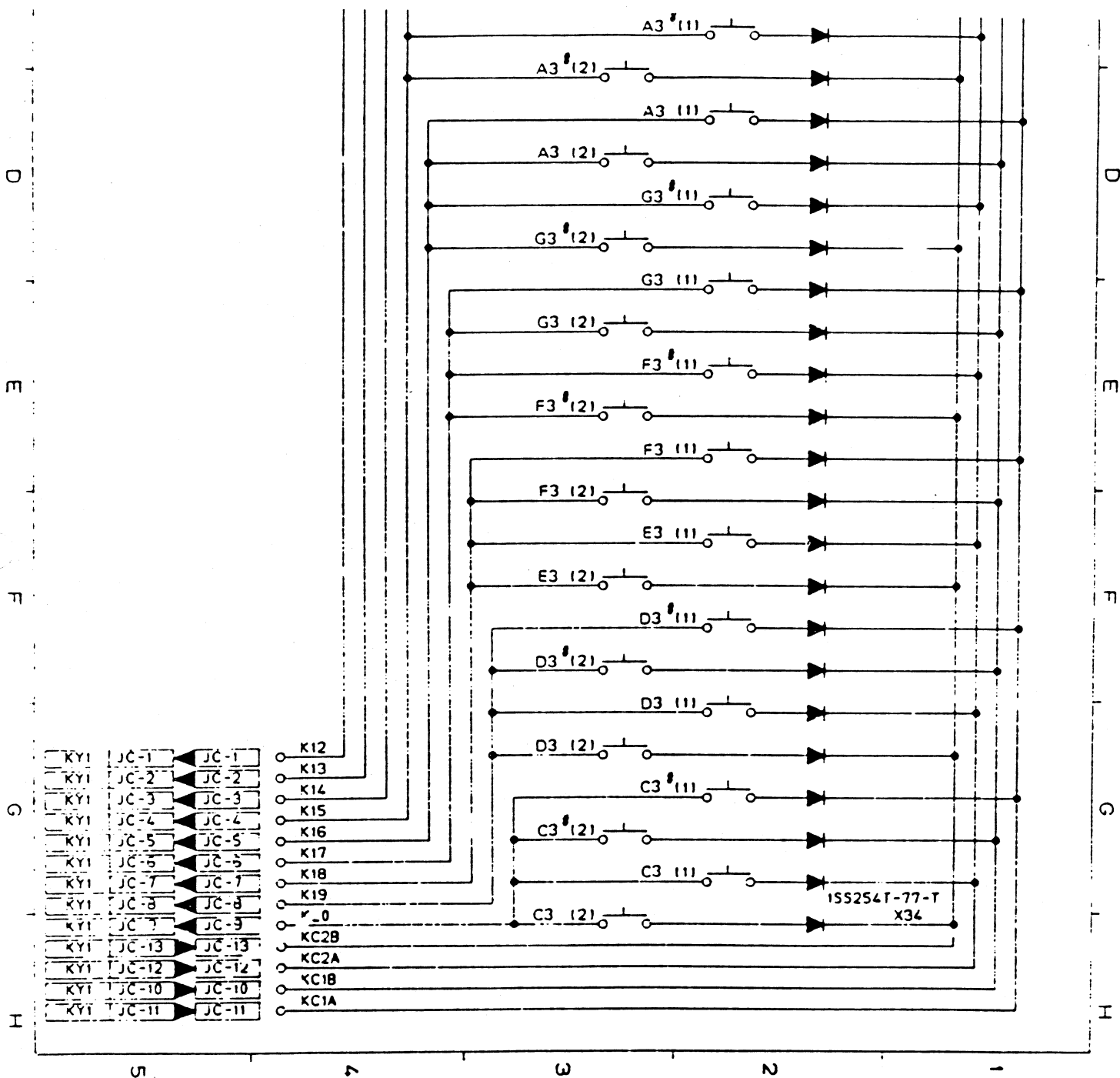
2

3

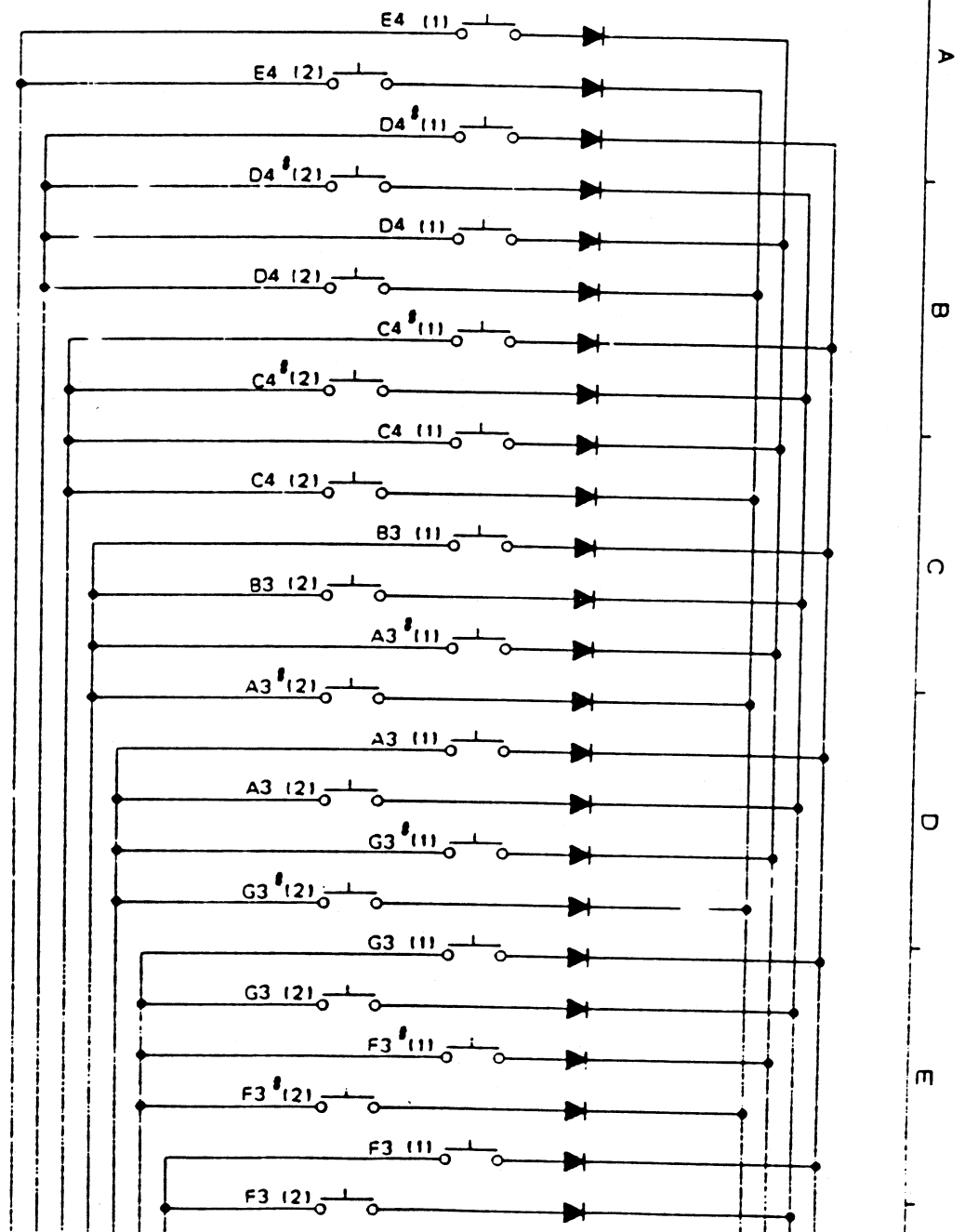
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5

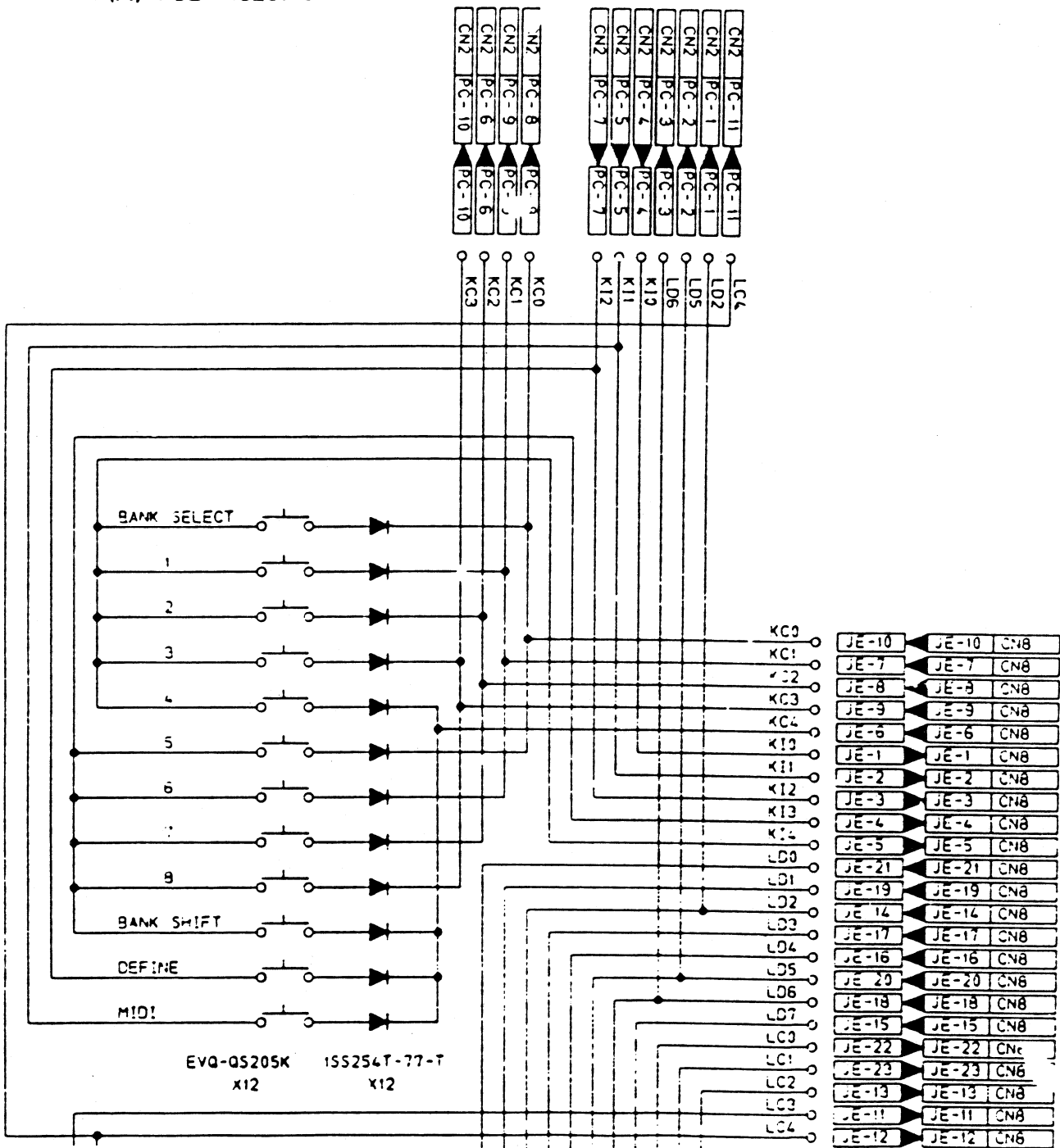
6



1-3. Keyboard (B) PCB M3267-KY2M



1-4. Console (A) PCB M3267-CN1M



1-5. Console (B) PCB M3267-CN2M, CN3, CN4

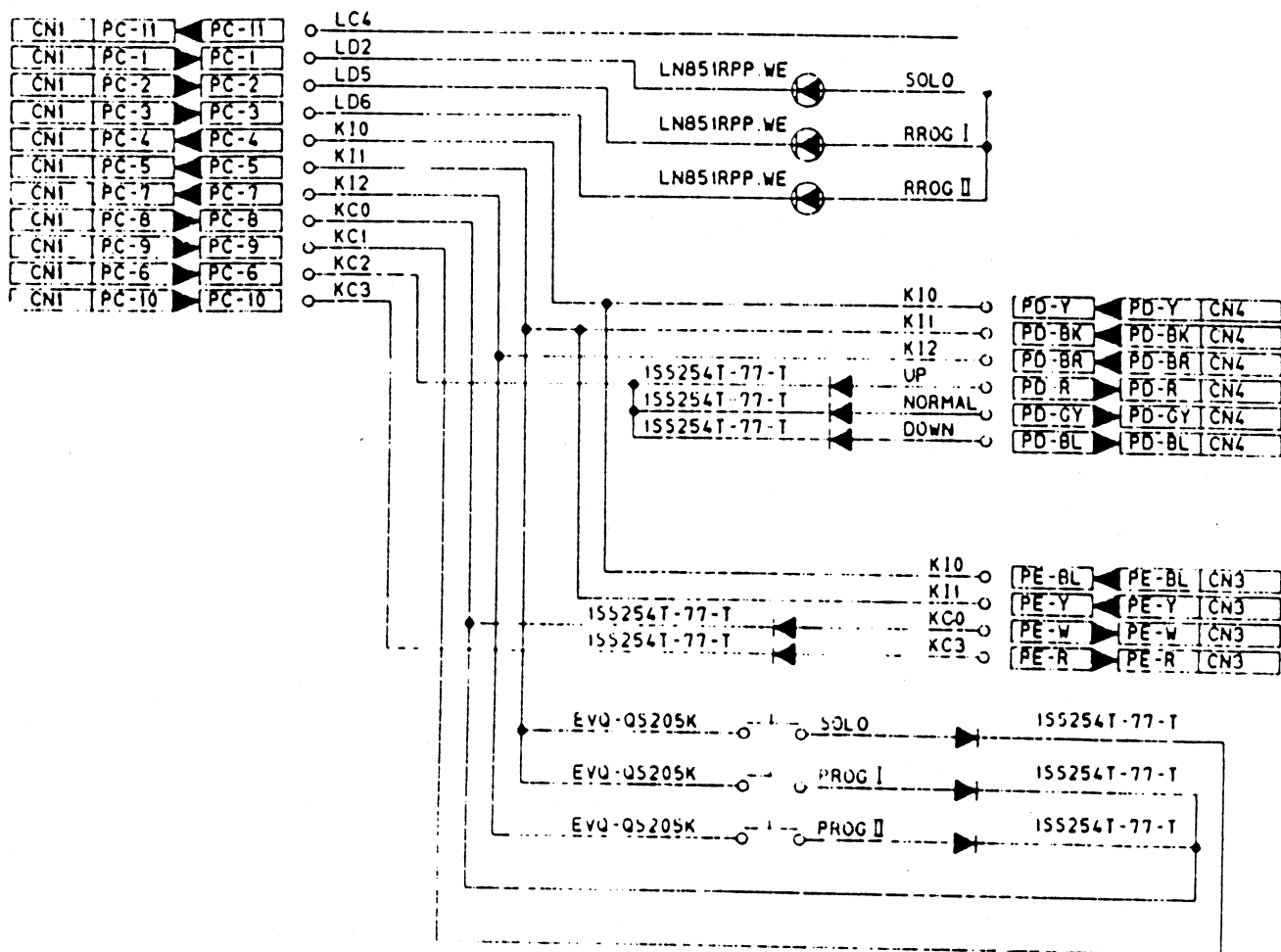
1

2

3

4

5



M3267 CN2M

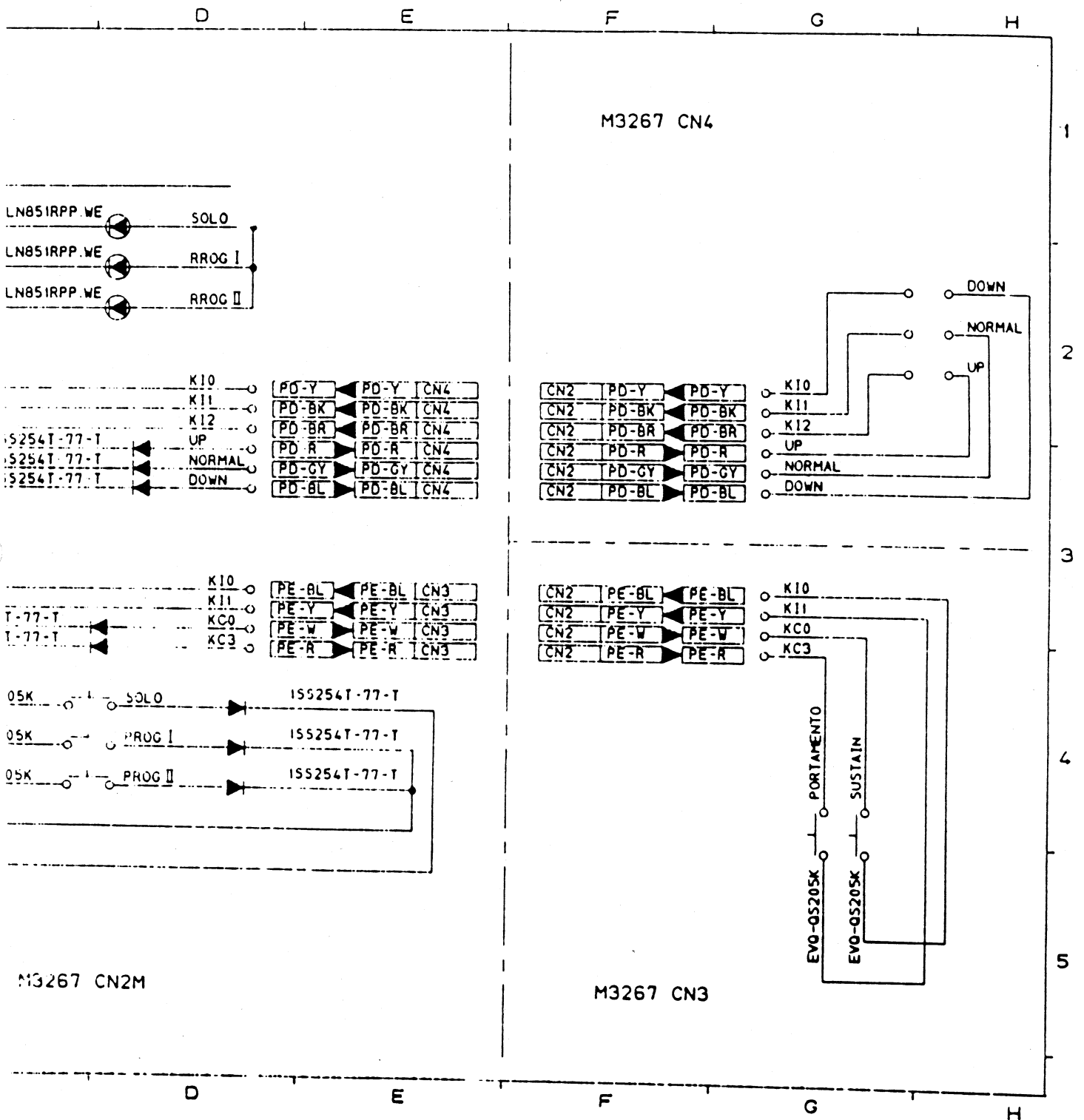
A

B

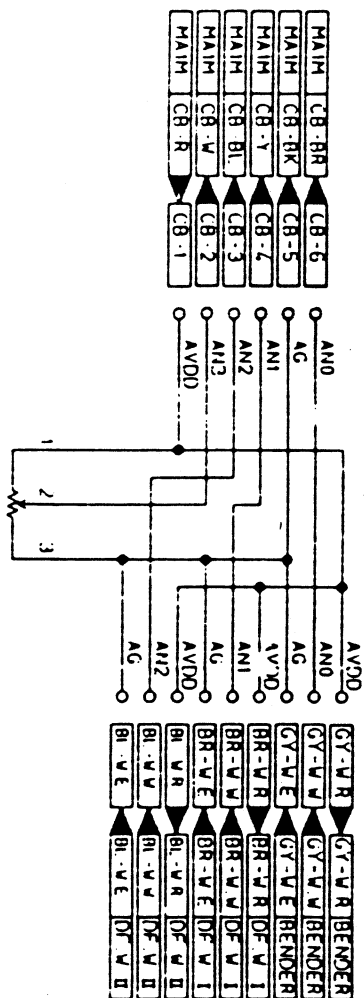
C

D

E



1-6. Console (C) PCB M3267-CN6, CN7, CN8, WHEEL



101F 1MAB1 E 1
5016P635M-50KB

M3267 UNB

MA1 JB 10	JB 10	KC9	JE 10	CN1
MA1 JB 7	JB 7	KC1	JE 7	CN1
MA1 JB 6	JB 6	KC2	JE 8	CN1
MA1 JB 9	JB 9	KC3	JE 9	CN1
MA1 JB 5	JB 5	KC4	JE 6	CN1
MA1 JB 1	JB 1	K10	JE 1	CN1
MA1 JB 2	JB 2	K11	JE 2	CN1
MA1 JB 3	JB 3	K12	JE 3	CN1
MA1 JB 4	JB 4	K13	JE 4	CN1
MA1 JB 5	JB 5	K14	JE 5	CN1
MA1 JB 21	JB 21	K15	JE 21	CN1
MA1 JB 19	JB 19	K16	JE 19	CN1
MA1 JB 14	JB 14	K17	JE 14	CN1
MA1 JB 17	JB 17	K18	JE 17	CN1
MA1 JB 16	JB 16	K19	JE 16	CN1
MA1 JB 20	JB 20	K20	JE 20	CN1
MA1 JB 15	JB 15	K21	JE 15	CN1
MA1 JB 22	JB 22	K22	JE 22	CN1
MA1 JB 23	JB 23	K23	JE 23	CN1
MA1 JB 13	JB 13	K24	JE 13	CN1
MA1 JB 11	JB 11	K25	JE 11	CN1
MA1 JB 12	JB 12	K26	JE 12	CN1

M3267 CNB

CN6	GY
CN6	GY
CN6	GY
CN6	BR
CN6	BR
CN6	BR
CN6	BL
CN6	BL
CN6	BL

/HEEL

D

E

F

G

H

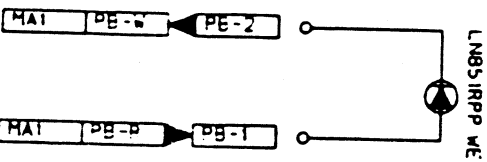
AVD0	GY-V-R	GY-V-R BENDER
AN0	GY-V-W	GY-V-W BENDER
AG	GY-V-E	GY-V-E BENDER
AVD0	BR-V-R	BR-V-R OF V I
AN1	BR-V-W	BR-V-W OF V I
AG	BR-V-E	BR-V-E OF V I
AVD0	BL-V-R	BL-V-R OF V II
AN2	BL-V-W	BL-V-W OF V II
AG	BL-V-E	BL-V-E OF V II

CN6	GY-V-R	GY-V-R	AVD0	3	(BENDER)
CN6	GY-V-W	GY-V-W	AN0	2	VM10W520A-50KB
CN6	GY-V-E	GY-V-E	AG	1	
CN6	BR-V-R	BR-V-R	AVD0	3	(OF V I)
CN6	BR-V-W	BR-V-W	AN1	2	VM10W520A-50KB
CN6	BR-V-E	BR-V-E	AG	1	
CN6	BL-V-R	BL-V-R	AVD0	3	(OF V II)
CN6	BL-V-W	BL-V-W	AN2	2	VM10W520A-50KB
CN6	BL-V-E	BL-V-E	AG	1	

M3267 LNB

M3267-WHEEL

KC9	JE-10	JE-10	CNI
KC1	JE-7	JE-7	CNI
KC2	JE-8	JE-8	CNI
KC3	JE-9	JE-9	CNI
KC4	JE-6	JE-6	CNI
K10	JE-1	JE-1	CNI
K11	JE-2	JE-2	CNI
K12	JE-3	JE-3	CNI
K13	JE-4	JE-4	CNI
K14	JE-5	JE-5	CNI
LD0	JE-21	JE-21	CNI
LD1	JE-19	JE-19	CNI
LD2	JE-14	JE-14	CNI
LD3	JE-17	JE-17	CNI
LD4	JE-16	JE-16	CNI
LD5	JE-20	JE-20	CNI
LD6	JE-18	JE-18	CNI
LD7	JE-15	JE-15	CNI
LD8	JE-22	JE-22	CNI
LD9	JE-23	JE-23	CNI
LD10	JE-13	JE-13	CNI
LD11	JE-11	JE-11	CNI
LD12	JE-12	JE-12	CNI



M3267 CN7

5

4

3

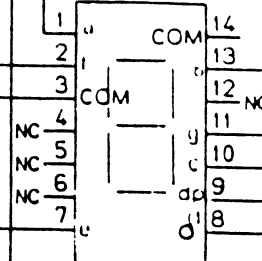
2

1

CNI	JD-3	JD-3
CNI	JD-5	JD-5
CNI	JD-10	JD-10
CNI	JD-7	JD-7
CNI	JD-8	JD-8
CNI	JD-4	JD-4
CNI	JD-6	JD-6
CNI	JD-9	JD-9
CNI	JD-2	JD-2
CNI	JD-1	JD-1
CNI	JD-11	JD-11

- LD0
- LD1
- LD2
- LD3
- LD4
- LD5
- LD6
- LD7
- LC0
- LC1
- LC2

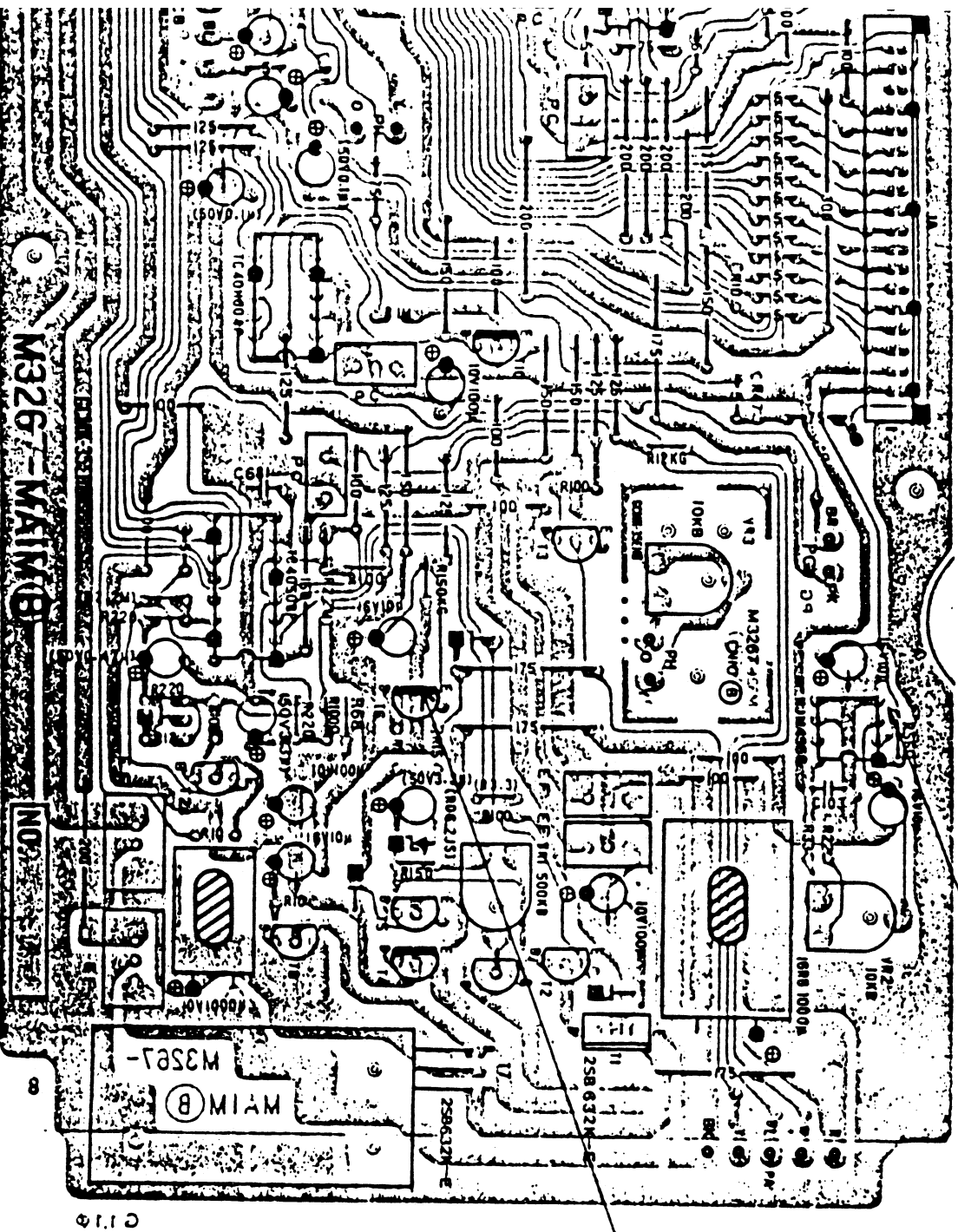
LN514RA



M3267-MATIN®

VSS1 Adjustment

AVDD Adjustment



3. MAJOR WAVEFORMS

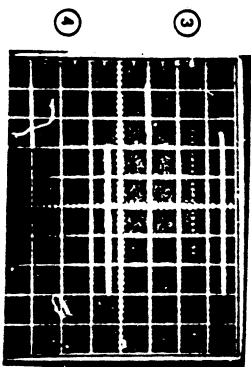
Note: Probe reduction: 10:1

Checkpoints: refer to PCB VIEW on page 11 for the checkpoints.



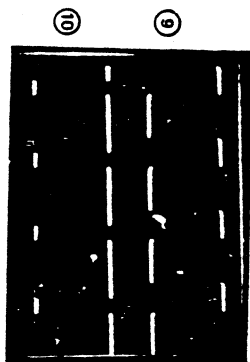
- ① Clock pulse output signal
- ② Clock pulse input signal

(0.2V/div, 0.1µs/div)



- ③ STOP signal
- ④ RESET signal

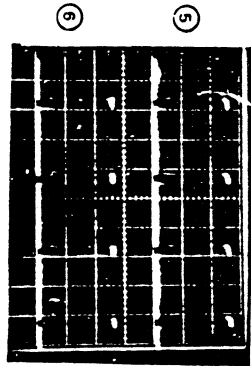
(0.2V/div, 200ns/div)



- ⑨ LED drive signal LD5
- ⑩ LED common signal LC3

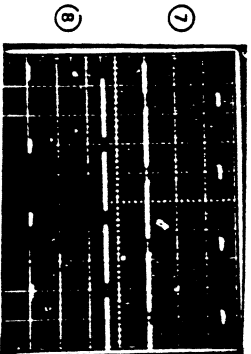
LED "x10" A" lights

(0.2V/div, 5ms/div)



- ⑤ Key common signal KCO
- ⑥ Key input signal KIO

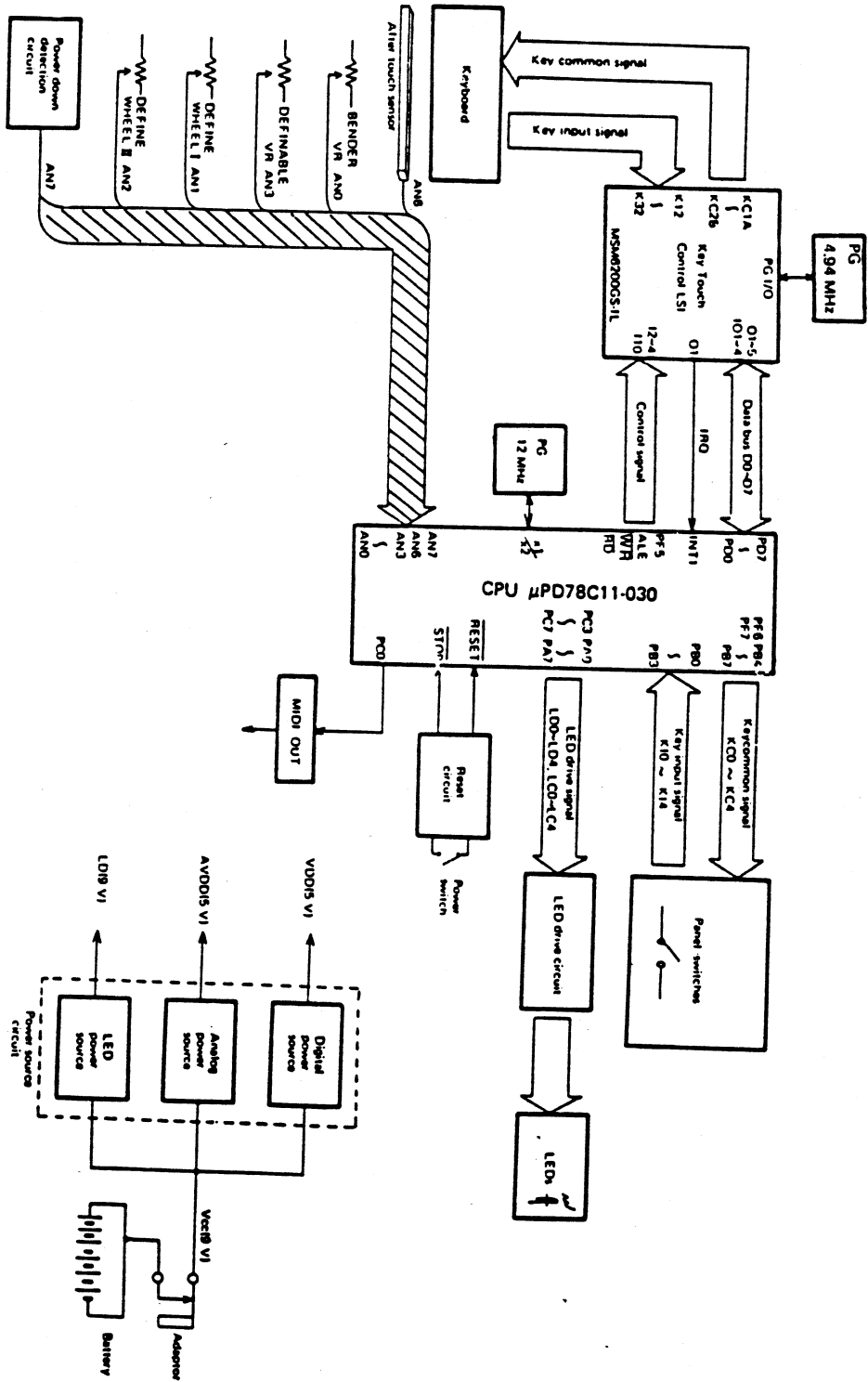
(0.2V/div, 2ms/div)



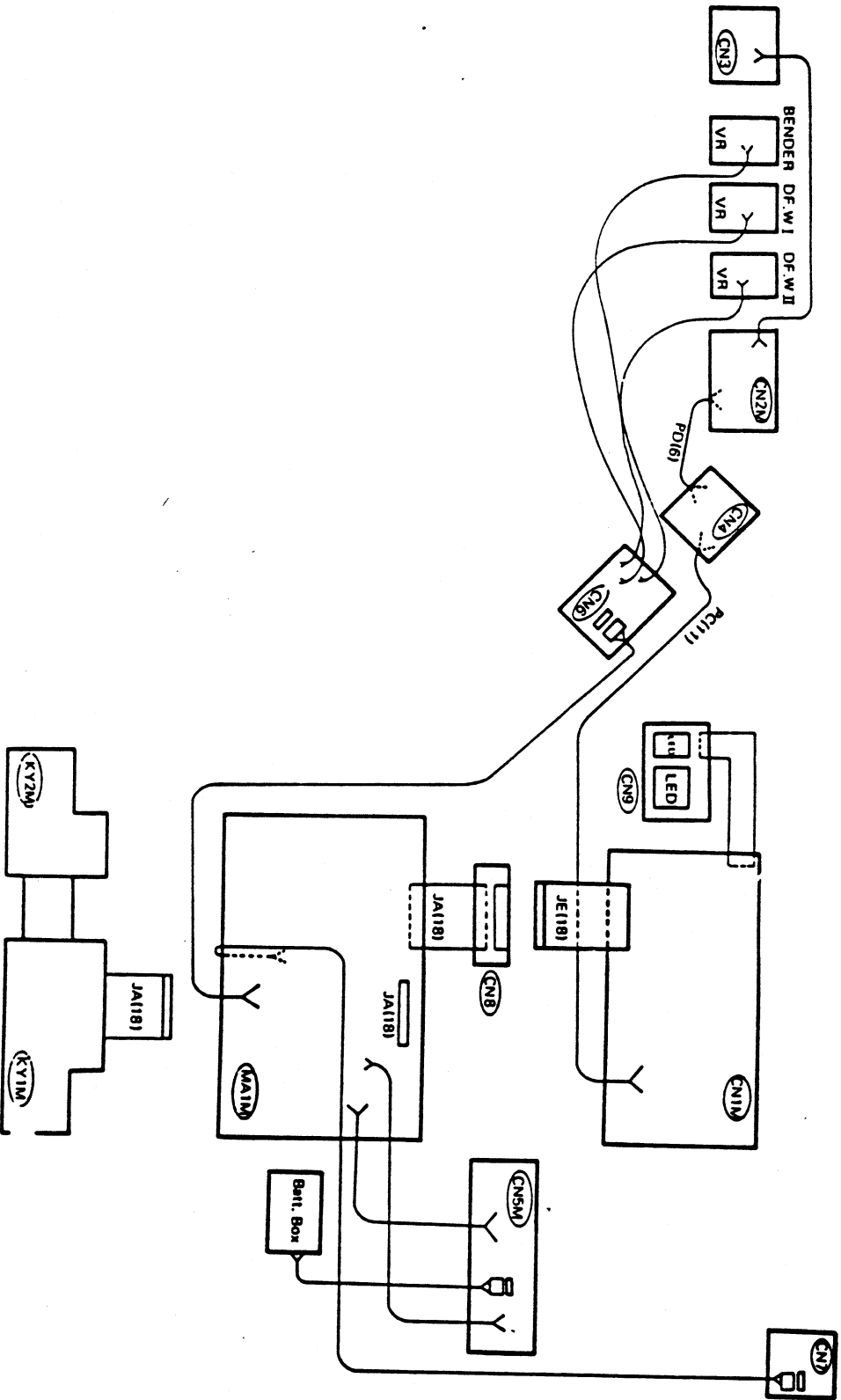
- ⑦ LED drive signal LD0
- ⑧ LED common signal LCO

(0.2V/div, 5ms/div)

4. BLOCK DIAGRAM



5. PCB Layout



6. CPU (μ PD78C11-030)

- Controls LEDs, Wheels, After touch, MIDI and switches.

Pin No.	Terminal Name	In/Out	Functions
1~8	PA0~PA7	Out	LED drive signals (LD0~LD7) output.
9~13	PB0~PB4	In	Key input signals (K10~K14) input.
14~16	PB5~PB7	Out	Key common signals (KC0~KC2) output.
17	PC0	Out	MIDI (Musical Instrument Digital Interface) data output.
18	PC1	Out	Power LED drive signal output.
20~24	PC3~PC7	Out	LED common signals (LC0~LC4) output.
26	INT1	In	Interrupt request signal input. Rises to HIGH when Key touch control LSI requests CPU to interrupt.
28	RESET	In	Initializes CPU internal circuits at power ON. LOW active.
30, 31	X2, X1	In/Out	Clock pulse (12 MHz) input/output.
32	Vss		Ground (0V) source.
33	AVss		Ground (0V) source for built-in ADCs (Analog to Digital Converter).
34	AN0	In	Bender VR input. Voltage level from Pitch bender is changed to digital signal in built-in ADC.
35~37	AN1~AN3	In	Define VR input. Voltage level from Define wheels/Slide VR is changed to digital signal in built-in ADC.
40	AN6	In	After touch sensor input. Voltage level from After touch sensor is changed to digital signal in built-in ADC.
41	AN7	In	Power down detection terminal. CPU blinks power LED when power voltage is not sufficient (less than Vcc=5.4 V).
42	VAREF		Reference voltage for built-in ADC.
43	AVDD		+5 V source for built-in ADCs.
44	RD	Out	Read signal output. LOW active. CPU drops this terminal to LOW when it reads data from Key touch control LSI.
45	WR	Out	Write signal output. LOW active. CPU drops this terminal to LOW when it writes data to Key touch control LSI.
49	ALE	Out	Address Latch Enable signal output. HIGH active. Data bus (D0~D7) become address bus (A0~A7) when CPU raises this terminal to HIGH.
50	PF3	Out	The CPU raises this terminal at HIGH Level not to output control signal to Key touch control LSI at power switch ON.
51	PF4	Out	Control signal of voltage Vss1 for Key touch control LSI. The CPU drops this terminal at LOW level to stop the function of the Key touch control LSI at power switch ON.

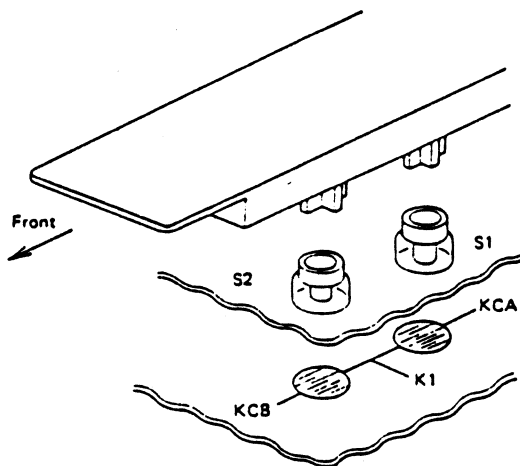
Pin No.	Terminal Name	In/Out	Functions
52	PF5	Out	Reset signal output for initializing Key touch control LSI at power switch ON. LOW active.
53, 54	PF6, PF7	Out	Key common signals (KC3, KC4) output.
55~62	PD0~PD7	In/Out	Data bus (D0~D7). Also address bus at raising edge of signal ALE.
63	STOP		+5 V source for internal RAM. The terminal is used on stand-by mode in this model. LOW active.
64	VDD		+5 V source.

7. KEYBOARD

The AZ-1 varies the sound volume in accordance with the key touch speed.

7-1. Key Touch Speed Detection

Each key has two key contact switches S1 and S2.



When a key is hit, S1 turns on first, then S2.

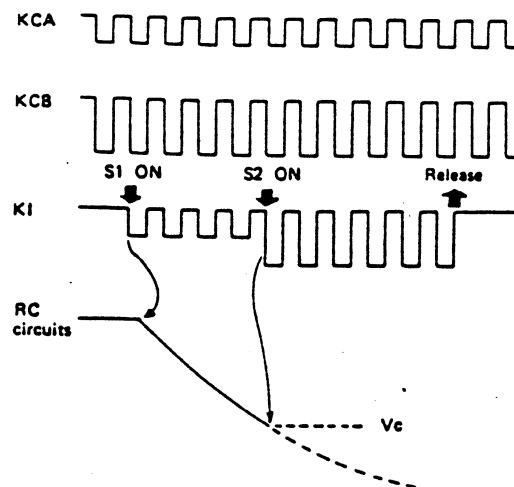
The time interval between S1 and S2 turn on varies according to the touch speed of the key.

LSI MSM 6200 detects the time interval and determines the key touch speed.

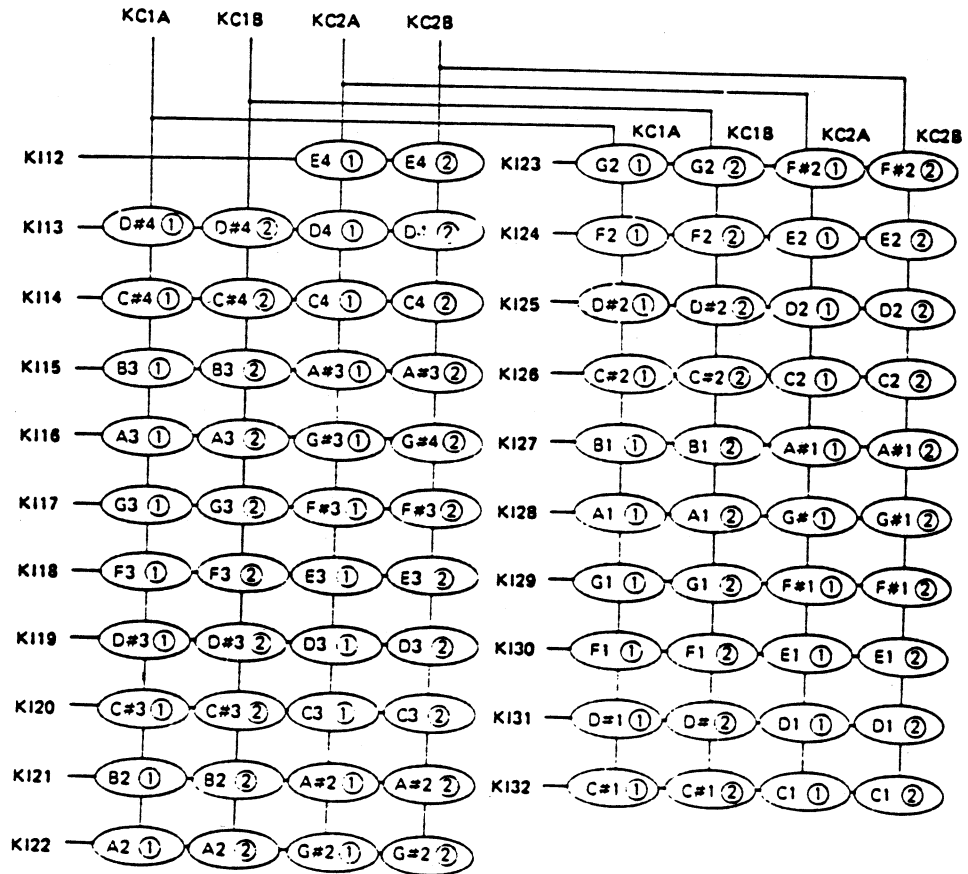
Some RC (resistor and capacitor) integrating circuits are connected to the MSM 6200.

When switch S1 turns on, the RC circuit starts to discharge. The discharging stops when S2 turns on.

The MSM 6200 also contains an ADC (Analog to Digital Converter) and changes the voltage V_c of the RC circuits into a 5-bit digital signal which is sent to the CPU as key entry and hitting speed data.



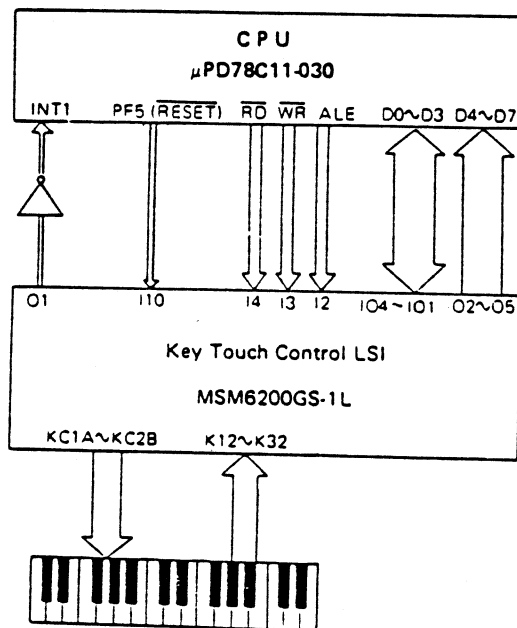
7-2. Key Matrix



7-3. Pin function of the Key Touch Control LSI (MSM6200)

Pin No.	Terminal Name	In/Out	Functions
1~6	IR6~IC8	In/Out	External RC discharging circuit inputs and outputs.
10	REF		Reference voltage (+5 V).
11	AG		Analog (0V) ground.
20	O1	Out	Interrupt request signal output. When LOW, MSM6200 interrupts the CPU.
25~28 29~32	O2~O5 IO1~IO4	Out In/Out	Upper 4-bit data bus. Lower 4-bit data bus. O2 O3 O4 O5 IO1 IO2 IO3 IO4 MSB LSB
34	I2	In	ALE (Address Latch Enable) signal input. When HIGH, address in MSM6200 is assigned.
35	I3	In	WR signal input. When LOW, data or address can be written in MSM6200.
36	I4	In	RD signal input. When LOW, CPU reads data from MSM6200.
39	I10	In	Reset signal input. LOW active. At power ON, receives a reset signal to initialize MSM6200's internal circuits.
40	VDD		+5 V source.
43, 44	PGI/PGO	In/Out	Clock pulse (4.94 MHz) input/output.
45	VSS2		Ground (0V) source.
46	VSS1		+2.25 V source.
47~50	KC2B~KC1A	Out	Key common signal outputs.
62~82	K12~K32	In	Key input terminals.
91~100	IR1~IC5	In/Out	External CR circuits inputs and outputs.

7-4. Key Touch Control LSI (MSM6200) Access

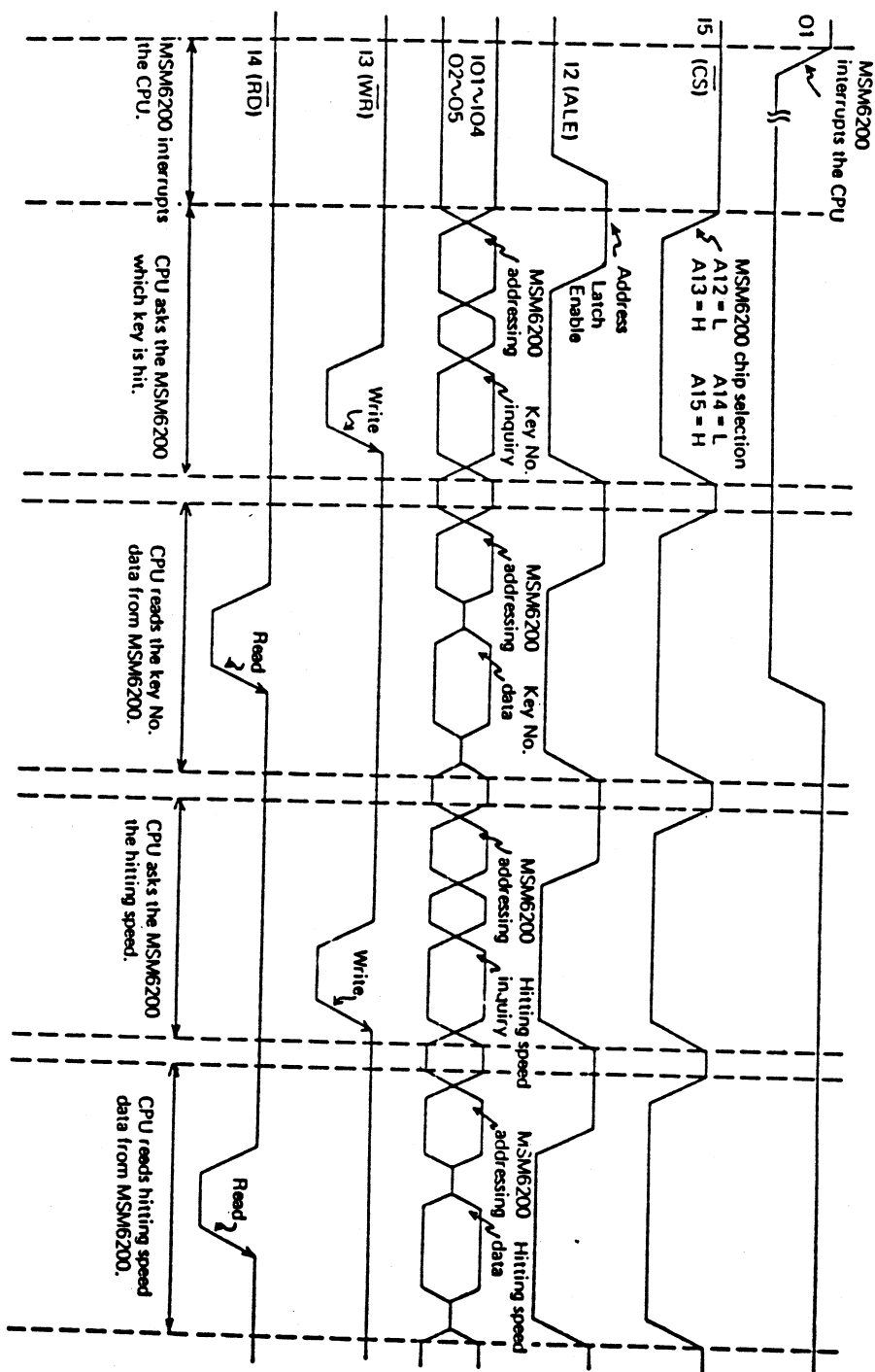


The CPU and Key touch control LSI MSM6200 communicate when a key is hit to transfer touch speed data.

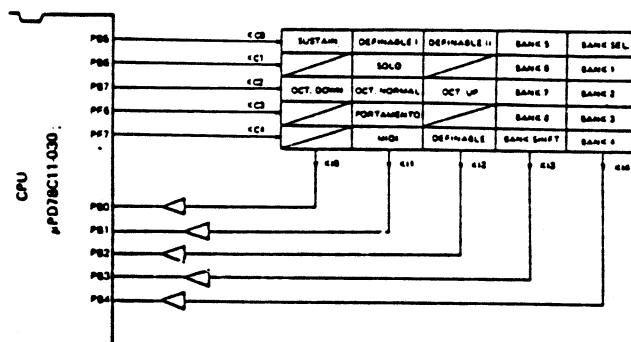
Hitting Speed Data Transfer.

1. When a key is hit, the MSM6200 sends an interrupt request signal to the CPU from terminal O1.
2. Upon receipt of the interrupt signal, the CPU provides a command key hit.
3. The MSM6200 informs the CPU of the key number data via terminals IO1 ~ IO4 and O2 ~ O5.
4. The CPU sends "Hitting speed inquiry" command.
5. The MSM6200 provides the hitting speed data to the CPU.

Timing Chart After Hitting a Key



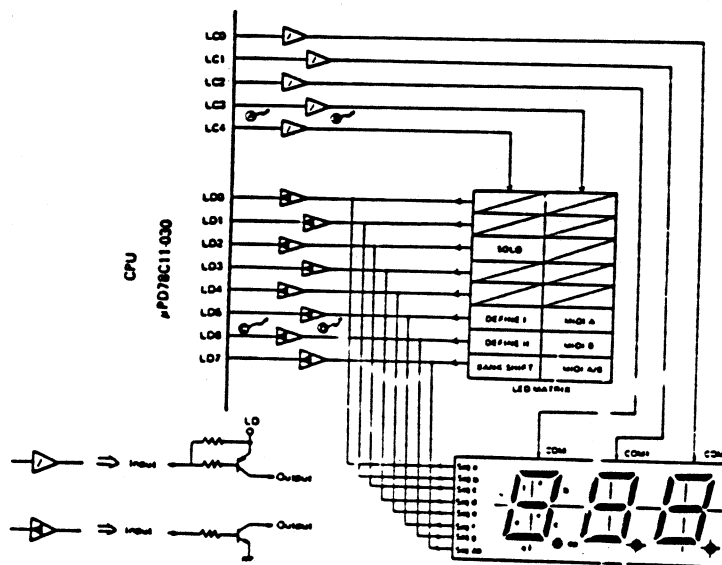
8. PANEL SWITCH CONTROL



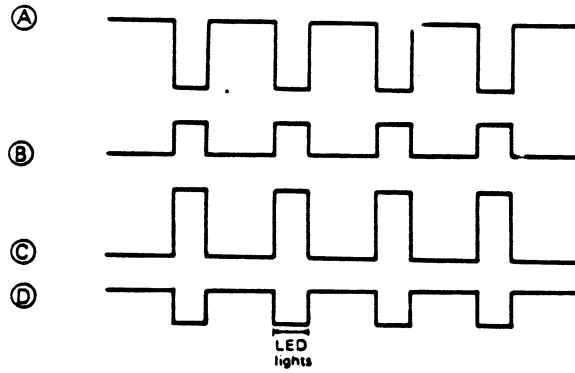
Switch common signals KC0 ~ KC4 are always provided to the panel switches from the CPU. When a switch is touched, key input signals K10 ~ K14 are input to PB0 ~ PB4 terminals of the CPU, and the CPU discriminates which switch is pressed.

9. LED DRIVE CIRCUIT

All LEDs are controlled by signal LC0 ~ LC4 and LD0 ~ LD7 of the CPU. For example, to light the LED "MIDI A", the CPU raises terminal LD5 (PA5) HIGH level and drops terminal LC3 (PC6) LOW level. Then the current flows in the LED causing it to light.

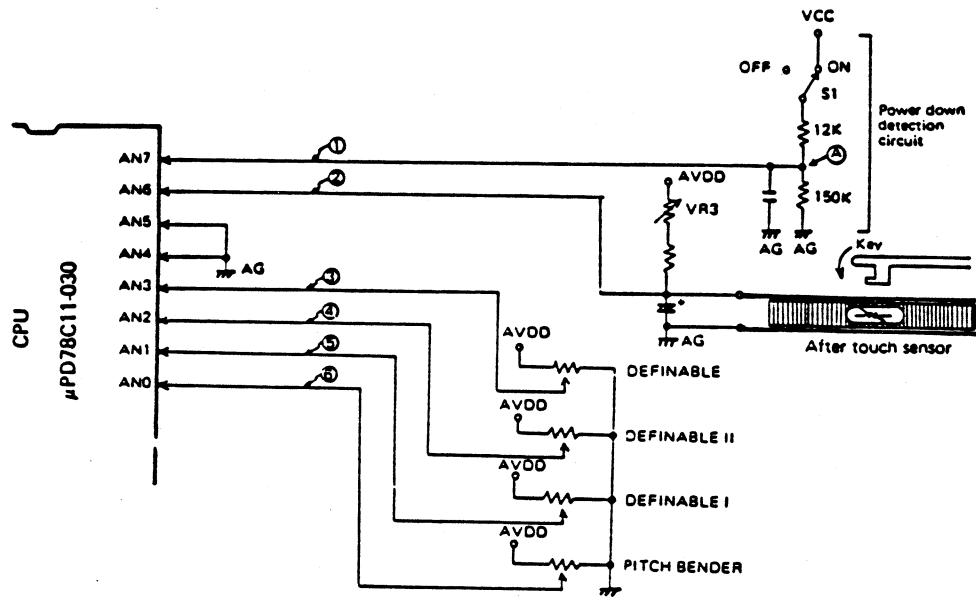


The following is the time chart for lighting LED "MIDI A".



10. VR CONTROL CIRCUIT

CPU contains eight internal ADCs (Analog to Digital Converter) which detect voltages from the VRs.



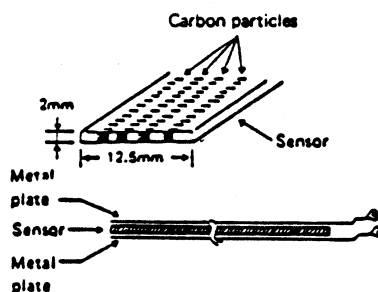
① Power Down Detection Circuit

When the voltage of batteries becomes 5.4V, the point (A) becomes 5V. Then the CPU detect "Power Down", and blinks Power LED. After 30 minutes, it becomes "Stand-by" mode, and stops the function except keeping the contents of internal RAM.

② After Touch Control

If a key is kept pressing, the resistance of after touch sensor varies in accordance with pressing strength. The CPU detects the voltage level, and converts it to digital signals by an internal ADC.

Note: Construction of after touch sensor



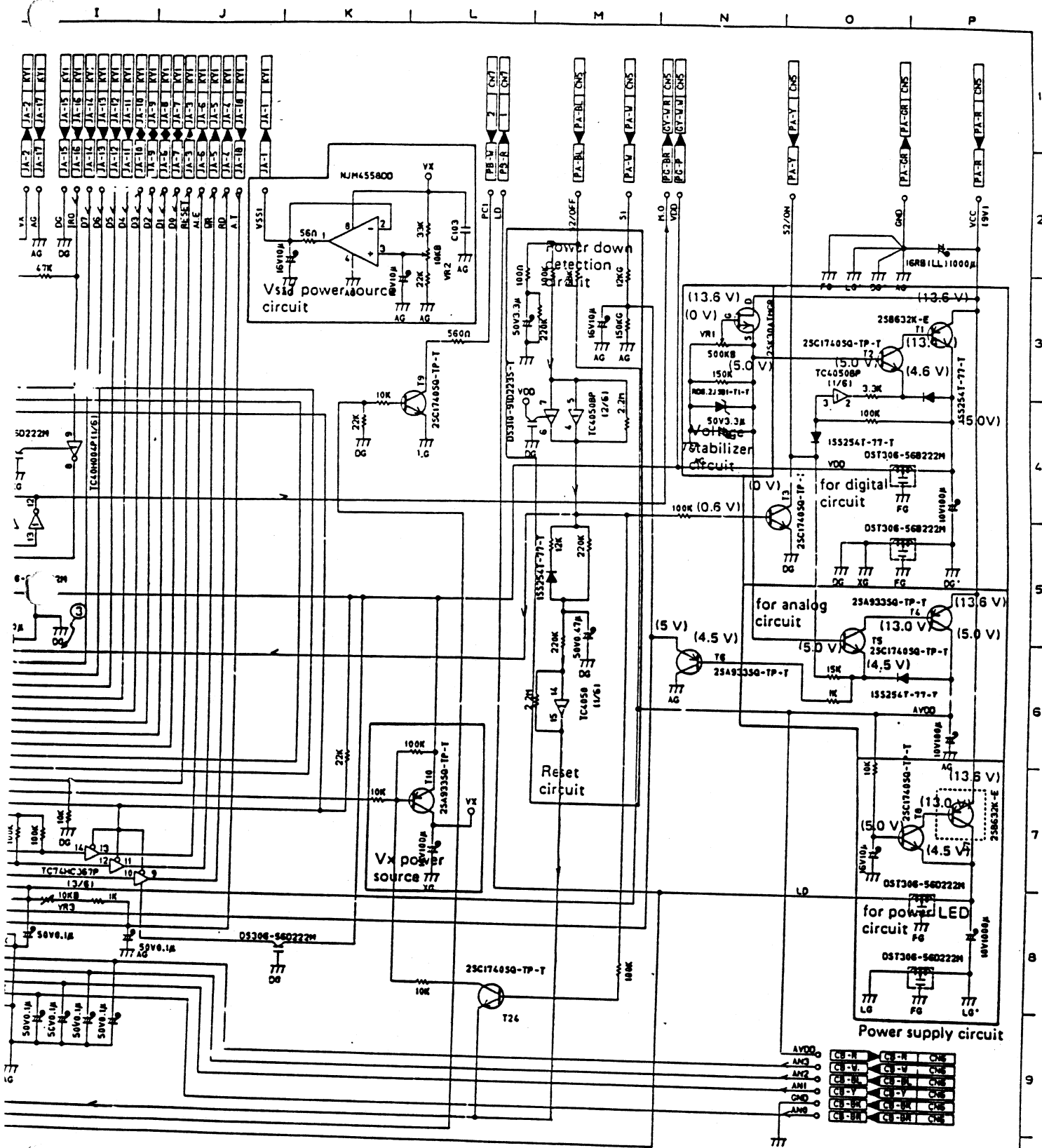
After touch sensor is a sheet of silicon rubber in which carbon particles are inlaid.

While no force is applied, the resistance between the both sides is infinity. However, when it is pressed hard, the density of the carbon becomes high causing its resistance to be as small as $10 \sim 30 \Omega$.

The silicon rubber is put between two thin metal plates.

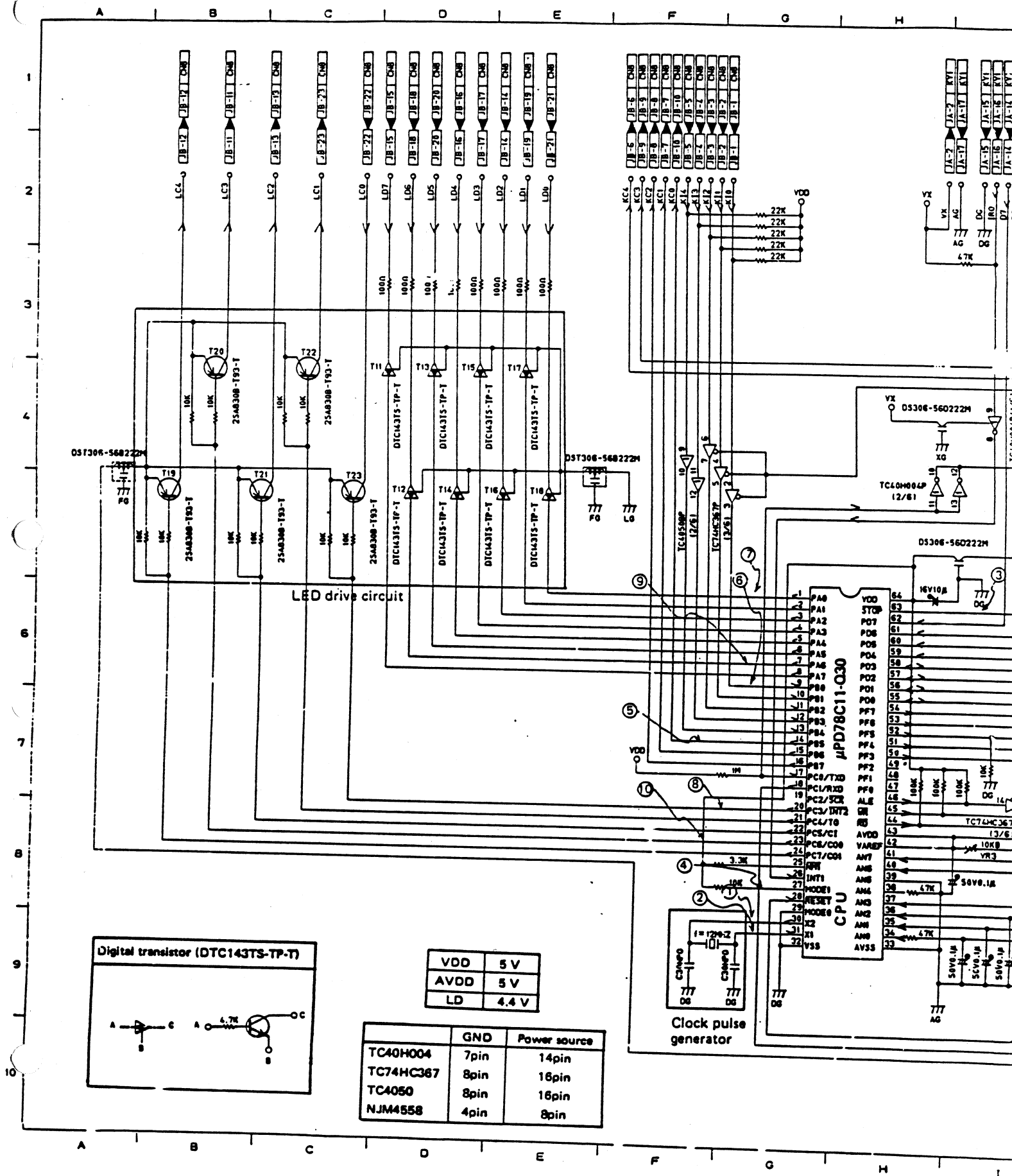
③ ~ ⑥ VR Control

In accordance with the position of each VR, the voltage levels on terminal AN0 ~ AN3 vary. CPU converts the voltages to digital signals by internal ADCs.

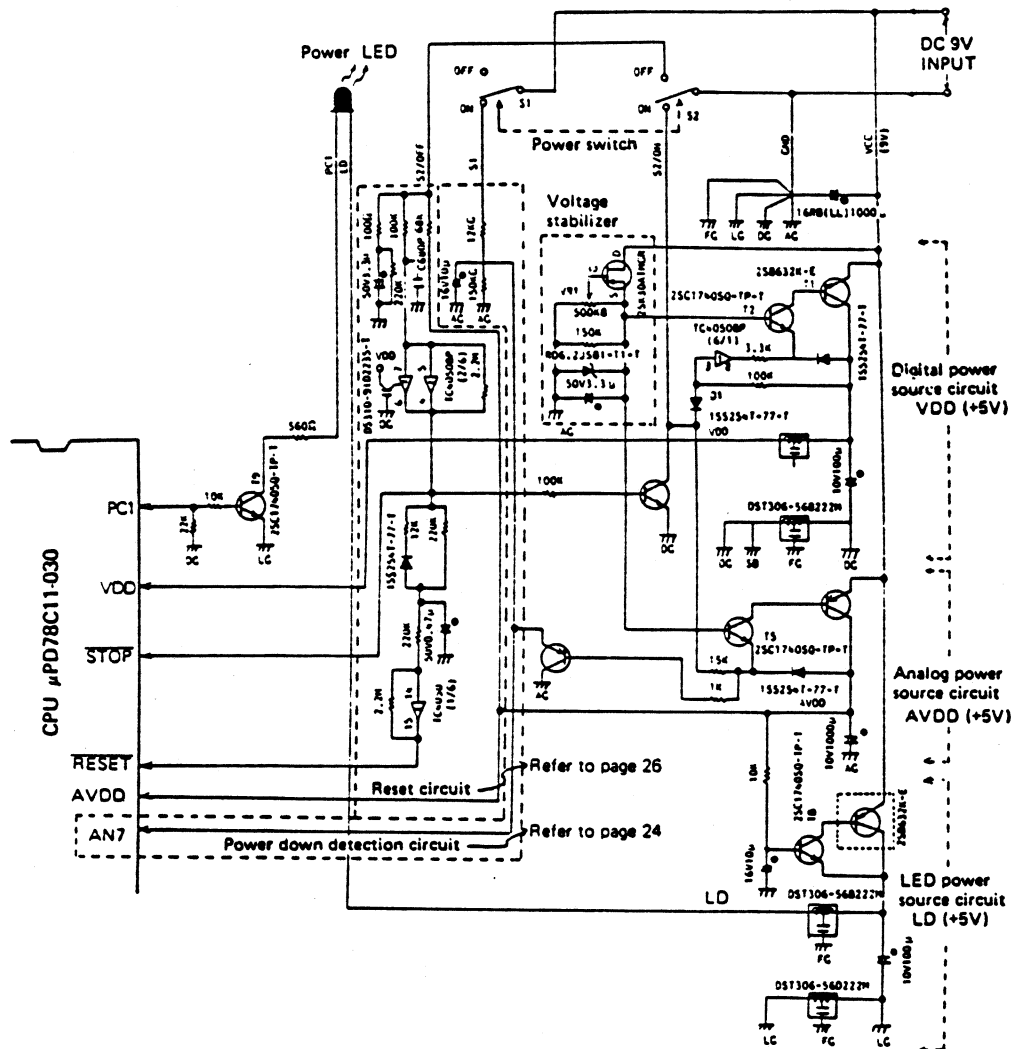


Note: Voltages in shown () is using AD-5.

1-1. Main PCB M3267-MA1M



11. POWER SUPPLY CIRCUIT

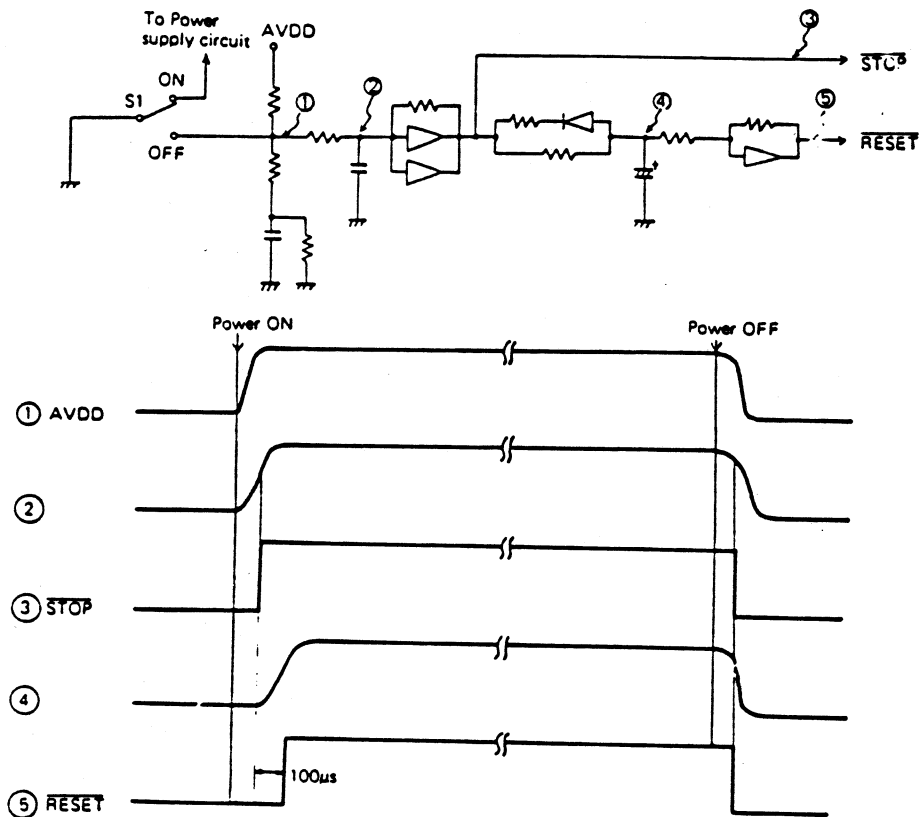


Voltages VDD and AVDD are provided by Voltage regulation circuits of darlington-connected transistors T1, T2 and T4, T5. Voltage stabilizer circuit regulates the VDD and Δ VDD by VR1, and prevents overvoltage by the zener diode. Voltage VDD is always provided even when power switch (S1 and S2) is turned off by diode D1.

Also voltage LD lights the power LED together with the LED drive control signal PC1 from the CPU.

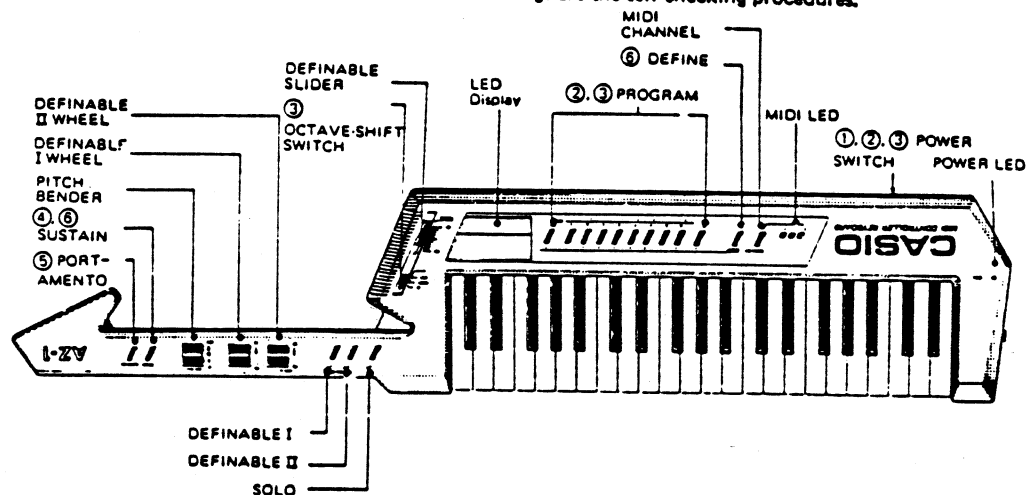
12. RESET CIRCUIT

Since the CPU starts functioning by signals $\overline{\text{STOP}}$ and $\overline{\text{RESET}}$, the reset circuit generates those signals at power switch ON as shown time chart.



13. SELF-CHECK FUNCTION

The AZ-1 has a self-check function. The followings are the self-checking procedures.



- ① Turn power switch OFF.
- ② Turn the power switch ON while pressing "PROGRAM 1, 3 and 5" buttons simultaneously for 10 seconds.
If internal ROM or RAM of CPU is faulty, LED display shows an error sign .
- ③ Set "OCTAVE SHIFT SWITCH DOWN", and press the "PROGRAM 1 ~ 8" button one by one. The left digit LED display can be checked as the segments light one by one. When octave shift switch is set on "NORMAL" or "UP", the center and the right digits LED display is checked in the same manner.
At the same time, the LED "MIDI A ~ A/B" is checked in accordance with the position of the octave shift switch.
- ④ Press the "SUSTAIN" button, then LEDs "DEFINE I" and "DEFINE II" are lit at the same time.
- ⑤ Press the "PORTAMENTO" button, the LEDs "SOLO" and "DEFINE II" are lit at the same time.

- ⑥ When the "DEFINE" button is pressed, the following functions are checked by LED display. In accordance with the position of each VR or pressed key, the LED display indicates their function by numbers.

Order	Select button	Check function
(1)	DEFINE	PITCH BENDER (0 ~ 254)
(2)	SUSTAIN	DEFINABLE I WHEEL (0 ~ 254)
(3)	SUSTAIN	DEFINABLE II WHEEL (0 ~ 254)
(4)	SUSTAIN	DEFINABLE SLIDER (0 ~ 254)
(5)	SUSTAIN	AFTER TOUCH (0 ~ 254)
(6)	SUSTAIN and OCTAVE SHIFT SWITCH "DOWN"	Note No. (48 ~ 58)
(7)	OCTAVE SHIFT SWITCH "NORMAL"	Initial touch (3 ~ 127)
(8)	OCTAVE SHIFT SWITCH "Up"	Stand-by mode (Power OFF)

- ⑦ Turn the power switch OFF.

14. ADJUSTMENT

14-1. AVDD Adjustment

- (1) Using a voltage regulator, provide 5.4 volts to the test unit.
- (2) Connect a voltmeter to the collector of transistor T4 (refer to page 11).
Adjust VR1 for 4.95 ~ 5.05 V of AVDD.

14-2. VSS1 Adjustment

- (1) Supply 9 volts to the test unit from a voltage regulator.
- (2) Connect a voltmeter to pin 3 of op amp M4558DD (refer to page 11).
Adjust VR2 for 2.20 ~ 2.30 V of VSS1.

15. TROUBLESHOOTING

Trouble	Possible Block	Note
Power cannot be turned on	Power batteries	Check battery voltages.
	Power jack	Power jack may not be contacting.
	Power circuit	Check voltages at each transistor in accordance with schematic.
	Power switch	Power switch may not be contacting.
	Reset circuit	Check waveforms ③, ④ at power ON.
	Clock pulse generator	Check waveforms ①, ②.
	CPU	Check waveforms ⑤ ~ ⑧.
LEDs do not light	CPU or Drive transistors T11 ~ T23	Check waveforms ⑦, ⑧.
Switches do not respond	CPU or Buffers TC4050, TC74H367	Check waveforms ⑤, ⑧.
Keys do not respond	Key touch control LSI (MSM6200SGL-1)	Check data or interrupt signals from Key touch control LSI at key entries.
	CPU	Check control signals (ALE, $\overline{RD}$, $\overline{WR}$) from CPU.
	Power source circuit for Key touch control LSI	Check Voltage VSS1 for Key touch control LSI. (Refer to page 11).
Volumes do not respond	CPU	Check input voltage levels at terminal AN0 ~ AN3 of CPU.
After touch is not effective	CPU	Check input voltage level at terminal AN6 of CPU.
MIDI does not work.	CPU	Check digital signal at terminal PC0 of CPU.

PARTS LIST

AZ-1

- 1) Price Codes subject to change without notice.
- 2) Refer to current Technical News Bulletins for price code values.

AZ-1 Parts List

Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
		M3267 MA1M, CN5, CN8, CN10 PCB ASS'Y				
☆	2010 0525	LSI (CPU)	μPD78C11G-030	1	BB	A
	2100 3247	MOS IC	TC4050BP (H014050)	1	AG	A
	2100 3786	C-MOS IC	TC40H004P	1	AE	A
	2100 4707	MOS IC	TC74HC367P (UP074HC367C) 1	1	AG	A
	2121 0013	Op amp	NJM4558DD	1	AD	A
	2210 5078	Transistor	2SB632	2	AD	A
	2301 3011	Diode	0S135D	1	AA	C
	2520 3224	Crystal Oscillator	HC-18/U-12MHz	1	AG	B
	2760 2134	Semi-fixed resistor	V8K4-118500K (500 KΩ)	1	AB	B
	2760 2177	Semi-fixed resistor	V8K4-11810K (10 KΩ)	2	AB	B
☆	2800 9378	Electrolytic capacitor	10SSA1000 (1000μF, 10V, ±20%)	1	N/A	X
☆	2800 9385	Electrolytic capacitor	16RB(LL)1000 (1000μF, 16V, ±20%)	1	N/A	X
	2845 0021	Three polarity capacitor	0S306-568222M	4	N/A	C
	3025 0042	EMI filter	DST306-518222M	7	AB	C
☆	3025 0084	EMI filter	DST306-518271M	2	AC	C
☆	3412 0014	Slide switch Power Switch	SSE-42CP	1	AE	C
	3500 3991	Pin ass'y (2 pins)	1L-G-2P-S3L2-E	1	AA	C
	3500 7059	PCB connector	5229-23-CPB	1	-	C
	3512 3245	DC jack adapter	HEC2305-01-030	1	AC	C
☆	3501 0196	Din jack Rld1	TCS5350-01-1211	1	AE	C
☆	3501 0203	PCB connector	5229-18CPB	1	-	C
☆	3501 0329	Connector M267A (2 pins)	1L-2P-70-M267	1	-	C
☆	3501 0336	Connector M267	1L-6P-46-M267	1	-	C
☆	3725 0259	PC joiner M267D	PCJ-JPSS-23-30	1	AC	C
☆	6907 8760	Heat sink 13x41	M42794-1	1	-	X
	2200 2431	Transistor	2SA830	5	AD	A
	2200 9010	Transistor	2SA933	3	AD	A
	2220 9035	Transistor	2SC1740	7	AD	A
	2240 5110	FET	2SK30A	1	AD	A
☆	2259 0035	Digital transistor	DTC143TS	8	AD	A
	2300 2086	Diode	1SS254	4	AA	C
	2310 3249	Zener diode	RD6.2E	1	AB	B

Notes: ☆ - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

AZ-1 Parts List

Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
	2606 0070	Carbon film resistor	R-20-12K-G (1/5W, 12 k Ω , $\pm 2\%$)	1	N/A	X
	2606 0175	Carbon film resistor	R-20-150K-G (1/5W, 150 k Ω , $\pm 2\%$)	1		
	0002 8723	Carbon film resistor	R-20-100-J (1/5W, 100 Ω , $\pm 5\%$)	9		
	0002 8724	Carbon film resistor	R-20-220-J (1/5W, 220 Ω , $\pm 5\%$)	2		
	0002 8725	Carbon film resistor	R-20-560-J (1/5W, 560 Ω , $\pm 5\%$)	1		
	0002 8726	Carbon film resistor	R-20-1K-J (1/5W, 1 k Ω , $\pm 5\%$)	2		
	0002 8946	Carbon film resistor	R-20-3.3K-J (1/5W, 3.3 k Ω , $\pm 5\%$)	2		
	0002 8729	Carbon film resistor	R-20-10K-J (1/5W, 10 k Ω , $\pm 5\%$)	17		
	0002 8730	Carbon film resistor	R-20-33K-J (1/5W, 33 k Ω , $\pm 5\%$)	1		
	0002 8731	Carbon film resistor	R-20-47K-J (1/5W, 47 k Ω , $\pm 5\%$)	3		
	0002 8947	Carbon film resistor	R-20-68K-J (1/5W, 68 k Ω , $\pm 5\%$)	1		
	0002 8733	Carbon film resistor	R-20-100K-J (1/5W, 100 k Ω , $\pm 5\%$)	8		
	0002 8734	Carbon film resistor	R-20-150K-J (1/5W, 150 k Ω , $\pm 5\%$)	1		
	0002 8735	Carbon film resistor	R-20-220K-J (1/5W, 220 k Ω , $\pm 5\%$)	3		
	0002 8736	Carbon film resistor	R-20-1M-J (1/5W, 1000 k Ω , $\pm 5\%$)	1		
	0002 8951	Carbon film resistor	R-20-12K-J (1/5W, 12 k Ω , $\pm 95\%$)	1		
	0002 9002	Carbon film resistor	R-20-15K-J (1/5W, 15 k Ω , $\pm 5\%$)	1		
	0002 8956	Carbon film resistor	R-20-22K-J (1/5W, 22 k Ω , $\pm 5\%$)	8		
	0002 8959	Carbon film resistor	R-20-212M-J (1/5W, 2200 k Ω , $\pm 5\%$)	2		
	0002 8960	Carbon film resistor	R-20-56-J (1/5W, 56 Ω , $\pm 5\%$)	1		
	2802 7036	Electrolytic capacitor	50SSAR47 (0.47 μ F, 50V, $\pm 20\%$)	1		

Notes: Δ - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

AZ-1 Parts List

Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
	2800 9672	Electrolytic capacitor	50SSA3R3 (3.3 μ , 50V, $\pm$ 20%)	2	N/A	X
	2800 9791	Electrolytic capacitor	16SSA10 (10 μ F, 1 μ V, $\pm$ 20%)	6		
	2800 9805	Electrolytic capacitor	10SSA100 (100 μ F, 10V, $\pm$ 20%)	3		
	2800 9798	Electrolytic capacitor	50SSAR1 (0.1 μ F, 50V, $\pm$ 20%)	6		
	2818 0055	Ceramic capacitor	HE40SJY8221K (220pF, 50V, $\pm$ 10%)	1		
	2818 2040	Ceramic capacitor	HE70SJYF103Z (10000pF, 50V, +80%, -20%)	1		
	2819 0662	Ceramic capacitor	HE50SJCH300J (30pF, 50V, $\pm$ 5%)	2		
		M3267-CN1M, CN2M, CN3, CN9				
*	2370 0007	LED	LN514RA	1	AI	B
*	2370 0014	LED	LN524RA	1	AN	B
*	2370 0035	LED	LN851RPP.WE	7	AC	B
*	3410 1728	Switch	EVO-QS205K	17	AB	B
*	3725 0266	PC joiner M267B	PCJ-11V-23-90	1	AG	X
*	6214 4769	Joiner holder E71	E41620-1	1	-	X
*	6908 0670	Felting (20x6)	M42931-1	1	-	X
	2300 2086	Diode	1SS254	20	AA	C

Notes: * - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

AZ-1 Parts List

Item	Code No.	Parts Name	Specification	Qty	Price Code	Rank
☆	2770 6789	M3267-CN6 PCB ASS'Y Volume Definable	S3018P605M-50KB (50 kΩ)	1	AE	B
	3500 7636	Pin ass'y (6 pins) 12.8	1L-G6P-S3L2-E	1	AC	C
		M3267-CN7 PCB ASS'Y				
	2370 0035	LED Power Indicator	LN851RPP.WE	1	AC	B
	3500 3991	Pin ass'y (2 pins)	1L-G-2P-S3L2-E	1	AA	C
		KEYBOARD PCB ASS'Y				
	2004 0815	LSI (key touch control LSI)	MSM6200GS-1L	1	BE	A
	2300 2086	Diode	1SS254	82	AA	C
☆	2590 0063	Ceramic oscillator	CSA4.94MG	1	AD	C
	2606 0049	Carbon film resistor	R-20-100K-G (1/5W, 100 kΩ, ±2%)	8	N/A	X
	0002 8723	Carbon film resistor	R-20-100-J (1/5W, 100 kΩ, ±5%)	1		
	0002 8957	Carbon film resistor	R-20-56K-J (1/5W, 56 kΩ, ±5%)	1		
	2804 5051	Electrolytic capacitor	16RE10 (10μF, 16V, ±20%)	2		
	2818 0055	Ceramic capacitor	HE40SJYB221K (220pF, 50V, ±10%)	1		
	2818 2040	Ceramic capacitor	HE70SJYF103Z (10000pF, 50V, +80%, -20%)	1		
	2818 3062	Ceramic capacitor	HE50SJCH330J (33pF, 40V, ±5%)	2		
	2820 3080	TF capacitor	ECQ-VIH-104-JZ (100000pF, 50V, ±5%)	8		
	2845 0021	Three polarity capacitor	DS306-568222M	1		
	3721 0244	PC joiner M1501	PCJ-JPSS-13-30	1	AB	C
☆	3725 0273	PC joiner M267A	PCJ-UV-18-60	1	AE	C
	4307 5720	Blank PCB-M3267-KY1M	M11016-1	1	AU	X
	4307 5730	Blank PCB-M3267-KY2M	M11017-2	1	AR	X
	6215 1340	Joiner holder E92	E41909-2	1	-	X

Notes: ☆ - New parts
Qty - Quantity used per unit

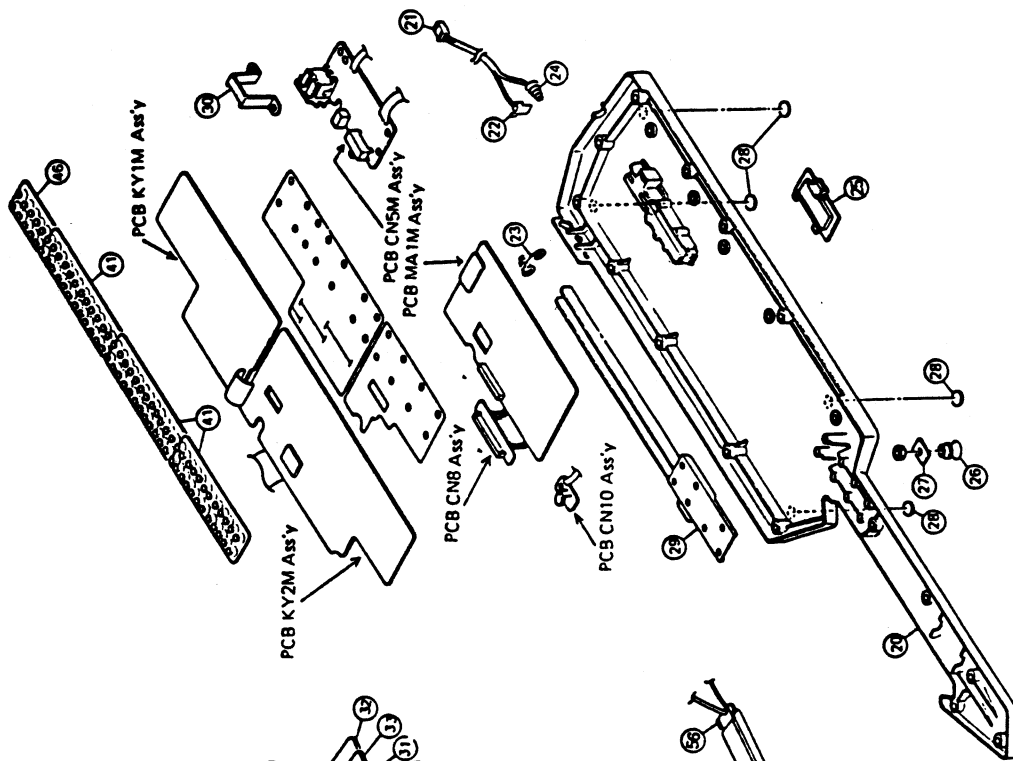
Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

AZ-1 Parts List

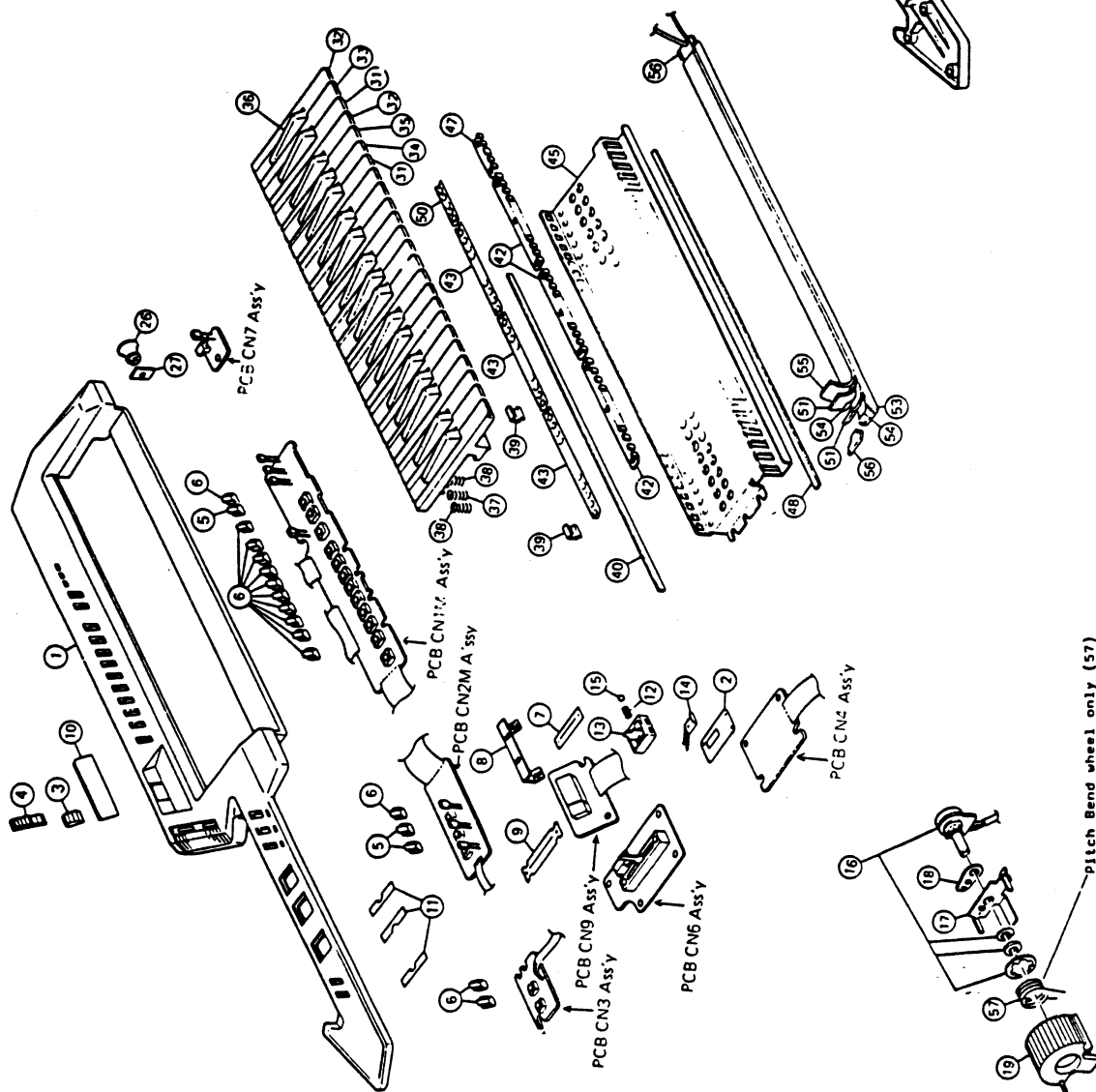
Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
UPPER CASE ASS'Y						
1 *	6907 8401	Upper case sub ass'y	M21436*1 (including item No. 7, 8, 9, 10 and 11)	1	BO	C
2 *	6905 3070	CN spacer 144A	M42411-1	1	-	C
3 *	6907 8411	Slide knob 267	M32204-1	1	AC	C
4 *	6907 8420	Volume knob 267	M32203-1	1	AC	C
5 *	6907 8440	Push button 267	M42802-1	3	AC	C
6 *	6907 8450	Push button 267	M42802-2	14		C
(7) *	6905 3040	Blind for switch	M42409-1	1	-	X
(8) *	6907 8431	LED holder	M42793-1	1	-	X
(9) *	6907 8520	Blind for volume	M42871-1	1	-	X
(10) *	6907 8530	LED window	M42804-1	1	AC	X
(11) *	6907 8540	Stop cushion	M42872-1	3	-	X
Slide Board 96 Ass'y						
12	6910 0480	Slide spring	M4491-1	1	AA	C
13	6911 9150	Slide board 96	M31873-1	1	AB	C
14	6911 9160	Carbon slide contact 96	M42184-1	1	AB	C
15	5580 1274	Bearing	SUS304 2pi	1	AA	C
Bender Ass'y (M32273*1)						
16	2770 6843	Volume	Pitch Bend VM10W520A-50KB	1	AH	B
17 *	6907 8650	Bender chassis 267A	M32189-1	1	-	X
18 *	6907 8660	Bender chassis 267B	M2795-1	1	-	X
19 *	6907 8670	Bender dial 267	M32201-1	1	AF	C
57 *	6907 8680	Bender spring	M42792-1	1	AB	C
Bender Ass'y (M32273*2)						
16	2770 6843	Volume	Definable VM10W520A-50KB (50 kΩ)	2	AH	B
17 *	6907 8650	Bender chassis 267A	M32189-1	2	-	X
18 *	6907 8660	Bender chassis 267B	M42795-1	2	-	X
19 *	6907 8670	Bender knob 267	M32201-1	2	AF	C

Notes: * - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended



AZ-1 Parts Diagram



AZ-1 Parts List

Item	Code No.	Parts Name	Specification	Q'ty	Price Code	Rank
8) LOWER CASE ASS'Y						
20 ☆	6907 8480	Lower case sub ass'y	M21435*1 (including item No. 21 to 28)	1	BQ	C
(21) ☆	3501 0357	Connector M267B	1L-2P-15-M267	1	-	C
(22)	6345 2238	Battery spring A-G55 (+)	A42606A-1	1	AA	C
(23)	6907 3190	Battery spring 93A (±)	M42628-1	1	AB	C
(24)	6907 3200	Battery spring 93B (-)	M42629-1	1	AA	C
(25) ☆	6906 0372	Battery cover sub ass'y	M32160B*4	1	AF	C
(26) ☆	6907 8380	Strap Holder pin	M42805-1	1	AG	C
(27) ☆	7907 8390	Strap nut	M42806-1	1	-	C
(28) ☆	6907 8560	Rubber foot	M42455-2	1	-	X
(29) ☆	6907 8571	Reinforcement plate	M32261A-1	1	-	X
30	6907 8500	Din jack holder	M42796-1	1	-	X
9) KEYBOARD ASS'Y						
31	6903 7710	White key CF	M31269-1	7	AF	C
32	6903 7720	White key BE	M31271-1	7	AF	C
33	6903 7730	White key D	M31270-1	4	AF	C
34	6903 7740	White key G	M31272-1	3	AF	C
35	6903 7750	White key A	M31273-1	3	AF	C
36	6903 7770	Black key	M31275-1	17	AF	C
37	6903 7780	KB spring TR (for black key)	M41630-1	17	AA	C
38	6903 9880	KB spring TR (for white key)	M41630-2	24	AA	C
39	6904 0560	Stopper for upper case	M31414-1	2	-	X
40 ☆	6907 8590	Key stopper 41	M32190-1	1	-	X
41	6903 7660	Key contact rubber E	M31276A-1	3	AF	B
42	6903 7680	KB guide A	M31317-1	3	-	X
43	6904 0580	Damping tape A	M31460-1	3	-	X
45 ☆	6907 8600	KB chassis TR41	M11026-1	1	-	X
46 ☆	6907 8610	Key contact rubber C, E	M32202-1	1	AD	B
47 ☆	6907 8620	KB guide C, E	M32200-1	1	-	X
48 ☆	9607 8630	Stopper (upper)	M42803-1	1	-	X
50 ☆	6908 0720	Damping tape C, E	M32198-1	1	-	X
9-a) After Touch Sensor Ass'y						
51 ☆	6907 4862	Element AFS	M32088B-1	2	AD	C
53 ☆	6907 8701	Housing AFS	M32089A-2	1	AG	C

Notes: ☆ - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

AZ-1 Parts List

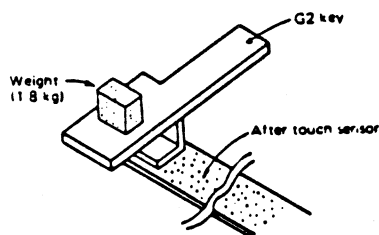
Item	Code No.	Parts Name	Specification	Q'ty		Price Code	Rank
54 *	6907 8711	Electrode AFS	M42685A-2	2		AG	C
55 *	6907 8721	Damper AFS	M42686A-2	1		AI	C
56 *	6907 8730	Side tip AFS	M42814-1	2		AB	C
		10) OTHERS					
*	3719 0147	MIDI cord	HD-D5P-0001-A	1		BA	X

Notes: * - New parts
Q'ty - Quantity used per unit

Rank: A: Essential
B: Stock recommended
C: Others
X: No stock recommended

14-3. After Touch Adjustment

- (1) Set the test unit on After touch check mode of Self-check function ⑥ -(5) (refer to page 28).
- (2) Put a weight of 1.8 kg lead on key G2 as shown below.



- (3) Adjust VR3 so that LED display indicates **243**.
- (4) If the display does not show **243** even VR3 is turned all the way counterclockwise, set the VR3 on the maximum position.