

SERVICE MANUAL & PARTS LIST

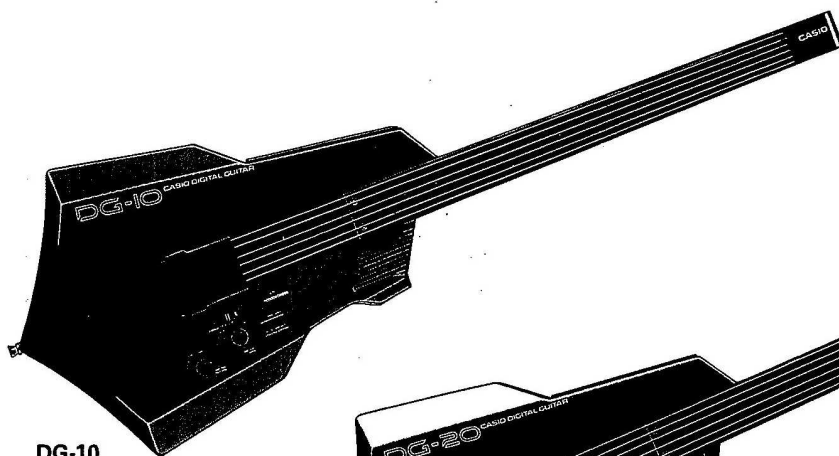
(without price)

Digital Guitar

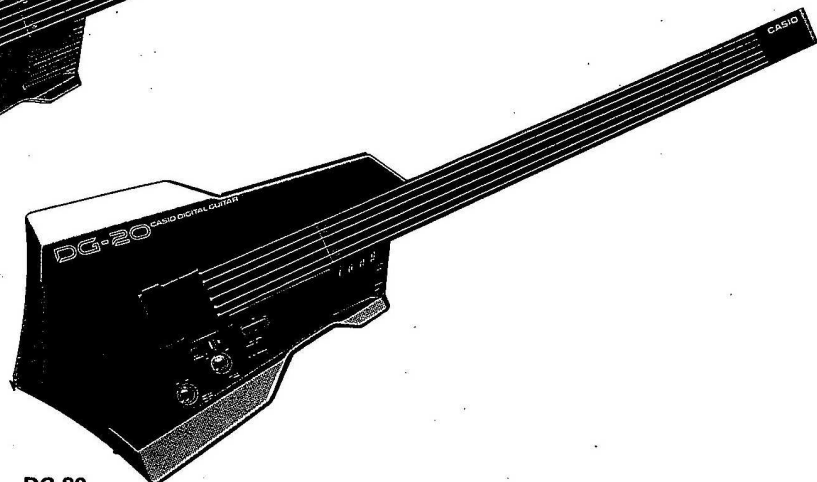
DG-10

DG-20

AUGUST 1987



DG-10



DG-20

CASIO®

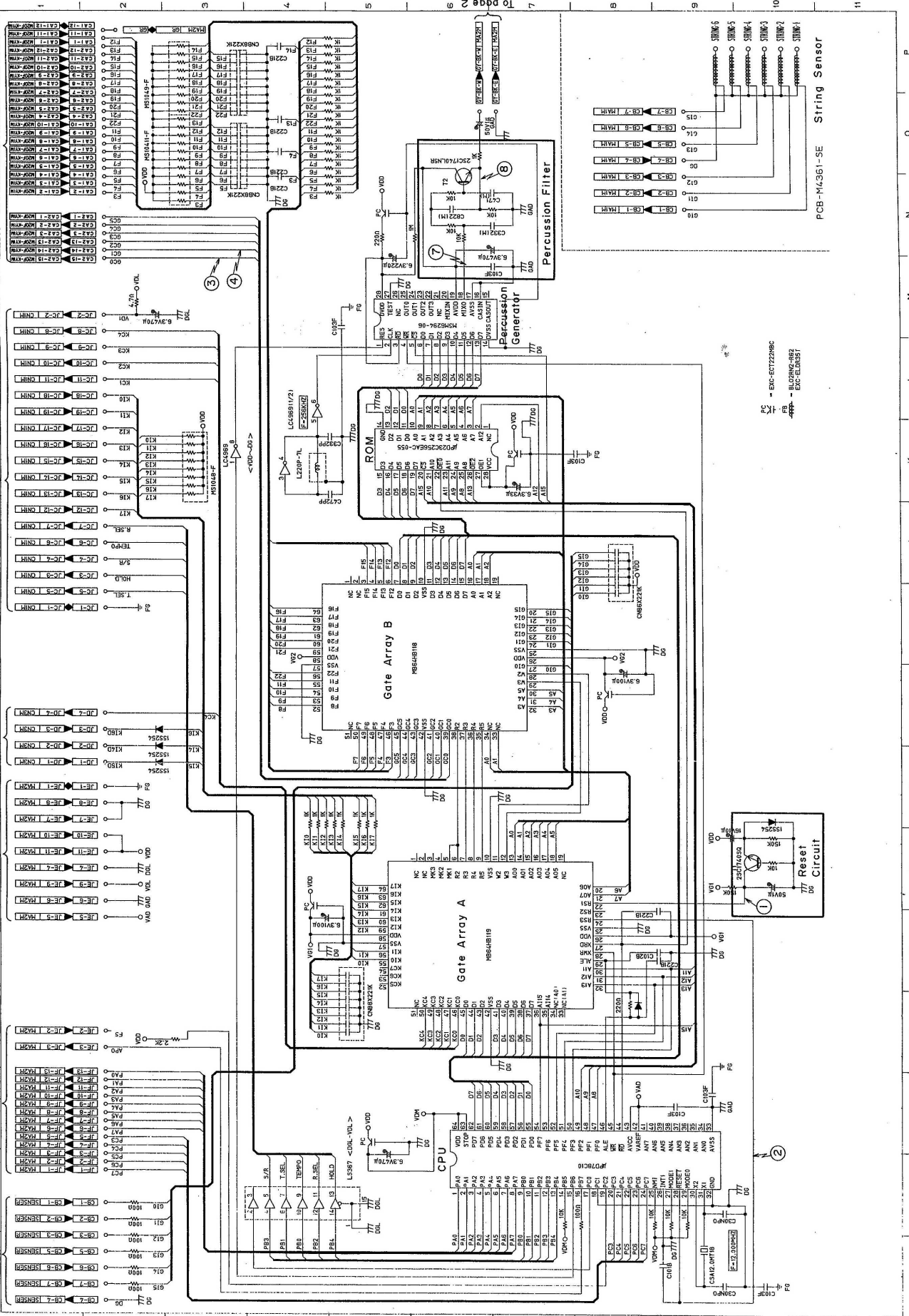
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SCHEMATIC DIAGRAM

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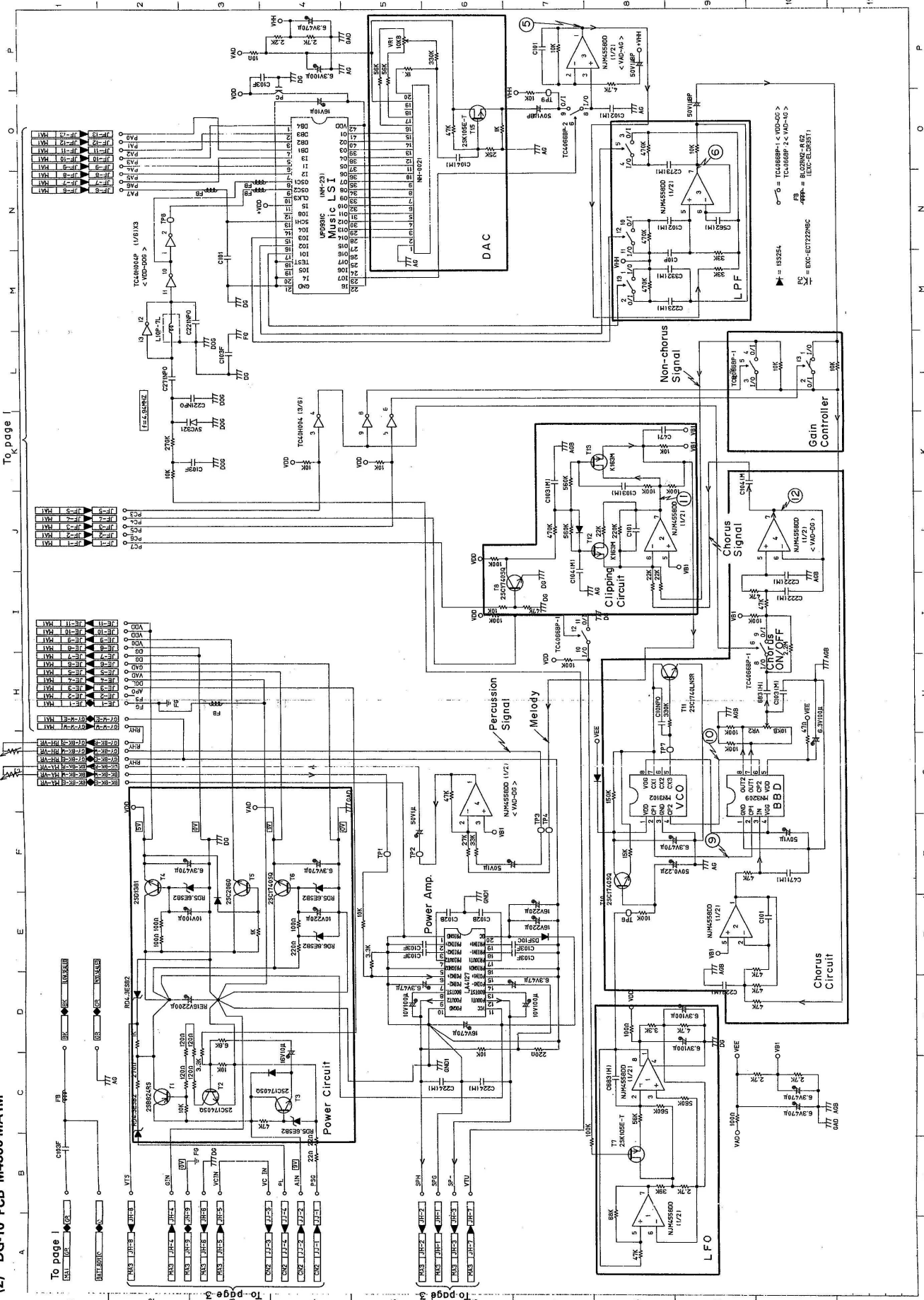
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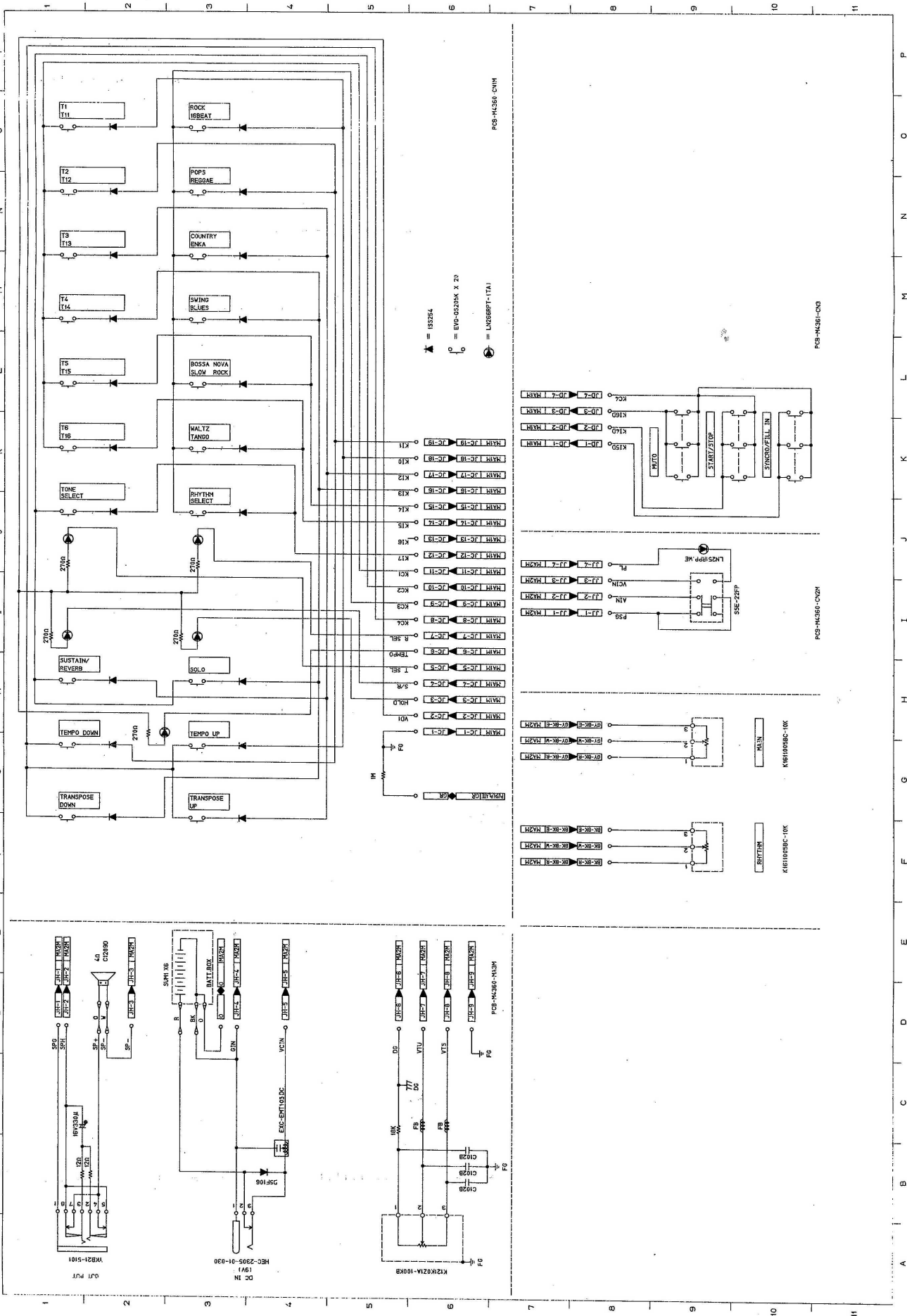
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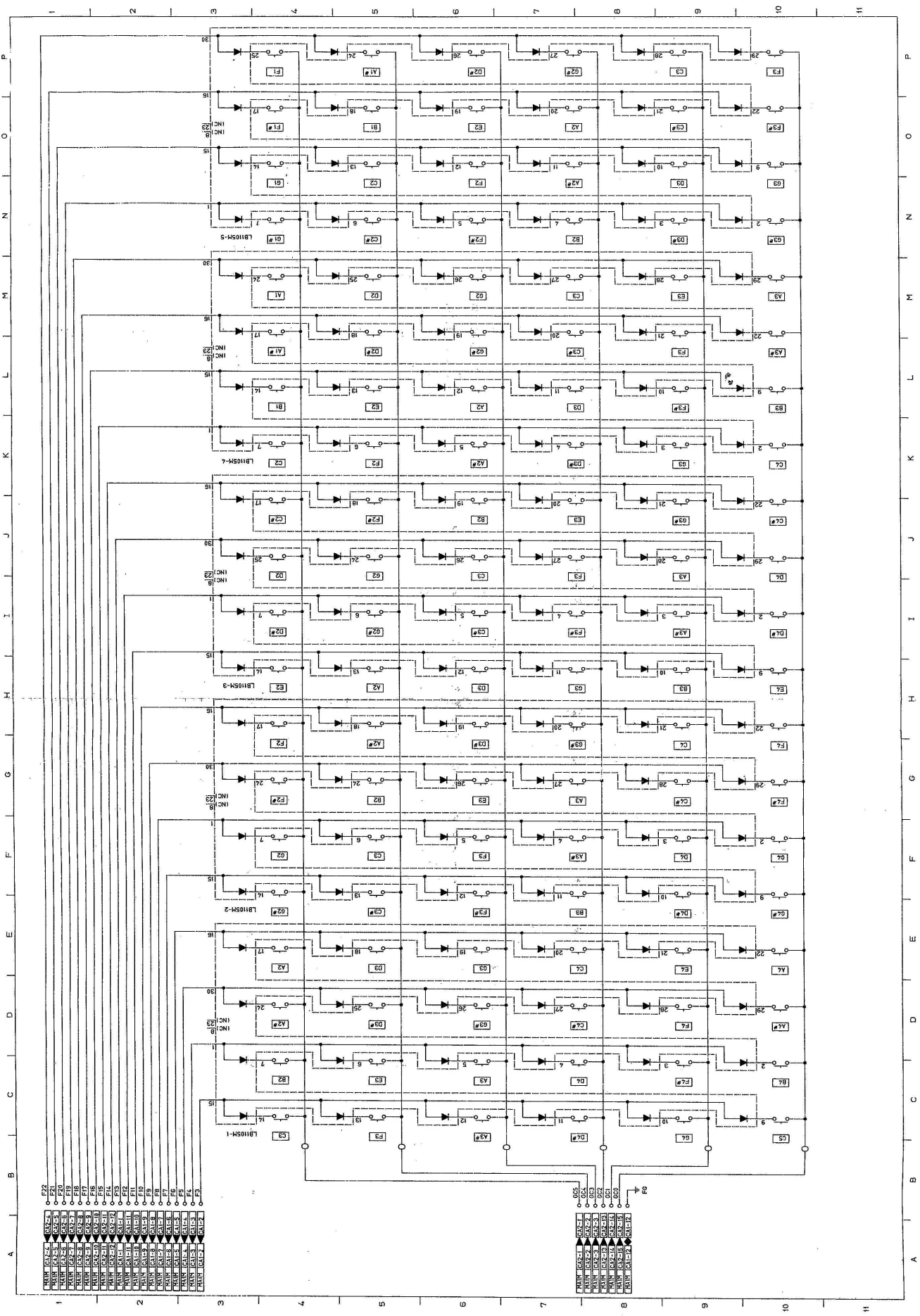
(2) DG-10 PCB M4360-MA1M



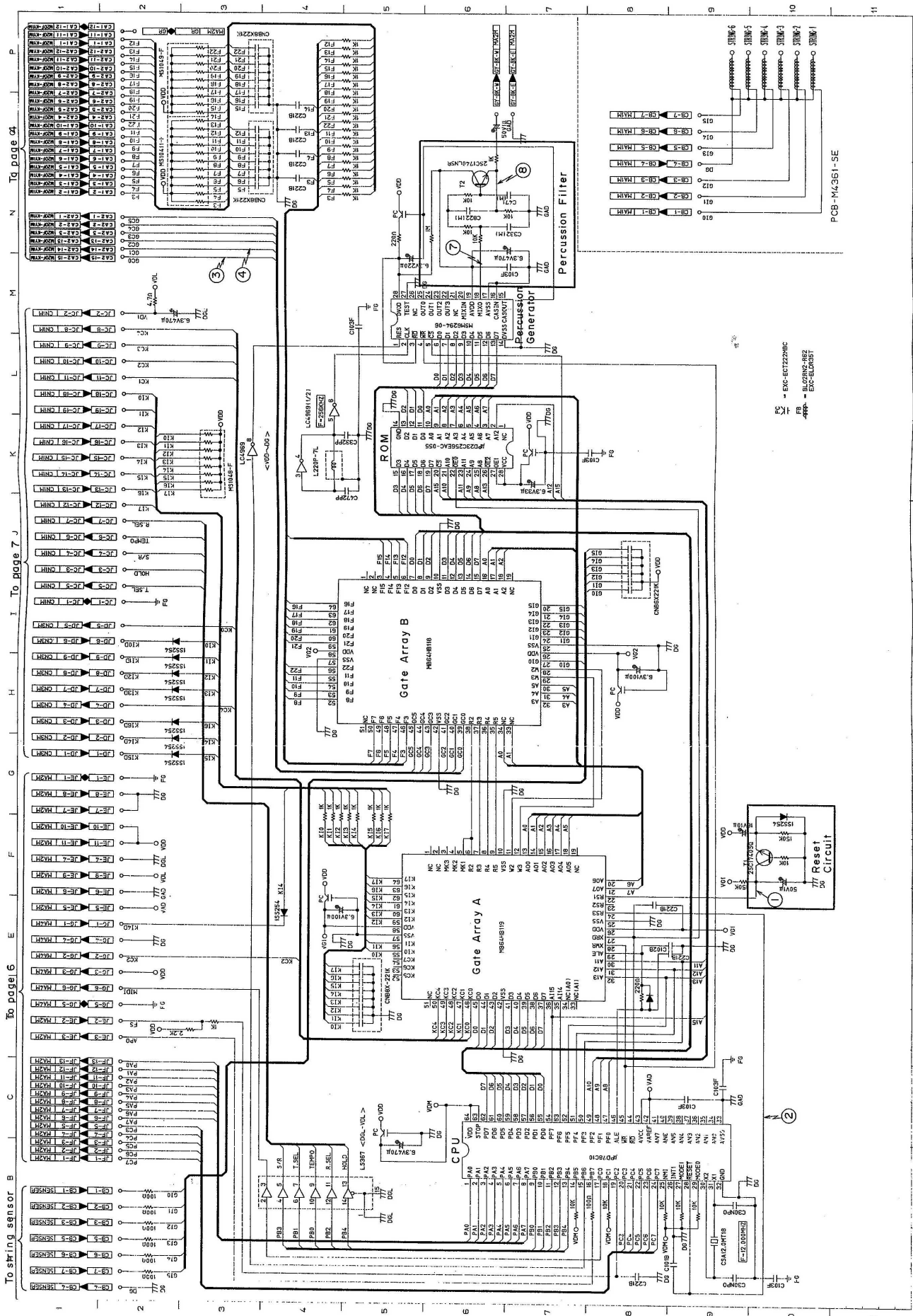
(3) DG-10 PCBs M4360-CN1M, CN2M, MA3M, M4361-CN3



(4) DG-10/DG-20 PCB M20F-KY1

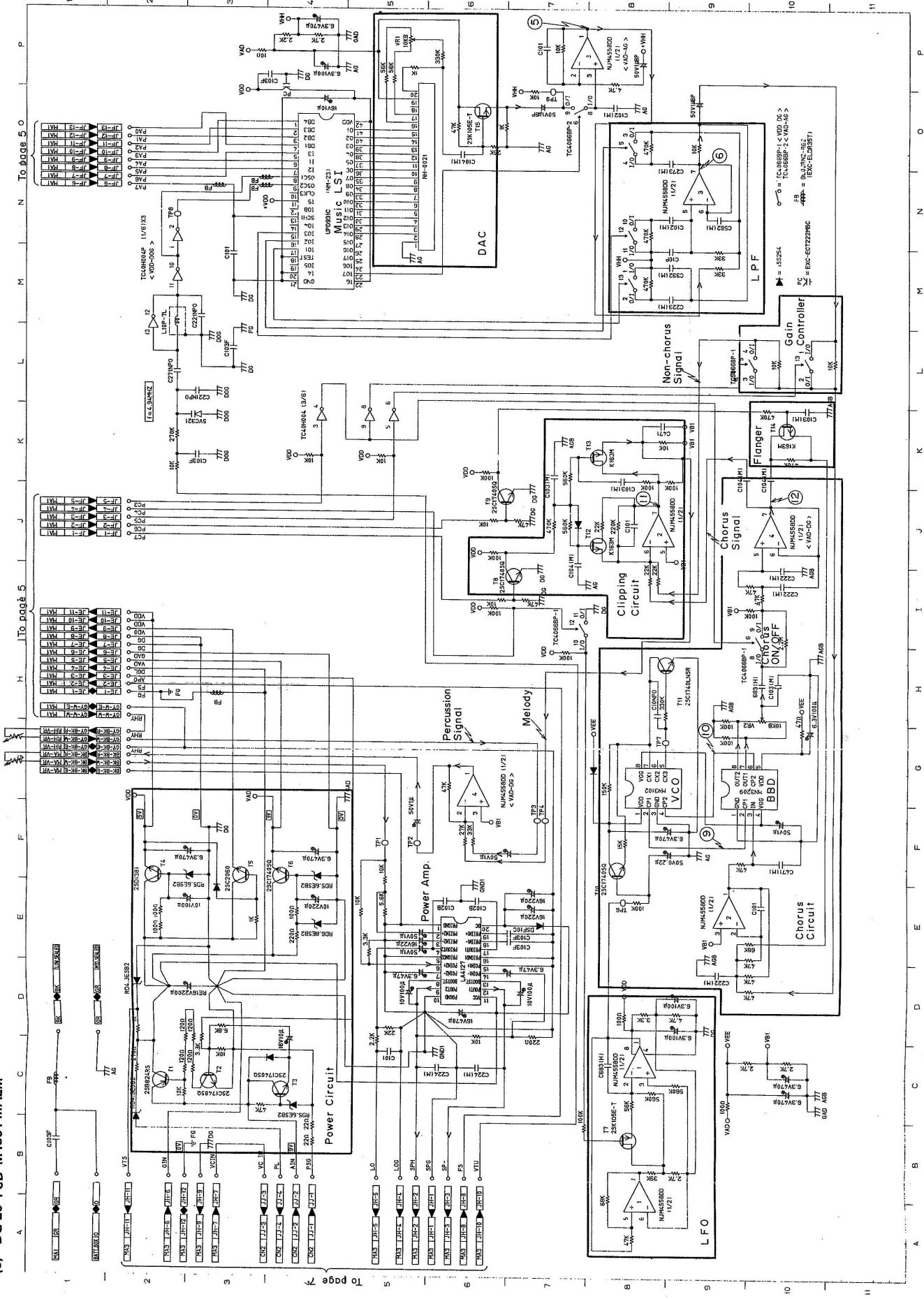


(5) DG-20 PCB M4361-MA1M

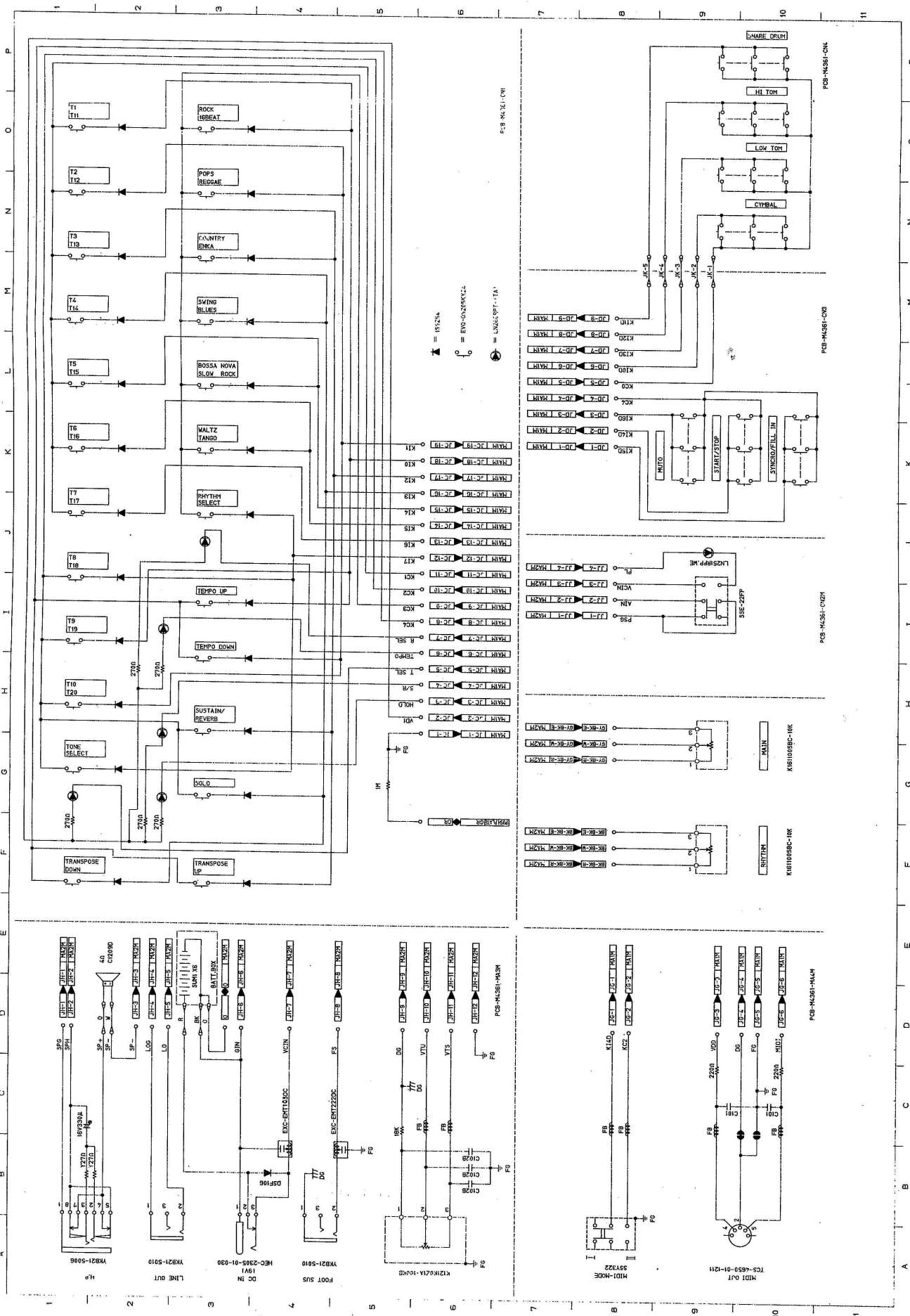


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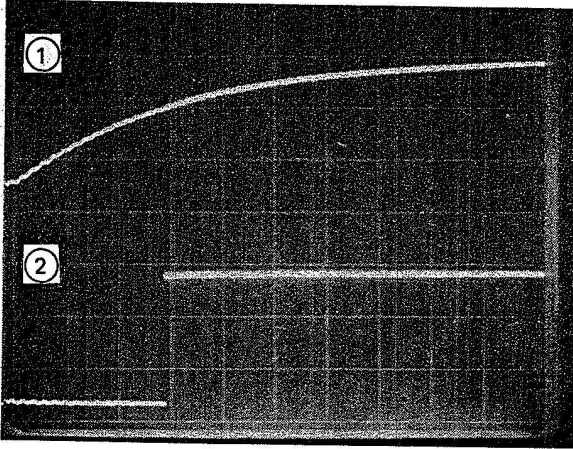
(6) DG-20 PCB M4361-MA2M



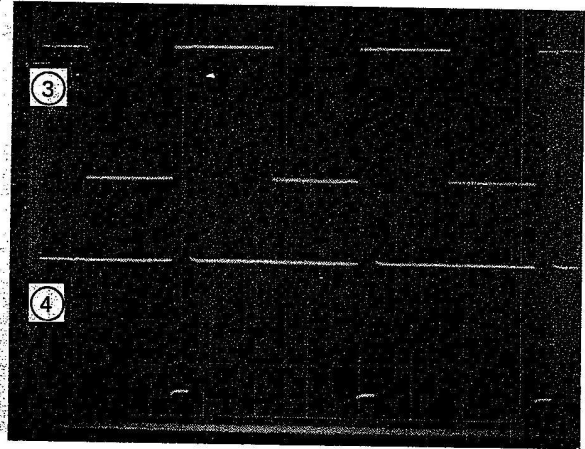
(7) DG-20 PCBs M4361-CN1M, CN2M, CN3, CN4, MA3M, MA4M



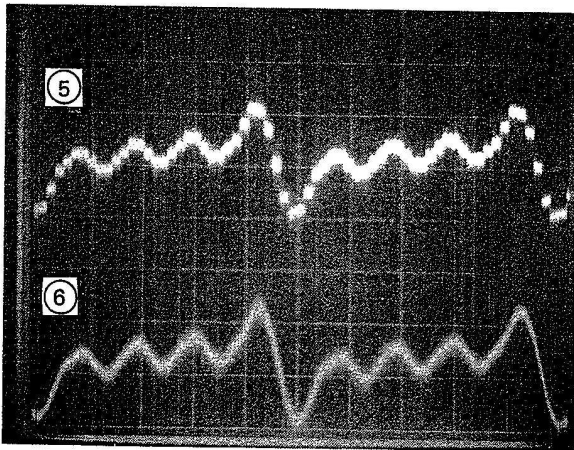
MAJOR WAVEFORMS



- ① T1 collector
0.2V/div., 50ms/div.
- ② CPU pin 28
0.2V/div., 50ms/div.

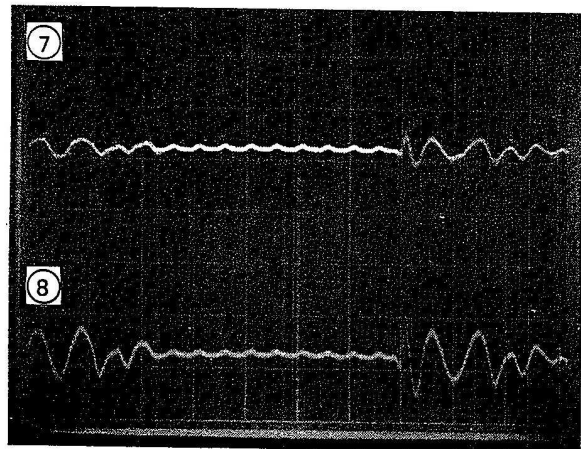


- ③ GCO
0.2V/div., 1ms/div.
- ④ GC1
0.2V/div., 1ms/div.

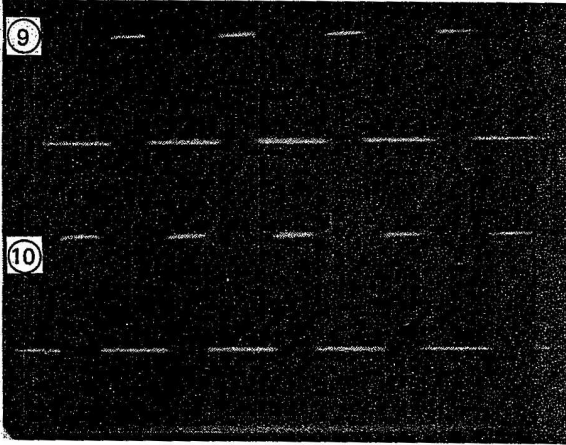


- ⑤ NJM4558-3 pin 1
10mV/div., 1ms/div.
- ⑥ NJM4558-3 pin 7
10mV/div., 1ms/div.

Tone: Jazz Organ
3rd string, Open fret

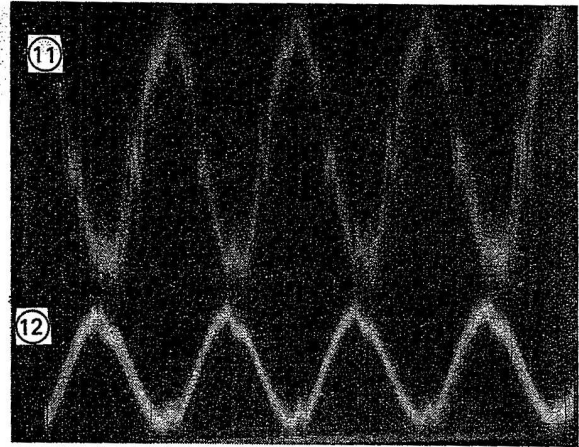


- ⑦ MSM6294 pin 28
50mV/div., 20ms/div.
- ⑧ T2 emitter
50mV/div., 20ms/div.



- ⑨ MN3209 pin 2
0.2V/div., 2 μ s/div.
- ⑩ MN3209 pin 6
0.2V/div., 2 μ s/div.

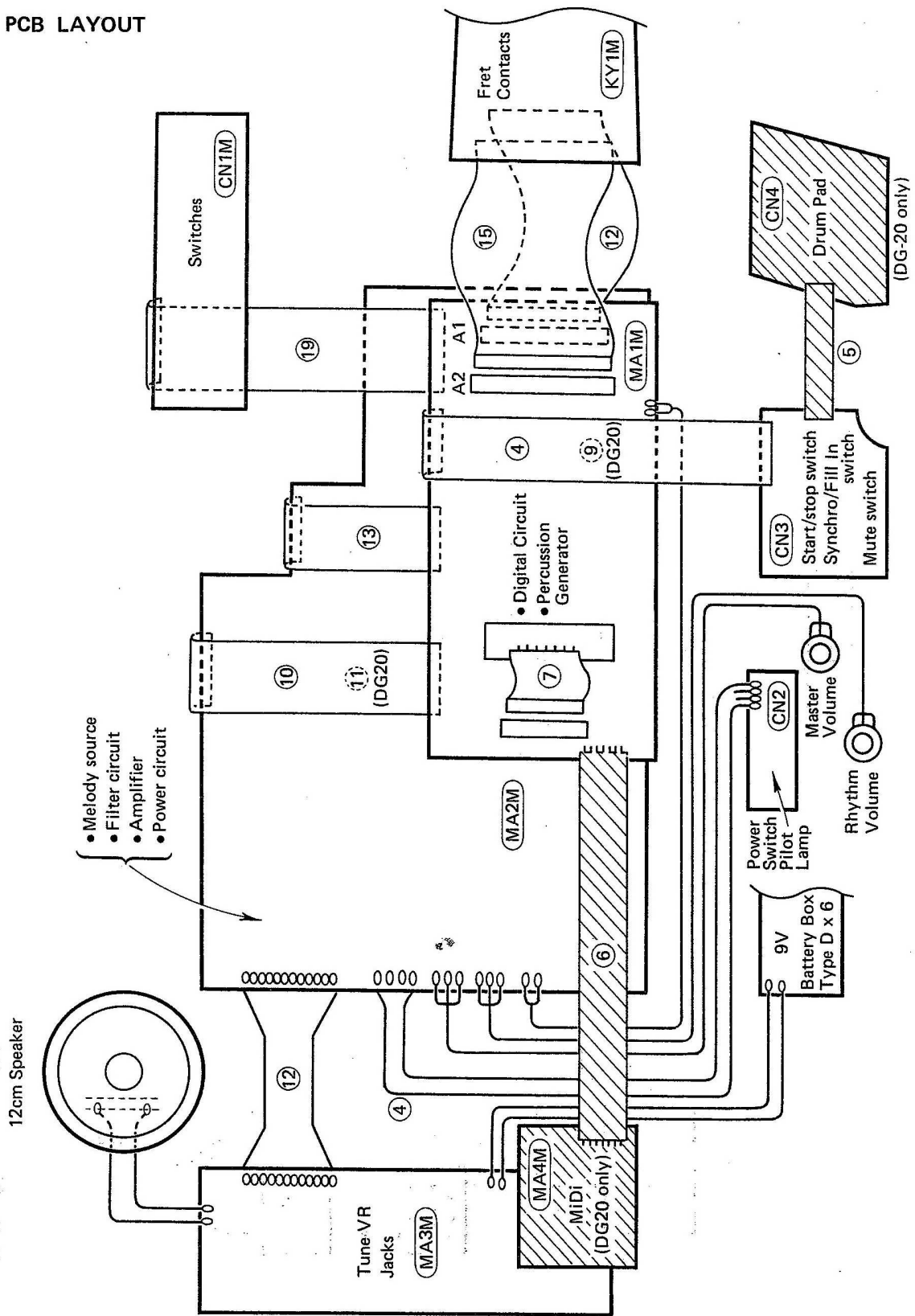
One cycle period varies
from 3.5 μ s to 6 μ s



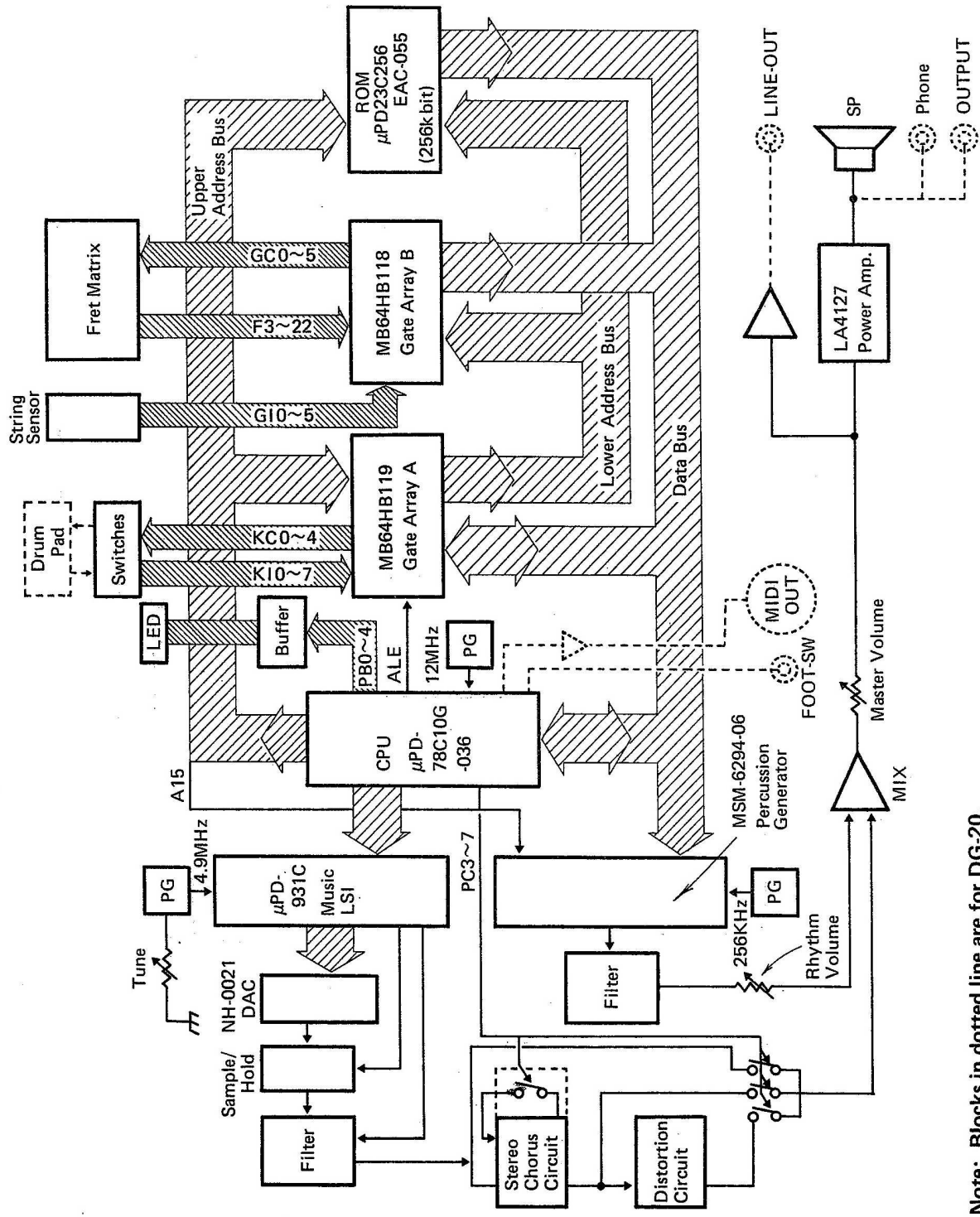
- ⑪ PCB MA2M NJM4558-2 pin 7
2mV/div., 2ms/div.
- ⑫ PCB MA2M NJM4558-4 pin 7
5mV/div., 2ms/div.

Tone: Elec. Guitar
3rd string, Open fret

PCB LAYOUT



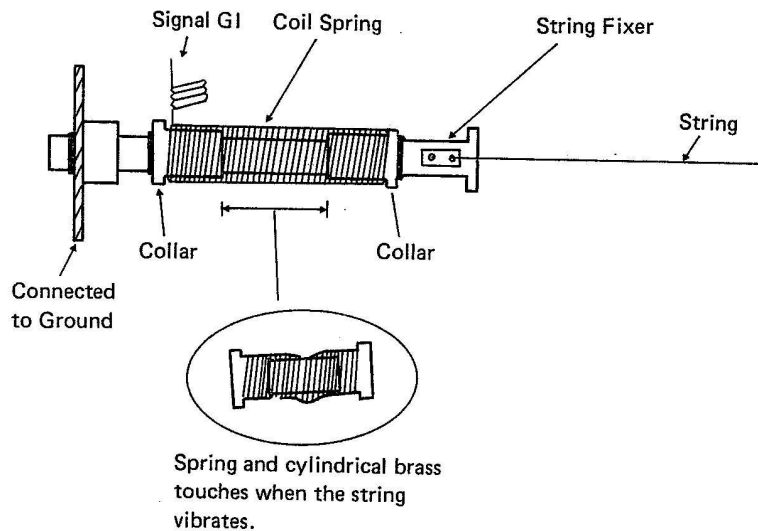
BLOCK DIAGRAM



Note: Blocks in dotted line are for DG-20.

STRING SENSOR MECHANISM

This block detects the vibration of the strings.

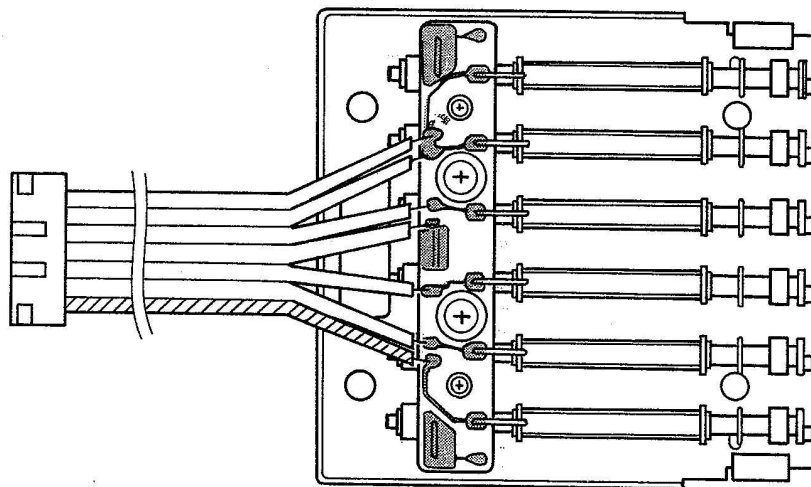


Each string is connected to a cylindrical brass. Around the brass, a coil spring is fixed with plastic collars.

The ground is provided to the brass whereas the spring is connected to a GI terminal.

When a string is touched, the spring bends and contacts with the brass.

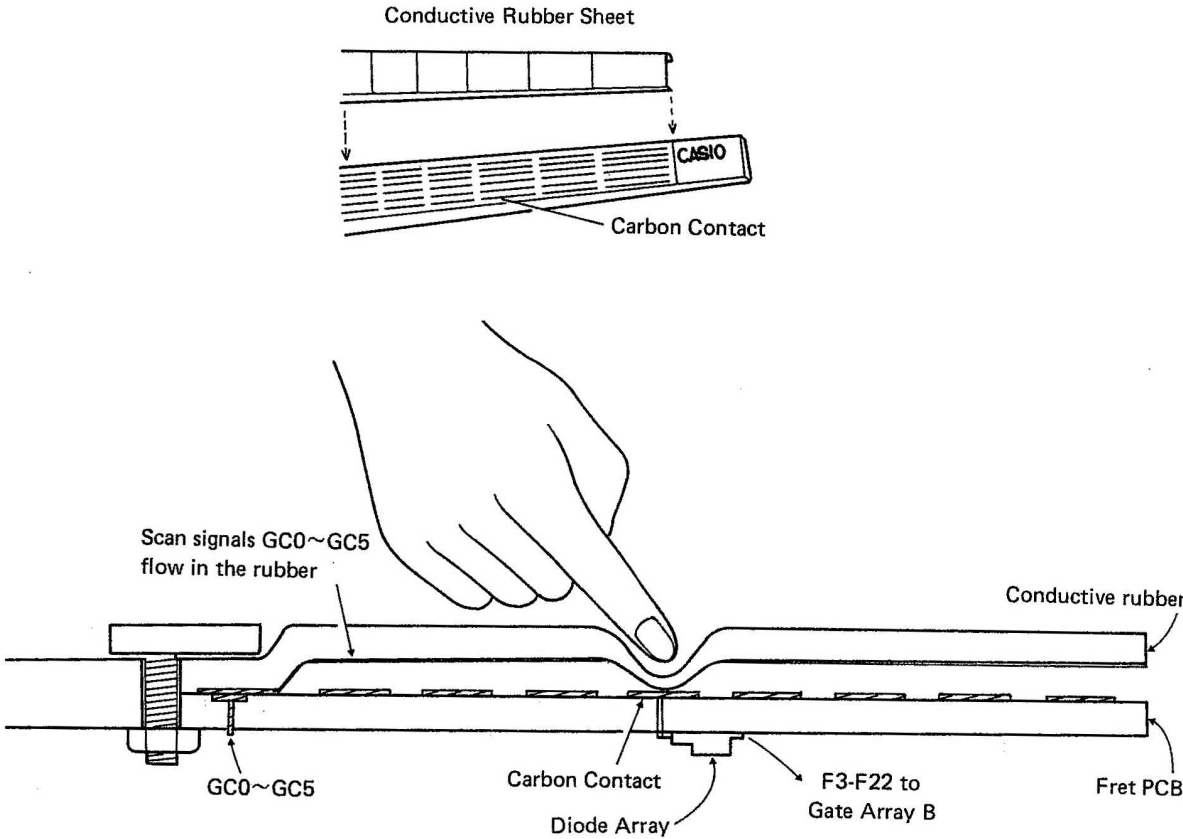
Gate Array B detects the vibration of the string by receiving ground from the GI terminals.



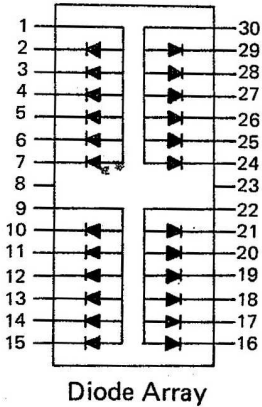
String Sensor Unit

FRET DETECTION MECHANISM

Fret detection block is composed of a conductive rubber sheet and carbon contact fret PCB and detects the pressed fret position.



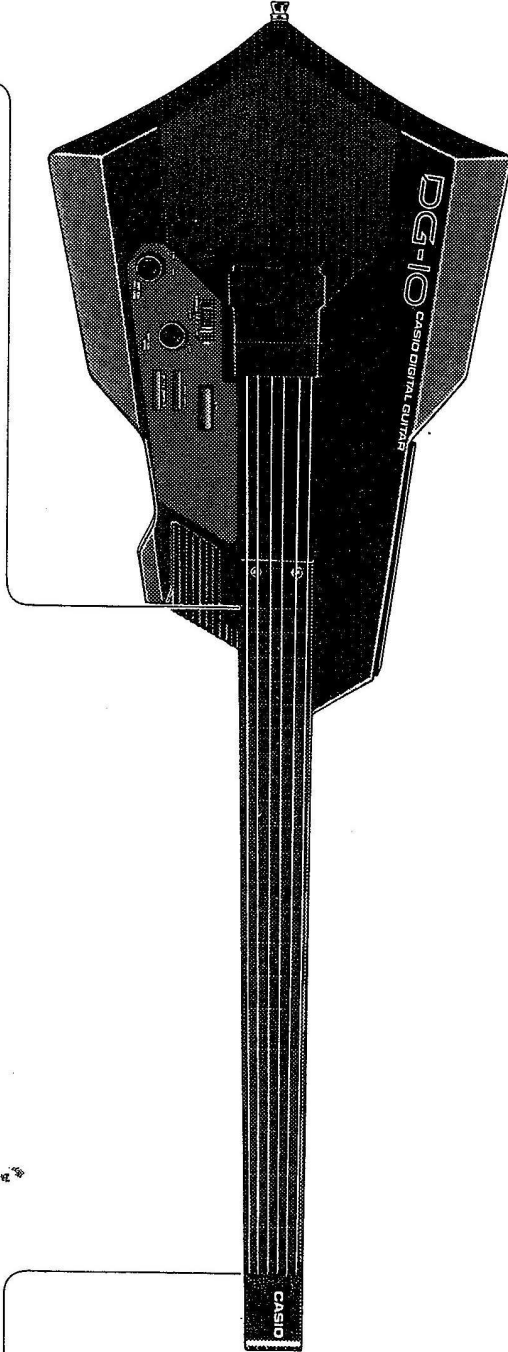
When a fret is pressed, the conductive rubber touches the carbon contact on the fret PCB. As each strings' scan signals GC0 ~ GC5 are provided on the conductive rubber, fret signals F3 ~ F22 enter Gate Array B via carbon contact and diode array.



FRET/STRING MATRIX TABLE

*Number in () is MIDI note number.

	F	Open	F22	F21	F20	F19	F18	F17	F16	F15	F14	F13	F12	F11	F10	F9	F8	F7	F6	F5	F4	F3	
1st string	GC0	E4(64)	F4 (65)	F#4(66)	G4 (67)	G#4(68)	A4(69)	A#4(70)	B4 (71)	C5 (72)	C#5(73)	D5(74)	D#5(75)	E5(76)	F5 (77)	F#5(78)	G5 (79)	G#5(80)	A5(81)	A#5(82)	B5 (83)	C6 (84)	
2nd "	GC1	B3(59)	C4 (60)	C#4(61)	D4 (62)	D#4(63)	E4(64)	F4 (65)	F#4(66)	G4 (67)	G#4(68)	A4(69)	A#4(70)	B4(71)	C5 (72)	C#5(73)	D5 (74)	D#5(75)	E5(76)	F5 (77)	F#5(78)	G5 (79)	
3rd "	GC2	G3(55)	G#3(56)	A3 (57)	A#3(58)	B3 (59)	C4(60)	C#4(61)	D4 (62)	D#4(63)	E4 (64)	F4(65)	F#4 (66)	G4(67)	G#4(68)	A4 (69)	A#4(70)	B4 (71)	C5(72)	C#5(73)	D5 (74)	D#5(75)	
4th "	GC3	D3(50)	D#3(51)	E3 (52)	F3 (53)	F#3(54)	G3(55)	G#3(56)	A3 (57)	A#3(58)	B3 (59)	C4(60)	C#4(61)	D4(62)	D#4(63)	E4 (64)	F4 (65)	F#4(66)	G4(67)	G#4(68)	A4 (69)	A#4(70)	
5th "	GC4	A2(45)	A#2(46)	B2 (47)	C3 (48)	C#3(49)	D3(50)	D#3(51)	E3 (52)	F3 (53)	F#3(54)	G3(55)	G#3(56)	A3(57)	A#3(58)	B3 (59)	C4 (60)	C#4(61)	D4(62)	D#4(63)	E4 (64)	F4 (65)	
6th "	GC5	E2(40)	F2 (41)	F#2(42)	G2 (43)	G#2(44)	A2(45)	A#2(46)	B2 (47)	C3 (48)	C#3(49)	D3(50)	D#3(51)	E3(52)	F3 (53)	F#3(54)	G3 (55)	G#3(56)	A3(57)	A#3(58)	B3 (59)	C4 (60)	
			1st Fret	2nd Fret	3rd Fret	4th Fret	5th Fret															20th Fret



CPU (μ PD78C10)

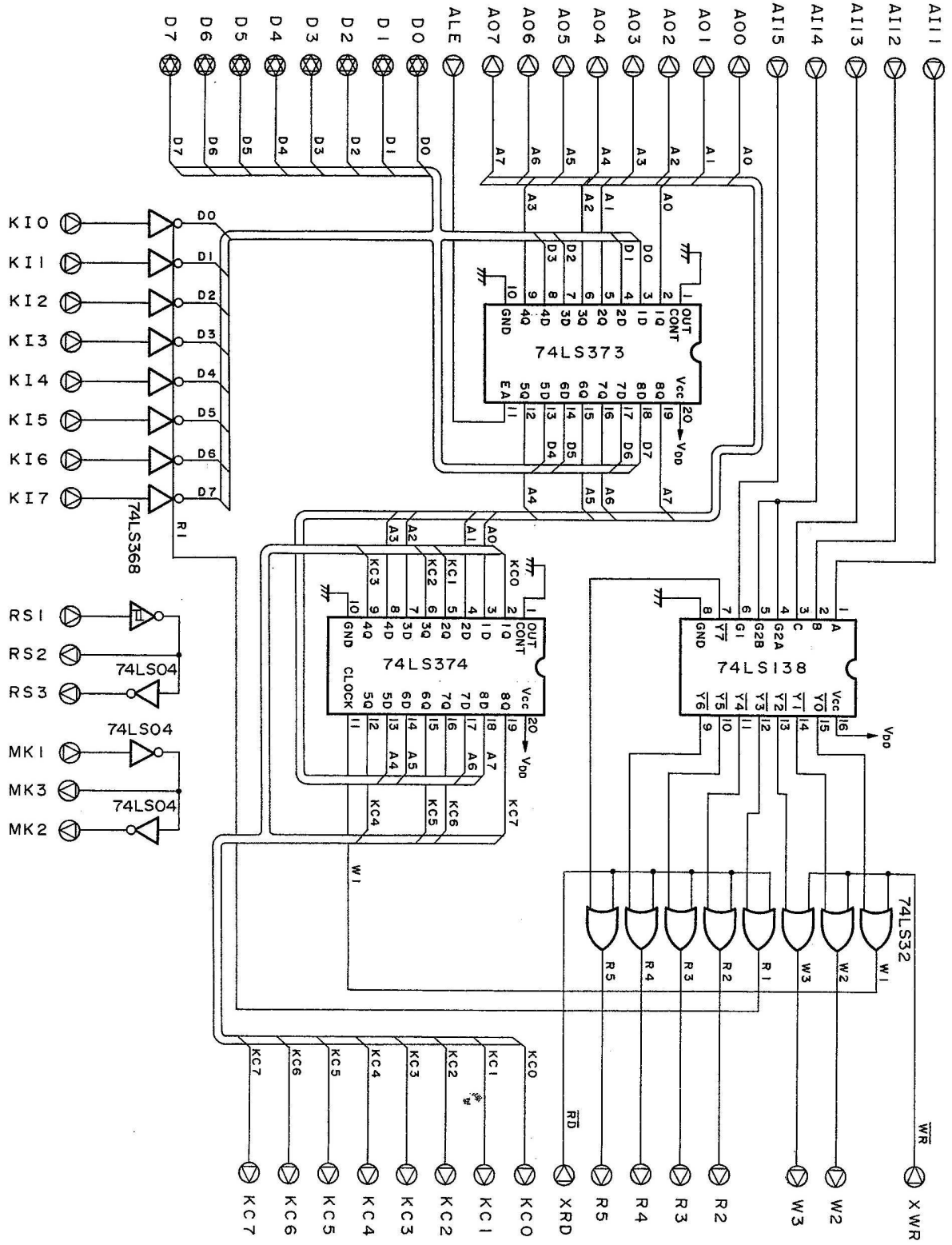
Pin No.	Terminal	Signal	In/Out	Signal Function
1 ~ 8	PA0 ~ PA7	—	Out	Data and control signals for Music LSI
9	PB0	TEMPO	Out	Tempo LED drive signal
10	PB1	T. SEL	Out	Tone Select LED drive signal
11	PB2	R. SEL	Out	Rhythm Select LED drive signal
12	PB3	S/R	Out	Sustain/Reverb LED drive signal
13	PB4	HOLD	Out	Poly/Mono LED drive signal
14	PB5	—	—	Not used
15	PB6	—	Out	Reset signal for Percussion Generator. High active.
16	PB7	APO	Out	Auto power off signal. Low active.
17	PC0	MIDI	Out	MIDI signal output
18	PC1	—	In	DG10/DG20 selection terminal. Low — DG10 High — DG20
19	PC2	FS	In	Foot switch input. Being Low of this terminal sustains sounds (DG20 only)
20	PC3	—	Out	Chorus ON/OFF and Melody gain control signal. Being Low of this terminal gives sound chorus effect and rises the sound level.
21	PC4	—	Out	Chorus speed control signal. High — Slow Low — Fast
22	PC5	—	Out	Melody sound's gain control. Low — Loud High — Soft
23	PC6	—	Out	Chorus depth control. Deeper chorus effect (flanging) is given to the sounds when the terminal is Low.
24	PC7	—	Out	Distortion effect control. Being High of this terminal distorts the sounds.
25~27		—	—	Not used
28	RESET	—	In	Power ON Reset signal input. Low active.
29	MODE 0	—	—	Not used
30, 31	X2, X1	—	In/Out	12MHz clock pulse input and output
32	GND	DG	—	Digital ground source
33	AVSS	GAD	—	Analog ground
34~41	AN0 ~ AN7	—	—	Not used
42	VAREF	VAD	—	Not used
43	AVCC	VAD	—	Not used
44	\overline{RD}	—	Out	Read signal. Low active.
45	\overline{WR}	—	Out	Write signal. Low active.
46	ALE	—	Out	Address Latch Enable. Data bus D0 ~ D7 become lower address bus when this terminal is High.
47~54	PF0 ~ PF7	A8 ~ A15	Out	Upper address bus
55~62	PB0 ~ PB7	D0 ~ D7	In/Out	Data bus
63	STOP	—	—	Not used
64	VDD	VDM	—	+5V source

GATE ARRAY A (MB64HB119)

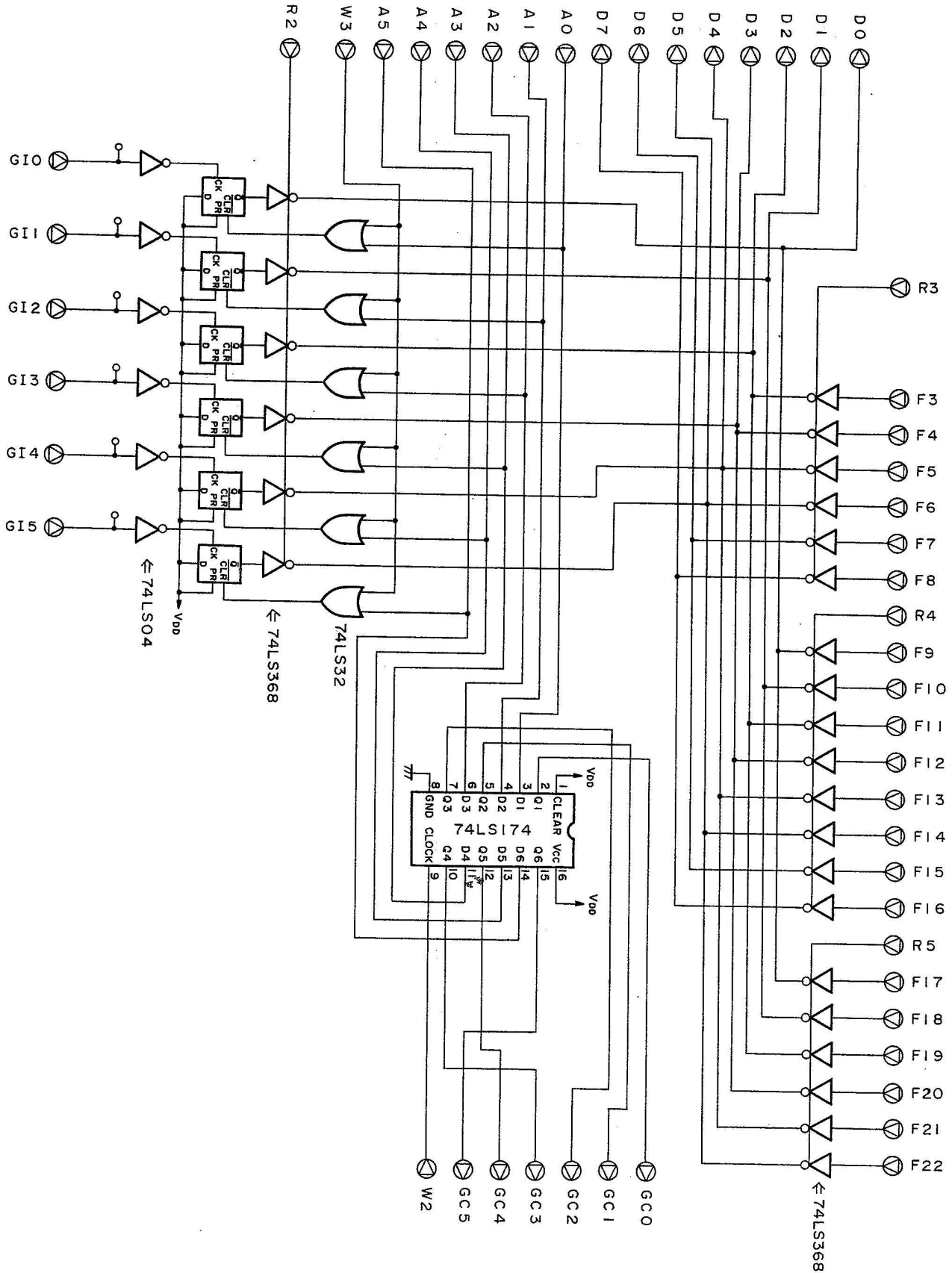
Containing address latch circuit, Gate Array A turns the data bus into lower address bus. The LSI also provides timing signals for switches and strings scanning.

Pin No.	Terminal	Signal	In/Out	Signal Function
1 ~ 5		—	—	Not used
6	R2	—	Out	String sensor read enable signal. When Low, signals G10 ~ G15 are able to enter Gate Array B
7	R3	—	Out	Fret signals F3 ~ F8 read enable signal. Signals F3 ~ F8 are able to enter Gate Array B when this terminal is Low.
8	R4	—	Out	Fret signals F9 ~ F16 read enable signal. Low active.
9	R5	—	Out	Fret signals F17 ~ F22 read enable signal. Low active.
10	VSS	DG	—	Ground
11	W2	—	Out	Lower address bus A0 ~ A5 become the string scan signals GC0 ~ GC5 when this terminal is High.
13	W3	—	Out	Timing signal for reading string input signals G10 ~ G15
13~18	A0 ~ A5	A0 ~ A5	In	Lower address bus
19	NC	—	—	Not used
20, 21	A6, A7	A6, A7	In	Lower address bus
22	RS1	—	In	Reset signal input
23	RS2	—	Out	Inverted reset signal output
24	RS3	—	Out	Reset signal output
25	VSS	DG	—	Ground
26	VDD	VC1	—	+5V source
27	XRD	\overline{RD}	In	Signals R2 ~ R5 (pins 6 ~ 9) can be provided when this terminal is Low.
28	XWR	\overline{WR}	In	Signals W2 and W3 (pins 11 and 12) can be provided when this terminal is Low.
29	ALE	ALE	In	Address Latch Enable signal. When High, data bus D0 ~ D7 become lower address bus A0 ~ A5.
30~32	A11 ~ A13	A11 ~ A13	In	Upper address bus
33, 34	NC	—	—	Not used
35, 36	A14, A15	A14, A15	In	Upper address bus
37 ~ 41	D7 ~ D3	D7 ~ D3	In/Out	Data bus
42	VSS	DG	—	Ground
43~45	D2 ~ D0	D2 ~ D0	In/Out	Data bus
46~50	KC0~KC4	KC0~KC4	Out	Switch scan signals
51~54	—	—	—	Not used
55, 56	K10, K11	K10, K11	In	Switch input signals
57	VSS	DG	—	Ground
58	VDD	VG1	—	+5V source
59~64	K12 ~ K17	K12 ~ K17	In	Switch input signals

Gate Array A Block Diagram



Gate Array B Block Diagram



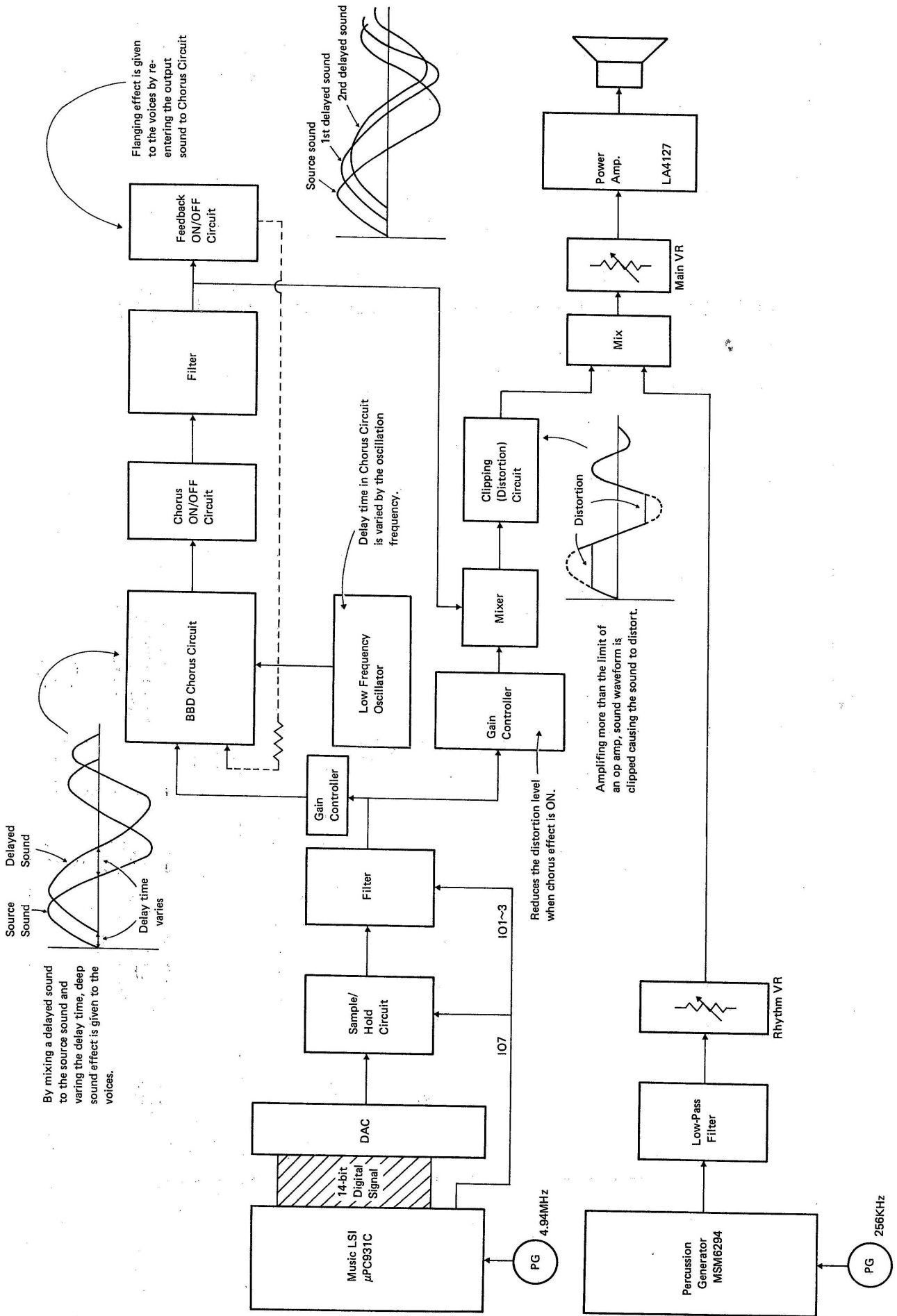
GATE ARRAY B (MB64HD118)

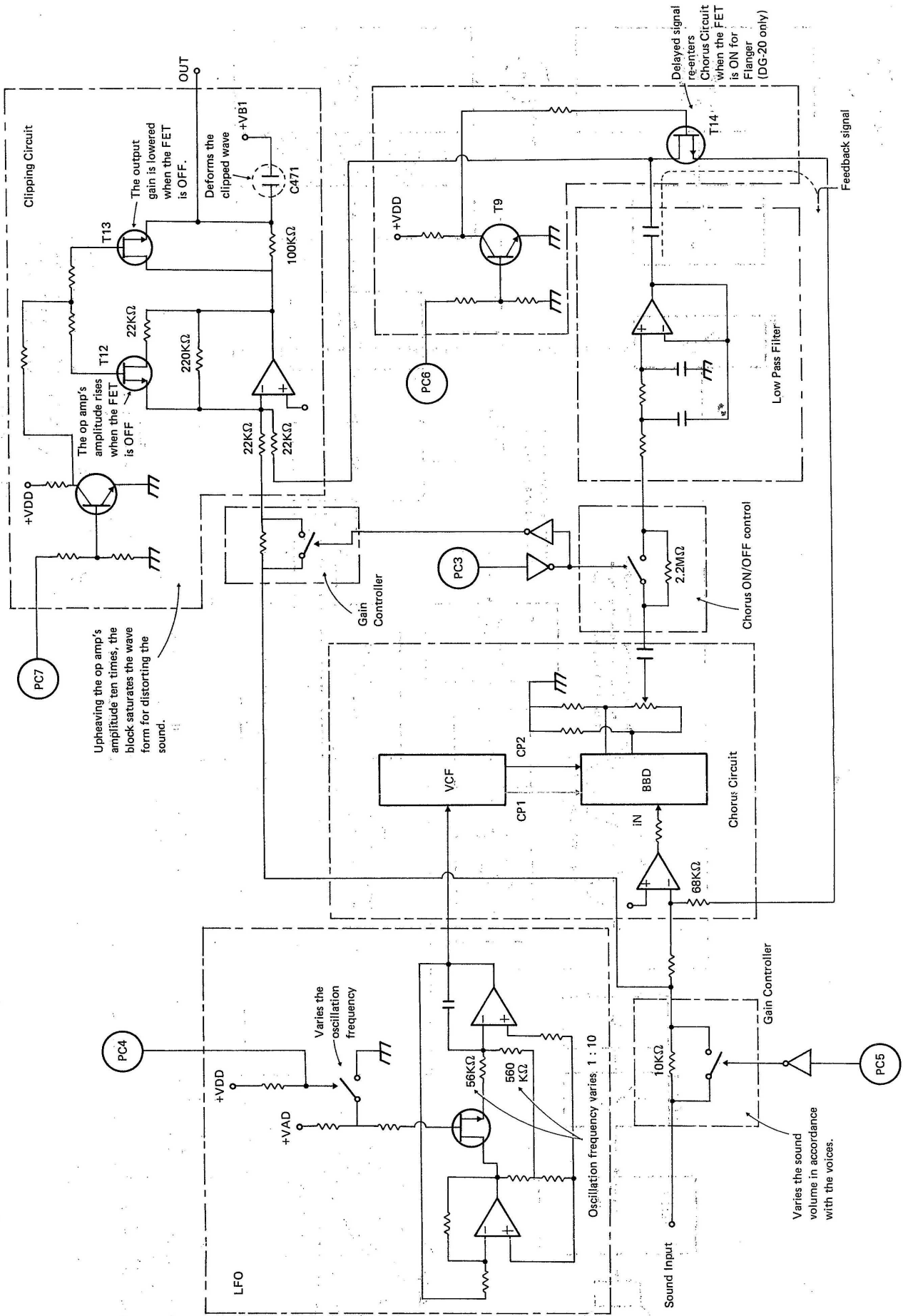
Receiving fret signals F3 ~ F22 and string input signals G10 ~ G15, Gate Array B sends fret depression data to CPU via the data bus.

The LSI also provides string scan signals GC0 ~ GC5.

Pin No.	Terminal	Signal	In/Out	Signal Function
1, 2	NC	—	—	Not used
3 ~ 6	F15 ~ F12	F15 ~ F12	In	Fret input signals
7 ~ 9	D0 ~ D2	D0 ~ D2	Out	Fret depression data outputs
10	VSS	DG	—	Ground
11 ~ 15	D3 ~ D7	D3 ~ D7	Out	Fret depression data outputs
16 ~ 18	A0 ~ A2	A0 ~ A2	In	Address bus. These signals become string scan signals GC0 ~ GC2.
19	NC	—	—	Not used
20 ~ 24	G15 ~ G11	G15 ~ G11	In	String input signals
25	VSS	DG	—	Ground
26	VDD	VC2	—	+5V source
27	G10	G10	In	String input signal
28	W2	W2	In	Timing signal for generating string scan signals GC0 ~ GC5
29	W3	W3	In	Timing pulse for reading string input signals
30 ~ 32	A5 ~ A3	A5 ~ A3	In	Address bus. These signals become string scan signals GC3 ~ GC5
33, 34	NC	—	—	Not used
35	R5	R5	In	Fret signals F17 ~ F22 input enable. Low active.
36	R4	R4	In	Fret signals F9 ~ F16 input enable. Low active.
37	R3	R3	In	Fret signals F3 ~ F8 input enable. Low active.
38	R2	R2	In	String input signals G10 ~ G15 input enable. Low active.
39 ~ 41	GC0 ~ GC2	GC0 ~ GC2	Out	Fret scan signals
42	VSS	DG	In	Ground
43 ~ 45	GC3 ~ GC5	GC3 ~ GC5	Out	Fret scan signals
46 ~ 49	F3 ~ F7	F3 ~ F7	In	Fret input signals
50, 51	NC	—	—	Not connected
52 ~ 56	F8 ~ F22	F8 ~ F22	In	*Fret input signals
57	VSS	DG	—	Ground
58	VDD	VC2	—	+5V source
59 ~ 64	F21 ~ F16	F21 ~ F16	In	Fret input signals

MELODY & PERCUSSION SIGNAL FLOW CHART





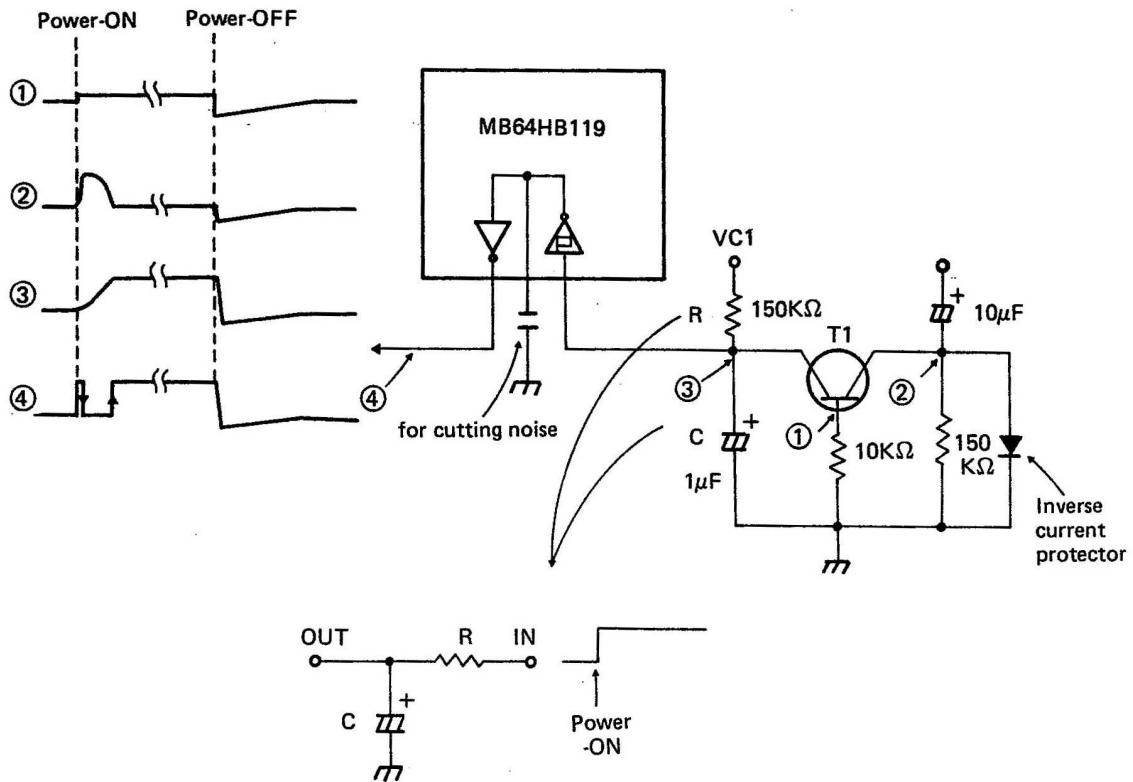
PRESET EFFECTS IN EACH TONE

Tone	IO1	IO2	IO3	Cutoff Freq.	Delayed Vibrator	Chorus Speed	Flanging	Distortion
Acoustic Guitar 1	High	Low	High	1.9KHz	No	No	No	No
Acoustic Guitar 3*	Low	Low	Low	1.2KHz	Yes	Yes/Slow	No	No
Elec. Guitar 1	Low	Low	High	2.7KHz	Yes	Yes/Slow	No	No
(Flanger)**	Low	Low	High	2.7KHz	No	No	Yes	No
Glocken	Low	Low	Low	1.2KHz	No	No	No	No
(Harpsichord)	High	High	Low	1.4KHz	No	No	No	No
Shamisen	Low	Low	Low	1.2KHz	No	No	No	No
Jazz Organ	High	Low	High	1.9KHz	No	Yes/Fast	No	No
Trumpet	Low	Low	High	2.7KHz	Yes	No	No	No
(Chorus)	High	High	High	1.0KHz	No	Yes/Slow	No	No
(Acoustic Guitar 2)	Low	High	Low	3.2KHz	No	No	No	No
(Acoustic Guitar 4)	Low	Low	Low	1.2KHz	No	No	No	No
Elec. Guitar 2	Low	Low	High	2.7KHz	Yes	Yes/Slow	No	No
Distortion	Low	High	Low	3.2KHz	Yes	Yes/Slow	No	Yes
Crystal	Low	Low	High	2.7KHz	No	Yes/Fast	No	No
Funky Clavi.	Low	High	Low	3.2KHz	Yes	Yes/Slow	No	Yes
Mandolin	Low	Low	Low	1.2KHz	No	No	No	No
(Organ)	Low	Low	Low	1.2KHz	No	Yes/Slow	No	No
(Flute)	High	Low	High	1.9KHz	Yes	No	No	No
(Clarinet)	Low	Low	High	2.7KHz	Yes	No	No	No

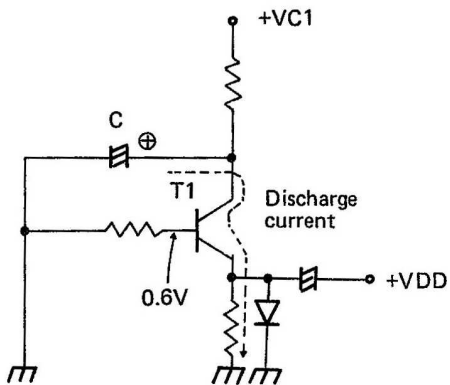
* Acoustic Guitar 2 on MG-10

** Tones in parentheses are for MG-20

RESET CIRCUIT

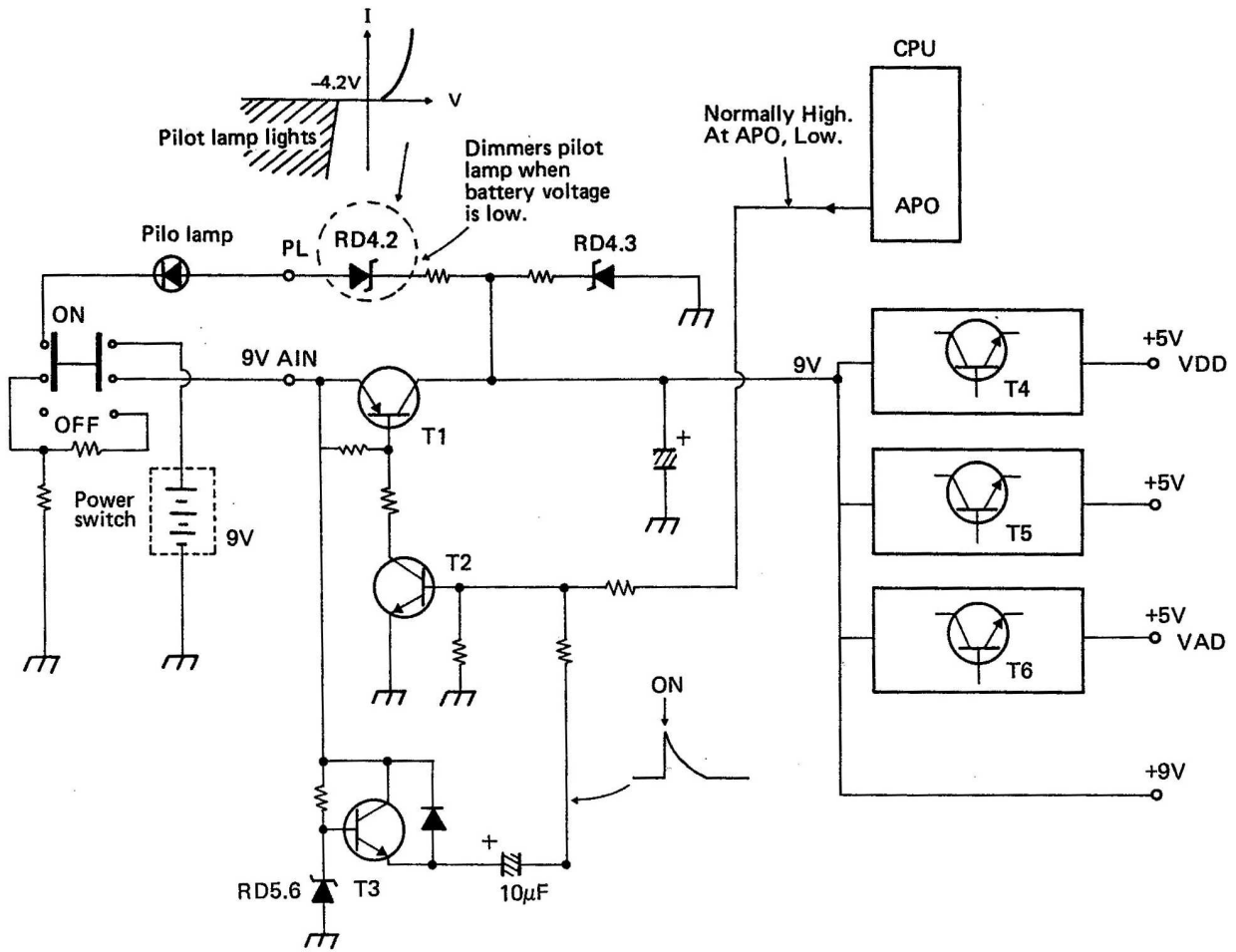


At Power ON, VC1 (+5V) is delayed by the integral circuit of resistor R and capacitor C. The delayed VC1 is shaped in square wave by two inverters in Gate Array B and sent to CPU.



When the power switch is turned off, electric charge in capacitor C should be discharged immediately for the next Power ON. While C is charged, the base voltage of transistor is 0.6 volt. T1 turns on discharging the capacitor.

POWER CIRCUIT

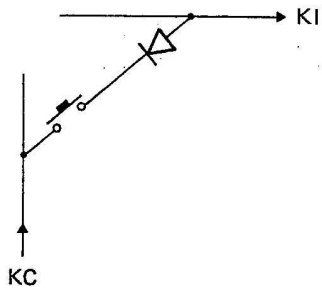


- (1) When the power switch is turned on, battery voltage is provided to the base of transistor T3 causing the transistor to turn on. Current from T3 emitter charges the 10-microfarad capacitor.
- (2) The electric charge from the capacitor turns T2 on compulsorily.
- (3) Transistor T1 turns on providing the battery voltage to voltage regulating transistors T4, T5, and T6.
- (4) After being charged, the capacitor does not provide voltage to T2 base however, receiving VDD (+5V), the CPU provides +5V to T2 base by signal APO.
- (5) If the guitar is not played for six minutes, CPU lowers signal APO causing the transistors T1, T2, T4, T5, and T6 off.

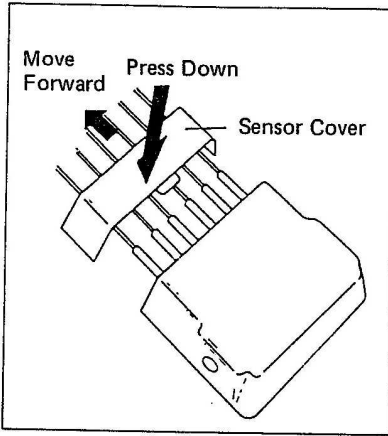
SWITCH MATRIX

Switches in are for DG-20 only.

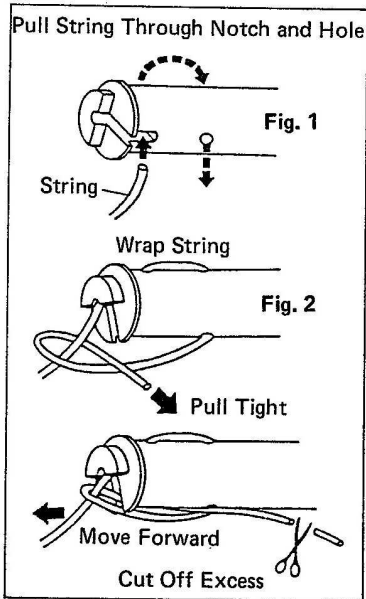
	KI7	KI6	KI5	KI4	KI3	KI2	KI1	KI0
KC0					DRUMPAD 4	DRUMPAD 3	DRUMPAD 2	DRUMPAD 1
KC1	TONE 7	TONE 6	TONE 5	TONE 4	TONE 3	TONE 2	TONE 1	TONE 0
KC2	TONE SELECT			MIDI SW	HOLD	REV /SUS	TONE 9	TONE 8
KC3	RHYTHM SELECT		RHYTHM 5	RHYTHM 4	RHYTHM 3	RHYTHM 2	RHYTHM 1	RHYTHM 0
KC4		SUS MUTE	SYNCHRO /FILL-IN	START /STOP	PITCH ▽	PITCH △	TEMPO ▽	TEMPO △



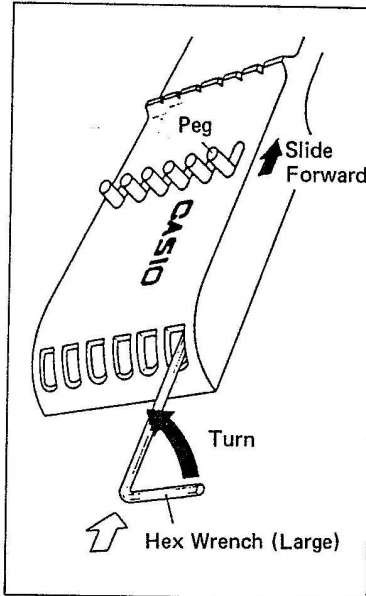
CHANGING STRINGS



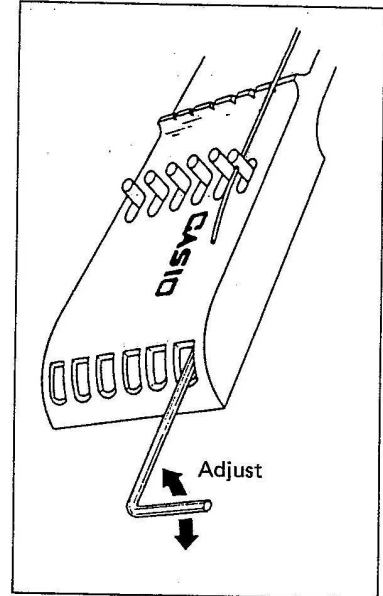
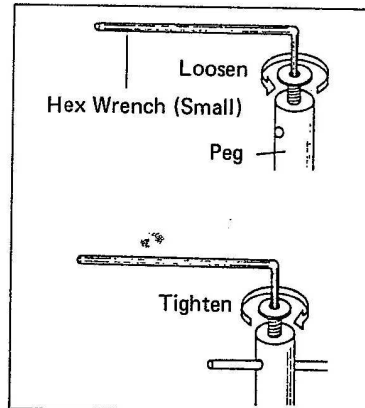
1. As shown in the above diagram, press down on the sensor cover and move it toward the neck. **Do not use excessive force on any parts in the sensor assembly.**



2. As shown in Fig. 1 above, strings pass through a notch in the end of the sensor, and then through a hole in the sensor. After pulling through a few inches of string, tie the string as shown in Fig. 2. Next, fix the string tight and cut off any excess.



3. Insert the accessory hex wrench (large) into the head and turn it counter-clockwise to slide the headpiece towards the body. Next, insert the other hex wrench (small) in the headpiece and loosen the screw.



4. Next, pull the string through the hole in the headpiece and tighten the headpiece screw while pulling the string taut. Using the large hex wrench, move slide the headpiece back into position to adjust string tension. **Avoid tightening the strings excessively, as this may lead to neck warps or other damage. Also, do not use excessive force on the neck. Follow the same procedures to change all 6 strings.**

Note: Use nylon B strings only for all 6 strings.

SELF DIAGNOSTIC PROGRAM

DG-10 and DG-20 have built-in diagnostic program which checks the following functions.

Note: *Marked checkings are for DG-20 only.

- (1) Reset Mode
 - Percussion sounds check
 - Foot switch check*
 - Drum pad check*
- (2) Switch Check Mode
 - All the panel switches' function check
- (3) Bit Compensation Adjustment Mode
 - For the DAC's bit compensation adjustment
- (4) String Sensor Check Mode
 - String sensor's sensitivity check
- (5) Fret Check Mode
 - All the frets' contact check

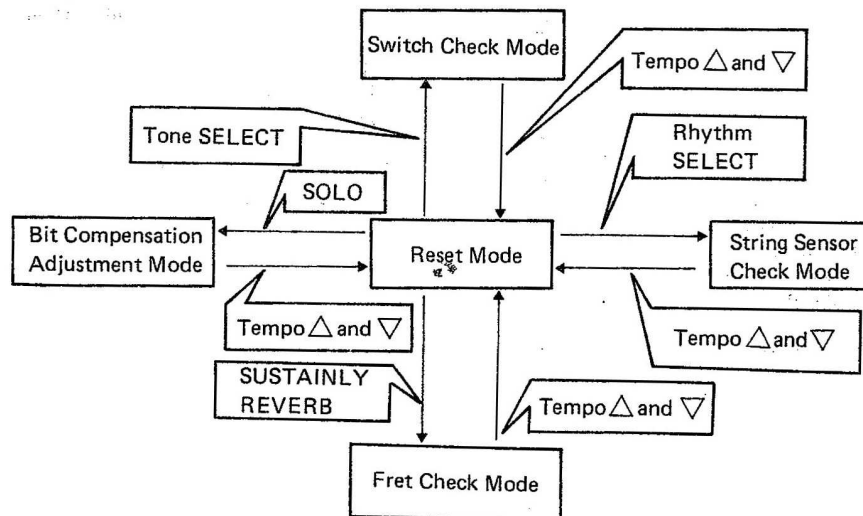
From any of the check modes, APO (Auto Power Off) feature is checked by pressing ROCK, COUNTRY, and BOSSA NOVA switches simultaneously. Escaping from the diagnostic mode is done by pressing POPS, SWING, and WALTZ switches together.

Starting of the diagnostic program.

While pressing ACO GUITAR, DISTORTION, and SHAMISEN (ACO. GUITAR 1, ELEC. GUITAR 1, and GLOCKEN for DG-20) switches, turn the power switch on.

If the ROM and RAM function properly, the guitar is set in reset mode and all the LEDs illuminate.

Escaping to other check mode is made only from the reset mode as shown below:



Reset Mode

The following table shows each switches' function in the reset mode

Switch	Function
Tone switches	Tone change
Tone select	Escaping to Switch Check Mode
Rock	Cymbal sound check
Pops	Hi-hat sound check
Country	Rim shot sound check
Swing	Snare drum sound check
Bossa Nova	Bass drum sound check
Waltz	High tom sound check
Rhythm select	Escaping to String Sensor Check Mode
Transpose \triangle	Transpose "UP"
Transpose ∇	Transpose "DOWN"
Tempo \triangle	Tempo "UP"
Tempo ∇	Tempo "DOWN"
Sustain/Reverb	Escaping to Fret Check Mode
Solo	Escaping to Bit Compensation Adjustment Mode
Mute	Low tone sound check
MIDI (DG-20 only)	MIDI Mode I or II switching

In Reset Mode, also check the illumination of each LED.

Switch Check Mode

DG-10 or DG-20 is set in Switch Check Mode by pressing Tone SELECT switch while the guitar is in Reset mode.

In this mode, all the switches' functions are checked by pressing them in order as shown on the following pages.

If a switch functions properly, the guitar sounds certain pitch in Acoustic Guitar tone. When the switch is multifunction or wrong switch is pressed, a cymbal sound is generated.

After the last switch depression, the guitar returns to Reset mode automatically.

Escaping to Reset mode at the middle of Switch Check Mode is made by pressing TEMPO \triangle and ∇ switches simultaneously.

DG-10 Switch Checking Order

Order	Switch	LED to be Lit	Pitch	Order	Switch	LED to be Lit	Pitch
1	Tone 1	Tone SELECT	D	21	Mute		D
2	2	"	D#	22	Start/Stop		D#
3	3	"	E	23	Synchro/Fill In		E
4	4	"	F				
5	5	"	F#				
6	6	"	G				
7	Tone SELECT	"	G#				
8	SUSTAIN/REVERB	"	A				
9	TEMPO ▽	"	A#				
10	TRANSCOPE ▽	"	B				
11	Rhythm 1	"	D				
12	2	"	D#				
13	3	"	E				
14	4	"	F				
15	5	"	F#				
16	6	"	G				
17	Rhythm SELECT	"	G#				
18	SOLO	"	A				
19	TEMPO △	"	A#				
20	TRANSCOPE △	"	B				

DG-20 Switch Checking Order

Order	Switch	LED to be Lit	Pitch	Order	Switch	LED to be Lit	Pitch
1	Tone 1	Tone SELECT	D	23	SOLO	Tone SELECT	C
2	2	"	D#	24	Transpose \triangle	"	C#
3	3	"	E	25	Mute	"	D
4	4	"	F	26	Start/Stop	"	D#
5	5	"	F#	27	Synchro/Fill-In	"	E
6	6	"	G	28	MIDI	"	F
7	7	"	G#				
8	8	"	A				
9	9	"	A#				
10	10	"	B				
11	Tone SELECT	"	C				
12	Transpose ∇	"	C#				
13	Rhythm 1	"	D				
14	2	"	D#				
15	3	"	E				
16	4	"	F				
17	5	"	F#				
18	6	"	G				
19	Rhythm SELECT	"	G#				
20	TEMPO \triangle	"	A				
21	TEMPO ∇	"	A#				
22	SUSTAIN/REVERB	"	B				

String Sensor Check Mode

The guitar is set in String Sensor Check mode by pressing Rhythm SELECT switch while it is in Reset mode.

This mode detects the triggering period of string sensor.

The triggering period is indicated by the illumination of the following LEDs.

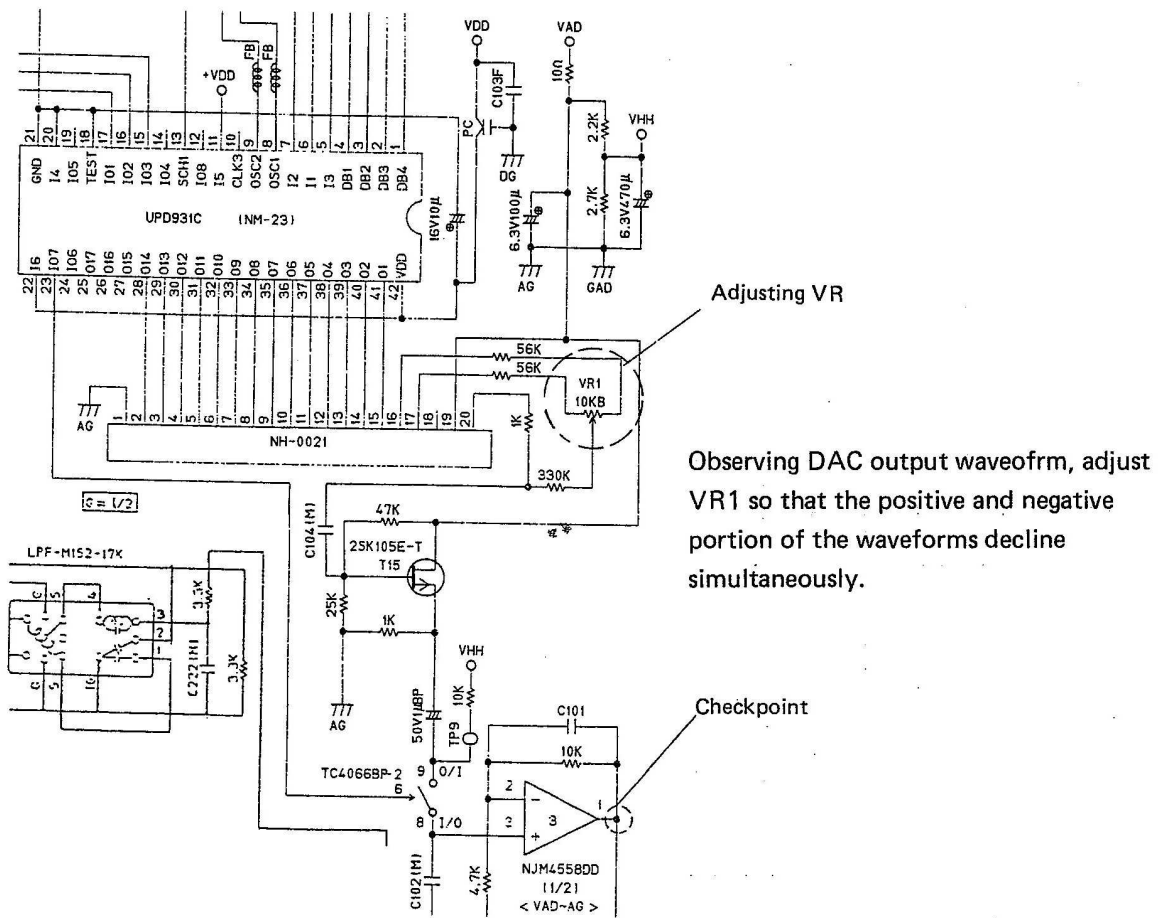
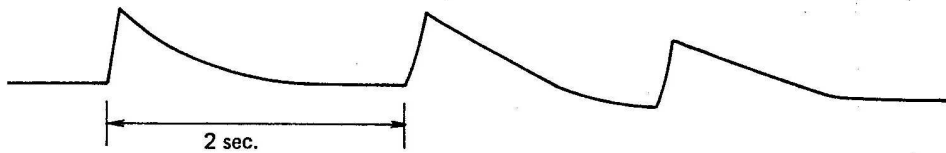
Triggering Period (ms)	LED to be Lit				
	TONE SEL.	RHYTHM SEL.	TEMPO	SUS./ REV.	SOLO
0 ~ 48	○				
48 ~ 64	○	○			
64 ~ 80	○	○	○		
80 ~ 96	○	○	○	○	
96 ~	○	○	○	○	

Playing each string, make sure that the triggering period is less than 80ms.

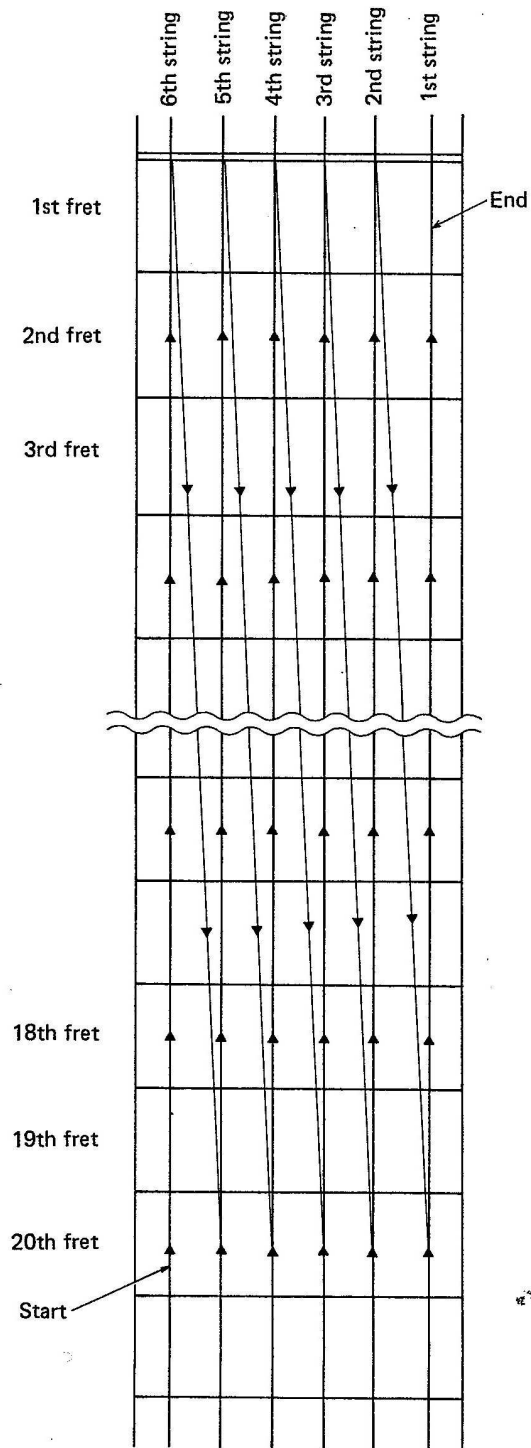
Press Tempo \triangle and ∇ switches simultaneously for escaping to Reset mode.

Bit Compensation Adjustment Mode

Pressing of SOLO switch in Reset mode sets the DG-10/20 in Bit Compensation Mode. In this mode, the guitar provides an Acoustic Guitar sound in every two seconds.

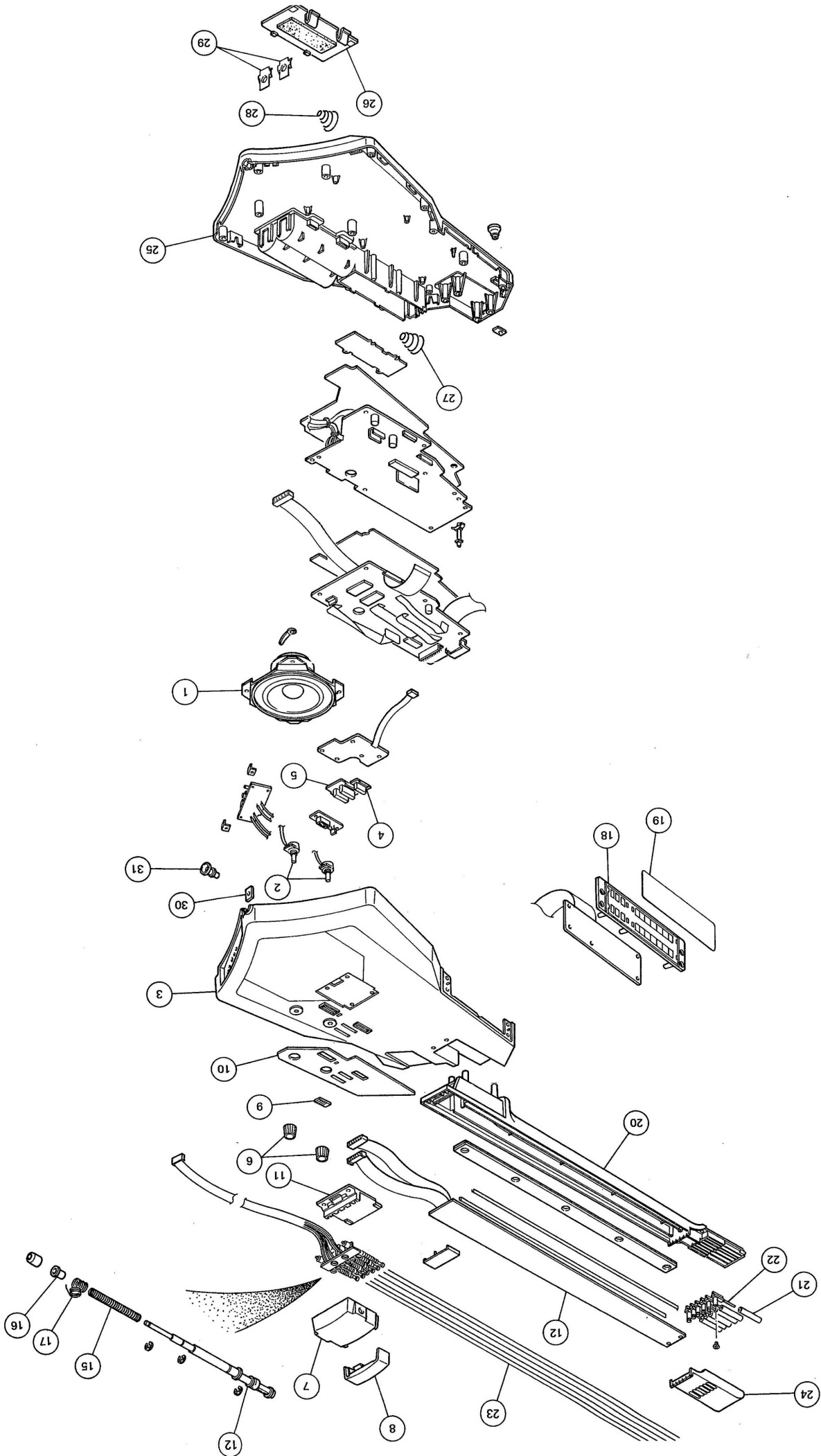


Fret Check Mode



Pressing SUSTAIN/REVERB switch in Reset mode sets the guitar in Fret Check mode. In this mode, all the frets' contacts can be checked.

As soon as SUSTAIN/REVERB switch is pressed, the guitar sounds a note and the pitch varies by pressing the frets in order as shown in the left figure.



PARTS LIST

DG-10

- Notes:
1. Prices and specifications are subject to change without prior notice.
 2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare Parts Supply", published separately.
 3. The numbers in item column correspond to the same numbers in drawing.

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	1) M4360-MA1M PCB ASS'Y						
	2010 2128	LSI	μPD78C10G-36	1			A
☆	2010 3290	LSI	MB64HB118	1			A
☆	2010 3297	LSI	MB64HB119	1			A
☆	2010 3304	LSI	MSM6294-06	1			A
☆	2010 3367	LSI	μPD23C256EAC-055	1			A
	2105 0532	C-MOS IC	LC4969	1	10		A
	2111 5215	Bipolar IC	SN74LS367AN	1			A
	2590 0140	Ceramic oscillator	CSA12.0MT18	1	5		B
	2720 3540	Module resistor	MS10411F	1	10		B
	2720 3566	Module resistor	MS1049F	1	10		B
	2720 3604	Module resistor	MS1048F	1	10		B
☆	2801 7483	Electrolytic capacitor	6.3RE2-220-S1	1	20		C
☆	2252 0063	Transistor	2SC1310F-T (2SC1340LNSR)	2	10		A
	2301 0241	Diode	1SS254T-77-T	4	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	7	20		C
	2617 0036	Carbon film resistor	R-20-220-J-T24-T (1/5W, 220ohm, ±5%)	1	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	29	20		C
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	1	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	9	20		C
	2617 0150	Carbon film resistor	R-20-150K-J-T24-T (1/5W, 150Kohm, ±5%)	2	20		C
☆	2617 0176	Carbon film resistor	R-20-1M-J-T24-T (1/5W, 1Mohm, ±5%)	1	20		C
☆	2617 0869	Carbon film resistor	R-20-4.7-J-T-24-T (1/5W, 4.7ohm, ±5%)	1	20		C
☆	2801 7091	Electrolytic capacitor	6.3RE2-33-T2-T	1	20		C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	1	20		C
	2807 1023	Electrolytic capacitor	50RE2-1-T2-T	2	10		C
	2807 1040	Electrolytic capacitor	6.3RE2-470-T2-T	3	10		C
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	1	20		C
	2807 1104	Electrolytic capacitor	6.3RE2-100-T14-T	1	20		C
	2818 0390	Ceramic capacitor	RT-HE40TKYB221K-T	5	10		C
	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	8	10		C
	2818 3283	Ceramic capacitor	RT-HE50TKCH300J-T	2	10		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2830 6296	Mylar capacitor	AMZV-332K50-T	1	10		C
	2830 6312	Mylar capacitor	AMZV-471K50-T	1	10		C
	2830 6363	Mylar capacitor	AMZV-882K50-T	1	10		C
	2831 0119	Film capacitor	AMSV-472J100-T	1	20		C
	2831 0126	Film capacitor	APSV-332J100-T	1	20		C
	2845 0049	Module capacitor	CNB8X221K	3	5		C
☆	2845 0273	Three polarity capacitor	EXC-ETC222MBC	5	20		C
	3500 3240	Pin assembly 7P	IL-G-7P-S3T2-E	1			C
	3500 3401	Connector 4P	IL-G-4P-S3T2-E	1			C
	3500 3878	Pin assembly 12P	IL-G-12P-S3L2-E	1			C
	3500 7695	Print plate connector	IL-G-15P-S3T2-E	1			C
	3841 0049	Coil	L220P-7L	1	10		B
☆	4307 7880	Blank PCB M4360-MA1M	M11364-1	1			X
2) M4360-MA2M PCB ASS'Y							
	2001 2043	LSI	μPD931C	1			A
	2100 3549	MOS IC	TC4066BP (μPD4066BC)	2			A
	2100 3786	CMOS IC	TC40H004P	1			A
	2100 7552	CMOS IC	MN3102	1			A
	2100 7692	BBD	MN3209	1			A
	2114 0007	Monolithic IC	BA4558CA (NJM4558DD)	3			A
	2114 0070	Monolithic IC	LA4127	1			A
	2120 1154	Hybrid IC	NH0021	1			A
	2121 0013	OP amp	NJM4558DD	1			A
	2240 1068	FET	2SK163M-T	2			A
	2240 1149	FET	2SK105E-T	2	10		A
☆	2252 0063	Transistor	2SC1310F-T (2SC1740LNSR)	6	10		A
	2210 6236	Transistor	2SB824R.S	1			A
☆	2252 0266	Transistor	2SC2060Q.R	1	10		A
☆	2253 0154	Transistor	2SD1381Q.R	1	10		A
	2320 9764	LED	LN251RPP.WE	1	10		B
	2301 0241	Diode	1SS254T-77-T	3	20		C
	2310 7732	Zener diode	RD5.6ESB2-T1-T	3	20		B
☆	2310 7767	Zener diode	RD6.8ESB2-T1-T	1	20		B
	2310 7848	Zener diode	RD4.3ESB2-T1-T	2	20		B
	2340 0022	Variable capacitor	SVC321	1	10		B

Note: ☆ — New parts
Q'ty. — Quantity used per unit
* — Minimum order and supply quantity

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

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
☆	2390 0210	Diode	DSF10C-UB1-H	2	20		C
☆	2606 0595	Carbon film resistor	R-20-12-J-T24-T (1/5W, 12ohm, ±5%)	2	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	5	20		C
	2617 0036	Carbon film resistor	R-20-220-J-T24-T (1/5W, 220ohm, ±5%)	2	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	4	20		C
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	1	20		C
	2617 0079	Carbon film resistor	R-20-3.3K-J-T24-T (1/5W, 3.3Kohm, ±5%)	5	20		C
	2617 0087	Carbon film resistor	R-20-4.7K-J-T24-T (1/5W, 4.7Kohm, ±5%)	2	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	16	20		C
	2617 0109	Carbon film resistor	R-20-33K-J-T24-T (1/5W, 33Kohm, ±5%)	4	20		C
	2617 0117	Carbon film resistor	R-20-47K-J-T24-T (1/5W, 47Kohm, ±5%)	13	20		C
	2617 0125	Carbon film resistor	R-20-68K-J-T24-T (1/5W, 68Kohm, ±5%)	1	20		C
	2617 0141	Carbon film resistor	R-20-100K-J-T24-T (1/5W, 100Kohm, ±5%)	10	20		C
	2617 0150	Carbon film resistor	R-20-150K-J-T24-T (1/5W, 150Kohm, ±5%)	1	20		C
	2617 0203	Carbon film resistor	R-20-470K-J-T24-T (1/5W, 470Kohm, ±5%)	5	20		C
	2617 0206	Carbon film resistor	R-20-39K-J-T24-T (1/5W, 39Kohm, ±5%)	1	20		C
	2617 0211	Carbon film resistor	R-20-120-J-T24-T (1/5W, 120ohm, ±5%)	4	20		C
	2617 0214	Carbon film resistor	R-20-2.7K-J-T24 (1/5W, 3.7Kohm, ±5%)	4	20		C
	2617 0231	Carbon film resistor	R-20-270-J-T24-T (1/5W, 270ohm, ±5%)	1	20		C
	2617 0265	Carbon film resistor	R-20-10-J-T24-T (1/5W, 10ohm, ±5%)	1	20		C
	2617 0271	Carbon film resistor	R-20-5.6K-J-T24-T (1/5W, 5.6Kohm, ±5%)	1	20		C
	2617 0273	Carbon film resistor	R-20-22-J-T24-T (1/5W, 22ohm, ±5%)	2	20		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0289	Carbon film resistor	R-20-15K-J-T24-T (1/5W, 15Kohm, ±5%)	1	20		C
	2617 0297	Carbon film resistor	R-20-22K-J-T24-T (1/5W, 22Kohm, ±5%)	2	20		C
	2617 0301	Carbon film resistor	R-20-56K-J-T24-T (1/5W, 56Kohm, ±5%)	3	20		C
	2617 0319	Carbon film resistor	R-20-560K-J-T24-T (1/5W, 560Kohm, ±5%)	4	20		C
	2617 0327	Carbon film resistor	R-20-2.2M-J-T24-T (1/5W, 2.2Mohm, ±5%)	1	20		C
	2617 0408	Carbon film resistor	R-20-6.8K-J-T24-T (1/5W, 6.8Kohm, ±5%)	1	20		C
	2617 0416	Carbon film resistor	R-20-18K-J-T24-T (1/5W, 18Kohm, ±5%)	1	20		C
☆	2617 0441	Carbon film resistor	R-20-25K-J-T24-T (1/5W, 25Kohm, ±5%)	1	20		C
	2617 0459	Carbon film resistor	R-20-27K-J-T24-T (1/5W, 27Kohm, ±5%)	1	20		C
	2617 0483	Carbon film resistor	R-20-270K-J-T24-T (1/5W, 270Kohm, ±5%)	1	20		C
	2617 0491	Carbon film resistor	R-20-330K-J-T24-T (1/5W, 330Kohm, ±5%)	1	20		C
	2617 0893	Carbon film resistor	R-20-47-J-T24-T (1/5W, 470hm, ±5%)	1	20		C
	2800 9014	Electrolytic capacitor	50RE2-R22-T2-T	1	20		C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	2	20		C
	2805 3169	Electrolytic capacitor	6.3RE2-47-T2-T	4	20		C
	2807 0276	Electrolytic capacitor	50RNBBP1-T2-T	3	10		C
	2807 0985	Electrolytic capacitor	16RE2-220-T2-T	2	20		C
	2807 1007	Electrolytic capacitor	16RE2-330-T2-T	1	10		C
	2807 1023	Electrolytic capacitor	50RE2-1-T2-T	4	10		C
	2807 1040	Electrolytic capacitor	6.3RE2-470-T2-T	6	10		C
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	4	20		C
	2807 1112	Electrolytic capacitor	10RE2-100-T2-T	3	20		C
	2807 1121	Electrolytic capacitor	10RE2-220-T2-T	1	20		C
	2805 2210	Electrolytic capacitor	16RE2-470-S1	1	10		C
	2805 2261	Electrolytic capacitor	16RE2-2200-S1	1	10		C
	2818 0365	Ceramic capacitor	RT-HE50TKYB102K-T	5	10		C
	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	13	10		C
	2818 3364	Ceramic capacitor	RT-HE12TKCH271J-T	1	10		C
	2819 0506	Ceramic capacitor	RT-HE11TKCH221J-T	2	10		C
	2819 0557	Ceramic capacitor	RT-HE50TKSL101K-T	5	10		C

Note: ☆ — New parts

Q'ty — Quantity used per unit

* — Minimum order and supply quantity

Rank

A: Essential

B: Stock recommended

C: Others

X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2819 0565	Ceramic capacitor	RT-HE90TKSL471K-T	1	10		C
	2819 5241	Semi conductive capacitor	DD407SR683K16-T	1	20		C
	2830 6229	Mylar capacitor	AMZV-104K50-T	1	10		C
	2830 6237	Mylar capacitor	AMZV-102K50-T	2	10		C
	2830 6261	Mylar capacitor	AMZV-103K50-T	3	10		C
	2830 6270	Mylar capacitor	AMZV-223K50-T	1	10		C
	2830 6288	Mylar capacitor	AMZV-273K50-T	1	10		C
	2830 6296	Mylar capacitor	AMZV-332K50-T	1	10		C
	2830 6312	Mylar capacitor	AMZV-471K50-T	1	10		C
	2830 6339	Mylar capacitor	AMZV-222K50-T	4	10		C
	2830 6428	Mylar capacitor	AMZV-562K50-T	1	10		C
	2830 6592	Mylar capacitor	AMZV-683K50-T	1			C
	2830 6606	Mylar capacitor	AMZV-224K50-T	2			C
☆	2845 0273	Three polarity capacitor	EXC-ECT222MBC	1	20		C
☆	2845 0280	Ferrite beads	EXC-ELDR35C	5	20		C
☆	3025 0203	EMI filter	EXC-EMT222DC	1	20		C
	3420 0050	Slide switch	SSE-22FP	1	5		B
	3500 3258	Pin assembly 13P	IL-G-13P-S3T2-E	1			C
	3501 0070	DC jack	HEC2305-01-030	1	10		B
	3511 1409	Print plate connector	5229-11CPB	1			C
	3612 0711	Miniature jack	YKB21-5101	1			B
	3841 0007	Coil	L10P-7L	1	10		B
☆	5860 1442	Card spacer	KGLS-14S	6			C
☆	4307 7760	Blank PCB M4360-MA2M	M11365-1	1			X
☆	4307 7790	Blank PCB M4360-MA3M	M11365-3	1			X
☆	4307 7870	Blank PCB M4360-CN2M	M11365-2	1			X
	3) M4360-CN1M PCB ASS'Y						
	3410 1728	Tact switch	EVO-QS20SK	20	20		B
☆	2301 0241	Diode	1SS254T-77-T	20	20		C
	2320 9799	LED	LN266RPT-(TA)	5	10		B
	2617 0231	Carbon film resistor	R-20-270-J0T24-T (1/5W, 270ohm, ±5%)	5	20		C
☆	3725 0952	PC joiner M361C	JSF00-19-137M	1	5		B
☆	4307 7810	Blank PCB M4360-CN1M	M21782-1	1			X

Note: ☆ -- New parts
Q'ty -- Quantity used per unit
* -- Minimum order and supply quantity

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

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
4) M4361-CN3 PCB ASS'Y							
☆	3501 1295	4P connector	IL-4P-25-M360	1			C
☆	4307 7830	Blank PCB M4361-CN3	M32795-1	1			X
5) M20F-KY1 PCB ASS'Y							
☆	2390 0343	Diode	LB1105M	5	20		C
☆	3501 1330	12P connector M361A	IL-12P-27-M361	1			C
☆	3501 1337	15P connector M361	IL-15P-29-M361	1			C
☆	4307 7860	Blank PCB M20F-KY1	M11359-1	1			X
6) UPPER CASE ASS'Y							
1	3830 3171	Speaker	C1209D	1			B
☆ 2	2765 0427	VR	K1611005BC-10KB	2	5		B
☆ 3	6913 2520	Upper case sub ass'y	M21791*1	1			C
☆ 4	6913 2530	Contact rubber 361	M32784-2	1			B
☆ 5	6913 2540	Rhythm contact rubber 361	M32785-2	1			B
☆ 6	6913 2550	Knob 361	M32782-1	2			C
☆ 7	6913 2720	Sensor cap sub ass'y	M43400*1	1			C
☆ 8	6913 2450	Sensor cap B	M32807-1	1	10		
☆ 9	6913 2560	Slide knob	M32018-7	1	20		
☆10	6913 2650	Pick card	M32808-1	1			C
☆	3501 1316	7P connector M361	IL-7P-40-M361	1			C
☆	4307 7740	Blank PCB M4361-SE	M32797-1	1			X
☆11	6913 2810	Sensor base	M32767-1	1			C
☆12	6913 2791	Contact sheet 20F	M11333C-1	1			B
☆14	6913 2881	Sensor pole sub ass'y	M43399A*1	1			C
☆15	6913 2891	Sensor coil	M43372A-1	1	10		B
☆16	6913 2900	Sensor spacer	M43375-1	1	20		C
☆17	6913 3580	Contact coil	M43407-1	1	20		B
☆18	6913 2590	Panel 360 sub ass'y	M32814*1	1			C
☆19	6913 2610	Switch sheet 360	M32806-1	1			C

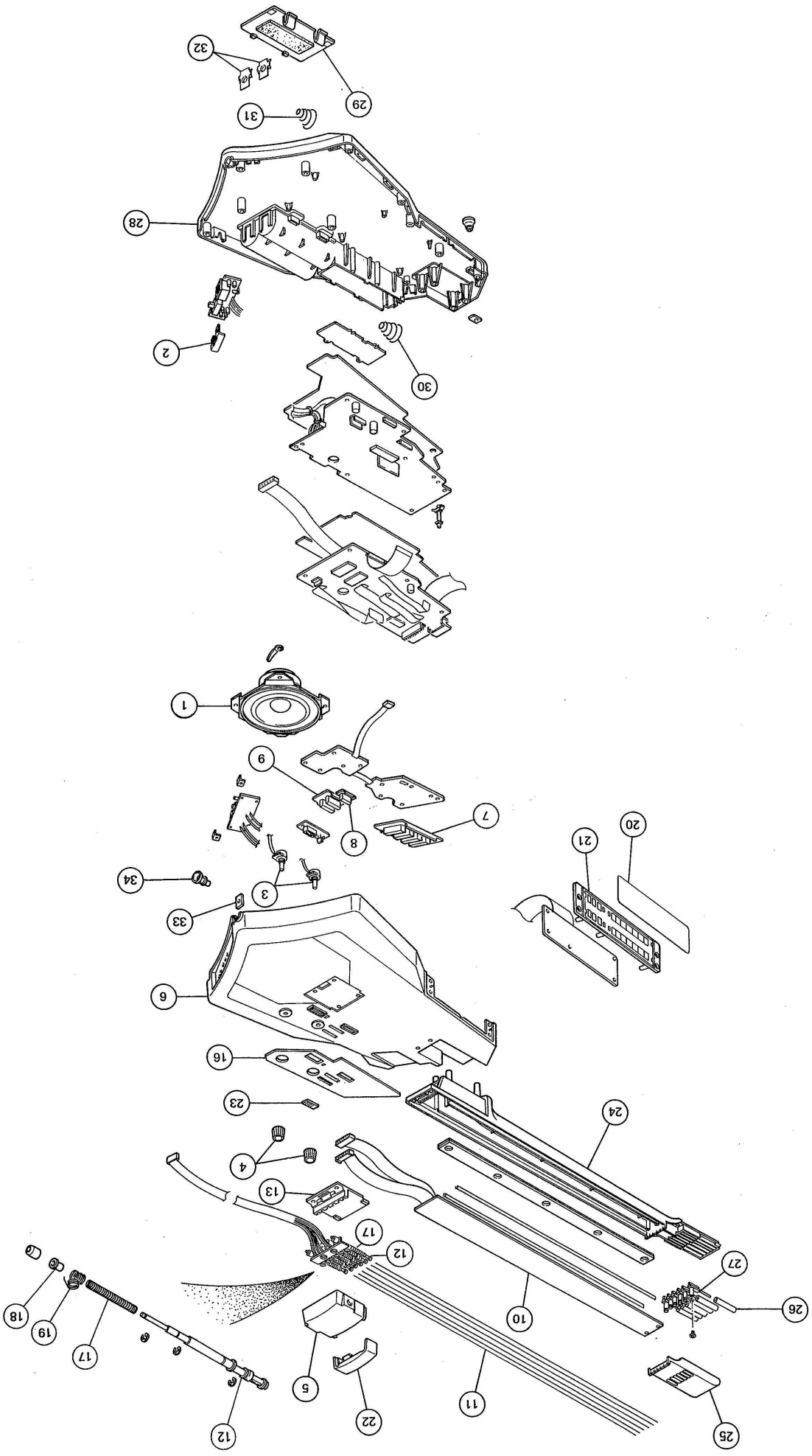
Note: ☆ -- New parts
Q'ty -- Quantity used per unit
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Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
7) NECK CASE ASS'Y							
☆20	6913 2740	Neck case sub ass'y	M32812*1	1			C
☆21	6913 2760	String bar nut	M43368-1	6	10		
☆22	6913 2770	String lever	M53367-1	6			C
☆23	5860 1526	String black-B	N610-C2	6			B
☆24	6913 3050	Neck cover	M21763-2	1			C
8) LOWER CASE ASS'Y							
☆25	6913 2440	Lower case sub ass'y	M21793*1	1			C
☆26	6912 6062	Battery cover sub ass'y	M314718*6	1			C
27	6902 6140	Battery spring 90	M41226-1	1	10		C
28	6903 0450	Battery spring	M41329-1	1	10		C
29	6903 0460	Battery spring	M41328-1	2	10		C
☆30	6908 4730	Strap pin nut	M42806-2	1	10		C
☆31	6913 3520	Strap pin	M43406-1	1			C

Note: ☆ — New parts
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PARTS LIST

DG-20

- Notes:
1. Prices and specifications are subject to change without prior notice.
 2. As for spare parts order and supply, refer to the "GUIDEBOOK for Spare Parts Supply", published separately.
 3. The numbers in item column correspond to the same numbers in drawing.

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	1) M4361-MA1M PCB ASS'Y						
	2010 2128	LSI	μPD78C10G-36	1			A
☆	2010 3290	LSI	MB64HB118	1			A
☆	2010 3297	LSI	MB64HB119	1			A
☆	2010 3304	LSI	MSM6294-06	1			A
☆	2010 3367	LSI	μPD23C256EAC-055	1			A
	2105 0532	C-MOS IC	LC4969	1	10		A
	2111 5215	Bipolar IC	SN74LS367AN	1			A
	2590 0140	Ceramic oscillator	CSA12.0MT18	1	5		B
	2720 3540	Module resistor	MS10411F	1	10		B
	2720 3566	Module resistor	MS1049F	1	10		B
	2720 3604	Module resistor	MS1048F	1	10		B
☆	2801 7483	Electrolytic capacitor	6.3RE2-220-S1	1			C
☆	2252 0063	Transistor	2SC1310F-T (2SC1740LNSR)	2			A
	2301 0241	Diode	1SS254T-77-T	10	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	7	20		C
	2614 5619	Carbon film resistor	ELR-25-220-J-T32-T	2	20		C
	2617 0036	Carbon film resistor	R-20-220-J-T24-T (1/5W, 220ohm, ±5%)	1	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	30	20		C
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	1	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	10	20		C
	2617 0150	Carbon film resistor	R-20-150K-J-T24-T (1/5W, 150Kohm, ±5%)	2	20		C
☆	2617 0176	Carbon film resistor	R-20-1M-J-T24-T (1/5W, 1Mohm, ±5%)	1	20		C
☆	2617 0869	Carbon film resistor	R-20-4.7-J-T24-T (1/5W, 4.7ohm, ±5%)	1	20		C
☆	2801 7091	Electrolytic capacitor	6.3RE2-33-T2-T	1			C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	1	20		C
	2807 1023	Electrolytic capacitor	50RE2-1-T2-T	2	10		C
	2807 1040	Electrolytic capacitor	6.3RE2-470-T2-T	3	10		C
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	1	20		C
	2807 1104	Electrolytic capacitor	6.3RE2-100-T14-T	1	20		C
	2818 0390	Ceramic capacitor	RT-HE40TKYB221K-T	7	10		C
	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	8	10		C

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Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2819 0557	Ceramic capacitor	RT-HE50TKSL101K-T	2	10		C
	2818 0365	Ceramic capacitor	RT-HE50TKYB102K-T	1	10		C
	2845 0056	Module capacitor	CNB6 x 221K	1	10		C
	2818 3283	Ceramic capacitor	RT-HE50TKCH300J-T	2	10		C
	2830 6296	Mylar capacitor	AMZV-332K50-T	1	10		C
	2830 6312	Mylar capacitor	AMZV-471K50-T	1	10		C
	2830 6363	Mylar capacitor	AMZV-822K50-T	1	10		C
	2831 0119	Film capacitor	APSV-472J100-T	1	20		C
	2831 0126	Film capacitor	APSV-332J100-T	1	20		C
	2845 0049	Module capacitor	CNB8X221K	3	5		C
☆	2845 0273	Three polarity capacitor	EXC-ETC222MBC	5			C
☆	2845 0280	Ferrite beads	EXC-ELDR35C	4	20		C
	3420 2338	Slide switch	SSY322	1			B
	3612 0541	DIN jack	TCS4650-01-1211	1			B
	3500 3240	Pin assembly 7P	IL-7P-S3U x 2	1			C
	3500 3878	Pin assembly 12P	IL-G-12P-S3L2-E	1			C
	3500 7695	Print plate connector	IL-G-15P-S3T2-E	1			C
	3841 0049	Coil	L220P-7L	1	10		B
☆	4307 7750	Blank PCB M4361-MA1M	M11360-1	1			X
☆	4307 7940	Blank PCB M4361-MA4M	M11360-2	1			X
	2819 0557	Ceramic capacitor	RT-HE50TKSL101K-T	1	10		C
2) M4361-MA2M PCB ASS'Y							
	2001 2043	LSI	μPD931C	1			A
	2100 3549	MOS IC	TC4066BP (μPD4066BC)	2			A
	2100 3786	CMOS IC	TC40H004P	1			A
	2100 7552	CMOS IC	MN3102	1			A
	2100 7692	BBD	MN3209	1			A
	2114 0007	Monolithic IC	BA4558CA	3			A
	2114 0070	Monolithic IC	LA4127	1			A
	2120 1154	Hybrid IC	NH0021	1			A
	2121 0013	OP amp	NJM4558DD	4			A
	2240 1068	FET	2SK163M-T	3			A
	2240 1149	FET	2SK105E-T	2	10		A
☆	2252 0063	Transistor	2SC1310F-T (2SC1740LNSR)	7	10		A
	2210 6236	Transistor	2SB824R.S	1			A
☆	2252 0266	Transistor	2SC2060Q.R	1	10		A
☆	2253 0154	Transistor	2SD1381Q.R	1	10		A

Note: ☆ - New parts
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Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2320 9764	LED	LN251RPP.WE	1	10		B
	2301 0241	Diode	1SS254T-77-T	4	20		C
	2310 7732	Zener diode	RD5.6ESB2-T1-T	3	20		B
☆	2310 7767	Zener diode	RD6.8ESB2-T1-T	1	20		B
	2310 7848	Zener diode	RD4.3ESB2-T1-T	2	20		B
	2340 0022	Variable capacitor	SVC321	1	10		B
☆	2390 0210	Diode	DSF10C-UB1-H	1	20		C
	2617 0028	Carbon film resistor	R-20-100-J-T24-T (1/5W, 100ohm, ±5%)	5	20		C
	2617 0036	Carbon film resistor	R-20-220-J-T24-T (1/5W, 220ohm, ±5%)	2	20		C
	2617 0052	Carbon film resistor	R-20-1K-J-T24-T (1/5W, 1Kohm, ±5%)	4	20		C
	2617 0061	Carbon film resistor	R-20-2.2K-J-T24-T (1/5W, 2.2Kohm, ±5%)	1	20		C
	2617 0079	Carbon film resistor	R-20-3.3K-J-T24-T (1/5W, 3.3Kohm, ±5%)	5	20		C
	2617 0087	Carbon film resistor	R-20-4.7K-J-T24-T (1/5W, 4.7Kohm, ±5%)	2	20		C
	2617 0095	Carbon film resistor	R-20-10K-J-T24-T (1/5W, 10Kohm, ±5%)	16	20		C
	2617 0109	Carbon film resistor	R-20-33K-J-T24-T (1/5W, 33Kohm, ±5%)	4	20		C
	2617 0117	Carbon film resistor	R-20-47K-J-T24-T (1/5W, 47Kohm, ±5%)	13	20		C
	2617 0125	Carbon film resistor	R-20-68K-J-T24-T (1/5W, 68Kohm, ±5%)	1	20		C
	2617 0141	Carbon film resistor	R-20-100K-J-T24-T (1/5W, 100Kohm, ±5%)	10	20		C
	2617 0150	Carbon film resistor	R-20-150K-J-T24-T (1/5W, 150Kohm, ±5%)	1	20		C
	2617 0203	Carbon film resistor	R-20-470K-J-T24-T (1/5W, 470Kohm, ±5%)	5	20		C
	2617 0206	Carbon film resistor	R-20-39K-J-T24-T (1/5W, 39Kohm, ±5%)	1	20		C
	2617 0211	Carbon film resistor	R-20-120-J-T24-T (1/5W, 120ohm, ±5%)	4	20		C
	2617 0214	Carbon film resistor	R-20-2.7K-J-T24 (1/5W, 3.7Kohm, ±5%)	4	20		C
	2617 0231	Carbon film resistor	R-20-270-J-T24-T (1/5W, 270ohm, ±5%)	1	20		C
	2617 0265	Carbon film resistor	R-20-10-J-T24-T (1/5W, 10ohm, ±5%)	1	20		C

Note: ☆ — New parts

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Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
	2617 0271	Carbon film resistor	R-20-5.6K-J-T24-T (1/5W, 5.6Kohm, ±5%)	1	20		C
	2617 0273	Carbon film resistor	R-20-22-J-T24-T (1/5W, 22ohm, ±5%)	2	20		C
	2617 0289	Carbon film resistor	R-20-15K-J-T24-T (1/5W, 15Kohm, ±5%)	1	20		C
	2617 0297	Carbon film resistor	R-20-22K-J-T24-T (1/5W, 22Kohm, ±5%)	2	20		C
	2617 0301	Carbon film resistor	R-20-56K-J-T24-T (1/5W, 56Kohm, ±5%)	3	20		C
	2617 0319	Carbon film resistor	R-20-560K-J-T24-T (1/5W, 560Kohm, ±5%)	4	20		C
	2617 0327	Carbon film resistor	R-20-2.2M-J-T24-T (1/5W, 2.2Mohm, ±5%)	1	20		C
	2617 0408	Carbon film resistor	R-20-6.8K-J-T24-T (1/5W, 6.8Kohm, ±5%)	1	20		C
☆	2617 0441	Carbon film resistor	R-20-25K-J-T24-T (1/5W, 25Kohm, ±5%)	1	20		C
	2617 0459	Carbon film resistor	R-20-27K-J-T24-T (1/5W, 27Kohm, ±5%)	1	20		C
	2617 0483	Carbon film resistor	R-20-270K-J-T24-T (1/5W, 270Kohm, ±5%)	1	20		C
	2617 0491	Carbon film resistor	R-20-330K-J-T24-T (1/5W, 330Kohm, ±5%)	1	20		C
	2617 0893	Carbon film resistor	R-20-47-J-T24-T (1/5W, 47ohm, ±5%)	1	20		C
	2760 2177	Semi-fixed resistor	V8K4-11B10K	2	10		C
	2800 9014	Electrolytic capacitor	50RE2-R22-T2-T	1	20		C
	2805 3142	Electrolytic capacitor	16RE2-10-T2-T	2	20		C
	2805 3169	Electrolytic capacitor	6.3RE2-47-T2-T	4	20		C
	2807 0276	Electrolytic capacitor	50RNBBP1-T2-T	3	10		C
	2807 0985	Electrolytic capacitor	16RE2-220-T2-T	2	20		C
	2807 1007	Electrolytic capacitor	16RE2-330-T2-T	1	10		C
	2807 1023	Electrolytic capacitor	50RE2-1-T2-T	4	10		C
	2807 1040	Electrolytic capacitor	6.3RE2-470-T2-T	6	10		C
	2807 1091	Electrolytic capacitor	6.3RE2-100-T2-T	4	20		C
	2807 1112	Electrolytic capacitor	10RE2-100-T2-T	3	20		C
	2807 1121	Electrolytic capacitor	10RE2-220-T2-T	1	20		C
	2805 2210	Electrolytic capacitor	16RE2-470-S1	1	10		C
	2805 2261	Electrolytic capacitor	16RE2-2200-S1	1	10		C
	2818 0365	Ceramic capacitor	RT-HE50TKYB102K-T	5	10		C

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	2818 2082	Ceramic capacitor	RT-HE70TKYF103Z-T	13	10		C
	2818 3364	Ceramic capacitor	RT-HE12TKCH271J-T	1	10		C
	2819 0506	Ceramic capacitor	RT-HE11TKCH221J-T	2	10		C
	2819 0557	Ceramic capacitor	RT-HE50TKSL101K-T	5	10		C
	2819 0565	Ceramic capacitor	RT-HE90TKSL471K-T	1	10		C
	2819 5241	Semi conductive capacitor	DD407SR683K16-T	1	20		C
	2830 6229	Mylar capacitor	AMZV-104K50-T	1	10		C
	2830 6237	Mylar capacitor	AMZV-102K50-T	2	10		C
	2830 6261	Mylar capacitor	AMZV-103K50-T	3	10		C
	2830 6270	Mylar capacitor	AMZV-223K50-T	1	10		C
	2830 6288	Mylar capacitor	AMZV-273K50-T	1	10		C
	2830 6296	Mylar capacitor	AMZV-332K50-T	1	10		C
	2830 6312	Mylar capacitor	AMZV-471K50-T	1	10		C
	2830 6339	Mylar capacitor	AMZV-222K50-T	4	10		C
	2830 6428	Mylar capacitor	AMZV-562K50-T	1	10		C
	2830 6592	Mylar capacitor	AMZV-683K50-T	1			C
	2830 6606	Mylar capacitor	AMZV-224K50-T	2			C
☆	2845 0273	Three polarity capacitor	EXC-ECT222MBC	1	20		C
☆	2845 0280	Ferrite beads	EXC-ELDR35C	5	20		C
	3420 0050	Slide switch	SSE-22FP	1	5		B
	3500 3258	Pin assembly 13P	IL-G-13P-S3T2-E	1			C
	3500 3681	Pin assembly 12P	IL-G-12P-S3T2-E	1			C
	3511 1409	Print plate connector	5229-11CPB	1			C
	3841 0007	Coil	L10P-7L	1	10		B
☆	5860 1442	Card spacer	KGLS-14S	6			C
☆	4307 7770	Blank PCB M4361-MA2M	M11361-1	1			X
☆	4307 7820	Blank PCB M4361-CN2M	M11361-2	1			X
3) M4361-MA3M PCB ASS'Y							
	2390 0210	Diode	DSF10C-UB1-H	1	20		C
	2765 0294	VR	K121K0Z1A-100KB	1	5		B
	2607 5105	Carbon film resistor	ELR-50X-27-J-T32-T	2	20		C
	2607 5112	Carbon film resistor	ELR-25-18K-J-T32-T	1	20		C
	2807 1007	Electrolytic capacitor	16RE2-330-T2-T	1	10		C
	2818 0365	Ceramic capacitor	RT-HE50TKYB102K-T	3	10		C
	2845 0280	Ferrite beads	EXC-ELDR35C	2	20		C
	3025 0203	EMI filter	EXC-EMT222DC	1	20		C

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	3501 0070	DC jack	HEC2305-01-030	1	10		B
	3612 0665	Phone jack	YKB21-5006	1			B
	3612 0789	Jack	YKB21-5010	2			B
	3025 0217	EMI filter	EXC-EMT103DC	1			C
☆	4307 7780	Blank PCB M4361-MA3M	M21777-1	1			X
4) M4361-CN1M PCB ASS'Y							
	2301 0241	Diode	1SS254T-77-T	24	20		C
	2320 9799	LED	LN266RPT-(TA)	5	10		B
	2617 0231	Carbon film resistor	R-20-270-J-T24-T (1/5W, 270ohm, ±5%)	5	20		C
	3410 1728	Tact switch	EVQ-QS205K	24	20		B
	3725 0952	PC joiner M361C	JSF00-19-137M	1	5		B
☆	4307 7850	Blank PCB M4361-CN1M	M21778-1	1			X
5) M4361-CN3 PCB ASS'Y							
☆	3501 1323	9P connector M361	IL-9P-25-M361	1			C
☆	4307 7830	Blank PCB M4361-CN3	M32795-1	1			X
6) M4361-CN4 PCB ASS'Y							
☆	3725 0959	PC joiner M361K	JSF00-5-42	1	20		B
☆	4307 7840	Blank PCB M4361-CN4	M32796-1	1			X
7) M20F-KY1 PCB ASS'Y							
	2390 0343	Diode	LB1105M	5	20		C
	3501 1337	12P connector M361A	IL-12P-27-M361	1			C
	3501 1337	15P connector M361	IL-15P-29-M361	1			C
	4307 7860	Blank PCB M20F-KY1	M11359-1	1			X
8) UPPER CASE ASS'Y							
1	3830 3171	Speaker	C1209D	1			B
2	6901 1560	DIN jack plate	M4598-1	1			X
3	2765 0427	VR	K1611005BC-10KB	2	5		B
4	6913 2550	Knob 361	M32782-1	2			C
5	6913 2720	Sensor cap sub ass'y	M43400*1	1			C
☆6	6913 2990	Upper case sub ass'y	M21791*2	1			C

Note: ☆ — New parts
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C: Others
X: No stock recommended

Item	Code No.	Part Name	Specification	Q'ty	*	Unit Price N.R. Yen (¥) (FOB: JAPAN)	Rank
☆ 7	6913 3000	DS contact rubber 361	M32786-1	1			B
☆ 8	6913 3010	Contact rubber 361	M32784-1	1	5		B
☆ 9	6913 3020	Rhythm contact rubber 361	M32785-1	1	5		B
	3501 1316	7P connector M361	IL-7P-40-M361	1			C
	4307 7740	Blank PCB M4361-SE	M32797-1	1			X
☆12	6913 2881	Sensor pole sub ass'y	M43399A*1	1			C
13	6913 2810	Sensor base	M32767-1	1			C
☆16	6913 3040	Pick guard	M32780-1	1			C
17	6913 2891	Sensor coil	M43372A-1	1	10		C
18	6913 2900	Sensor spacer	M43375-1	1	20		C
19	6913 3580	Contact coil	M43407-1	1	20		C
☆20	6913 2870	Switch sheet 361	M32783-1	1			C
☆21	6913 2800	Panel 361 sub ass'y	M32810*1	1			C
22	6913 2450	Sensor cap B	M32807-1	1	10		C
23	6913 2560	Slide knob 130	M32018-7	1	20		C
☆10	6913 2791	Contact sheet 20F	M11333C-1	1			B
9) NECK CASE ASS'Y							
24	6913 2740	Neck case sub ass'y	M32812*1	1			C
25	6913 2750	Neck cover	M21763-1	1			C
26	6913 2760	String bar nut	M43368-1	6	10		C
27	6913 2770	String lever	M43367-1	6			C
☆11	5860 1526	String black-B	N610-C2	6			B
10) LOWER CASE ASS'Y							
☆28	6913 2710	Lower case sub ass'y	M21793*2	1			C
29	6912 6062	Battery cover sub ass'y	M31471B*6	1			C
30	6902 6140	Battery spring 90	M41226-1	1	10		C
31	6903 0450	Battery spring	M41329-1	1	10		C
32	6903 0460	Battery spring	M41328-1	2	10		C
33	6908 4730	Strap pin nut	M42806-2	1	10		C
34	6913 3520	Strap pin	M43406-1	1			C

Note: ☆ — New parts
Q'ty — Quantity used per unit
* — Minimum order and supply quantity

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

CASIO COMPUTER CO., LTD.

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