

SERVICE MANUAL

PERFORMANCE

SIGNAL PROCESSOR

A3

CONTENTS

1. SPECIFICATIONS	2
2. STRUCTURAL DIAGRAM	3
3. BLOCK DIAGRAM	4
4. CIRCUIT DIAGRAM	5
5. P. C. BOARD	10
6. REFERENCE DATA	14
7. CHECK AND ADJUSTMENT	23
8. PARTS LIST	25

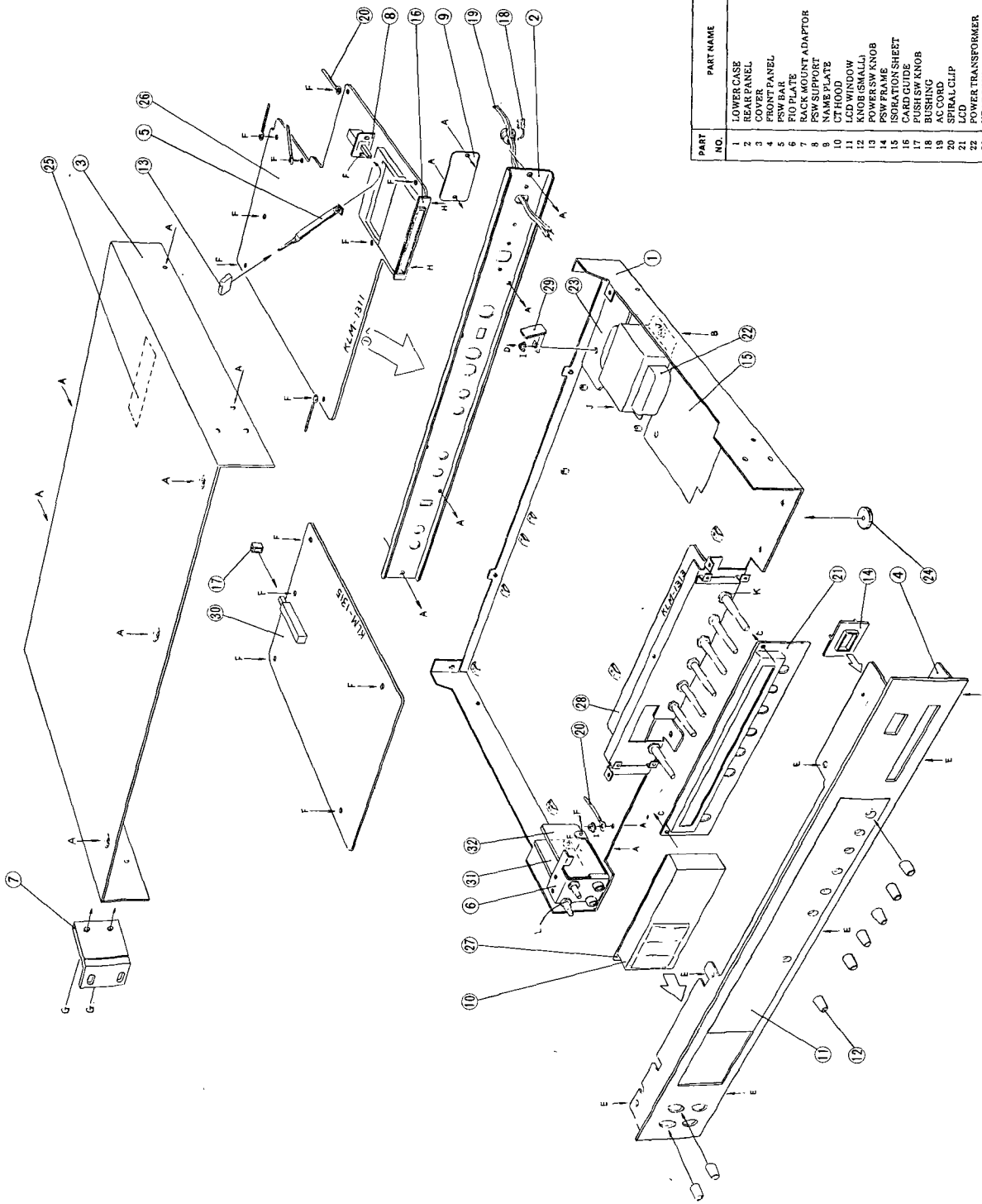
KORG

1. SPECIFICATIONS

- Input : Input level/impedance : +4dBm (+19dBm MAX)/1M-ohms,
-20dBm (+19dBm MAX)/1M-ohms
- Output : Output level/impedance: +4dBm (19dBmMAX)/600 ohms
-20dBm (-5dBmMAX)/600 ohms
- Direct out, Output level/impedance INPUT GAIN UNITY/1K ohms
- AD/DA : 16-bit linear (DA: 4-times over-sampling digital filter)
- Sampling frequency : 37.1KHz
- Frequency response : 24Hz - 18KHz +1.5/-3dB
- Dynamic range : 90dB
- Memory : No. 1 - 100; No. 1 - 200 when using card
- Front panel:
 - KEY SW : UP, DOWN, DISPLAY SELECT, PARAMETER EDIT, UTILITY, WRITE,
POWER SW, DOUBLE FUNCTION EDITOR [A - F, CHAIN/EFFECT
(BYPASS)]
 - Display : Backlit LCD character display: 40 characters x 1 row
PROGRAM No. display: 7-segment LED x 3
Dot type LEDs : PERFORMANCE, INDIVIDUAL, BYPASS,
PARAMETER EDIT, UTILITY
 - Input level : 5-element level meter, and digital clip
 - INPUT VOLUME
 - PHONES LEVEL
 - CARD slot
 - INPUT terminal
 - PHONES terminal (stereo)
- Rear panel
 - Switches : Input level toggling switch (-20dB/+4dB)
MIDI OUT/THRU toggling switch
 - INPUT terminal
 - DIRECT OUT terminal
 - OUTPUT terminal x 2 (L,R)
 - PEDAL/SW input terminal x 2
 - MIDI IN
 - MIDI OUT/THRU
 - REMOTE IN
- Internal effects: REVERB GROUP; COMPRESSOR GROUP; DISTORTION GROUP;
DELAY GROUP; STEREO DELAY GROUP;
MODULATION DELAY GROUP; MODULATION GROUP;
PHASER GROUP; PAN GROUP; PITCH SHIFTER GROUP;
EXCITER GROUP; ENSEMBLE GROUP; ROTARY SPEAKER GROUP;
3- BAND EQUALIZER GROUP; SPEAKER SIMULATION GROUP;
PEDAL PAN GROUP; GATE GROUP; PEDAL WAH GROUP;
EARLY REFLECTION GROUP; PARAMETRIC EQ GROUP
- Power : AC 100V, 50/60 Hz
- Power consumption : 26 W
- Size (W x D x H) : 482 mm (W) x 332.5 mm (D) x 44 mm (H) (19" x 12-15/16" x 1-3/4")
- Weight : 4.5 kg
- Optional accessories: VOLUME PEDAL (KVP-001), FOOT SWITCH (PS-1, PS-2),
REMOTE CABLE (RCC-050, RCC-100),
FOOT CONTROLLER (FC6), RAM CARD (MCR-03),
ROM CARD (SPC-01~)

★ Specifications subject to change without notice.

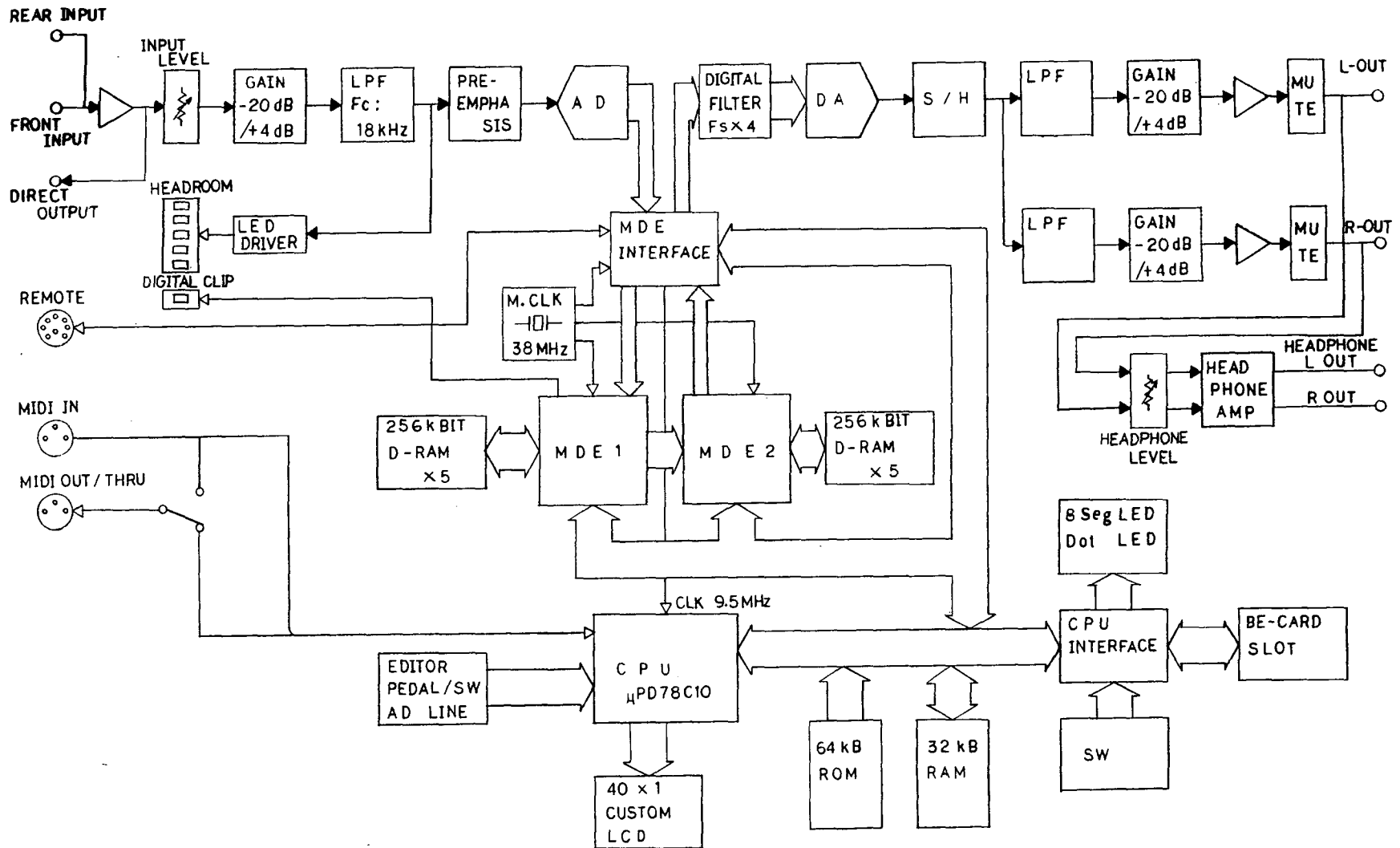
2. STRUCTURAL DIAGRAM



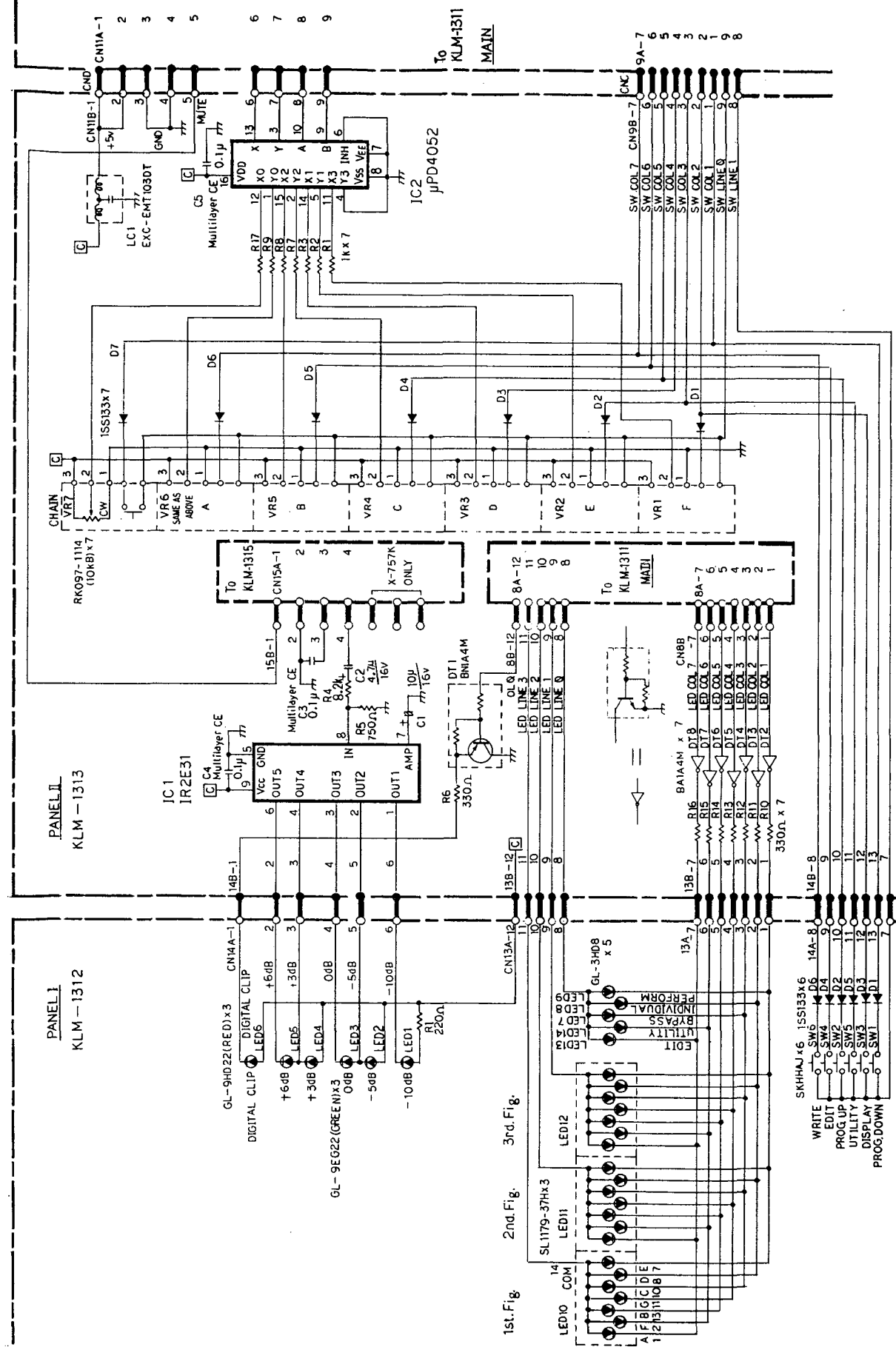
PART NO.	PART NAME	PART CODE
1	LOWER CASE	640086500
2	REAR PANEL	640096400
3	FRONT PANEL	640096500
4	PSW BAR	640086800
5	FIO PLATE	640096900
6	RACK MOUNT ADAPTOR	640087000
7	NAME PLATE	640096700
8	PSW SUPPORT	640096500
9	LCD WINDOW	640096600
10	KNOB (SMALL)	520018200
11	POWER SW KNOB	646030200
12	PSW FRAME	640087500
13	ISOLATION SHEET	640086500
14	CARD GUIDE	620020800
15	POWER SW KNOB	
16	BUSHING	
17	AC CORD	
18	SPIRAL CLIP	
19	LCD	
20	POWER TRANSFORMER	
21	HEAT SINK	
22	RUBBER FEET	
23	ISOLATION SHEET	
24	P.C. BOARD KLM-1311	
25	P.C. BOARD KLM-1312	
26	P.C. BOARD KLM-1313	
27	P.C. BOARD KLM-1314	
28	P.C. BOARD KLM-1315	
29	P.C. BOARD KLM-1316	
30	P.C. BOARD KLM-1317	

PART NO.	SCREWS & NUT	QTY
A	CT B BZMC 3 X 8	20
B	CT B BZMC 4 X 10	2
C	FE B ZMC 3.6 X 6	2
D	FE B BZMC 3 X 12	1
E	TS B ZMC 3 X 6	17
F	TPPG F BZMC 4 X 10	4
G	PLAX B BZMC 3 X 10	4
H	PHN ZMC 3	2
I	PHN ZMC 4	2
J	VN ZMC 7	2
K	VN BZMC 7	2
L		

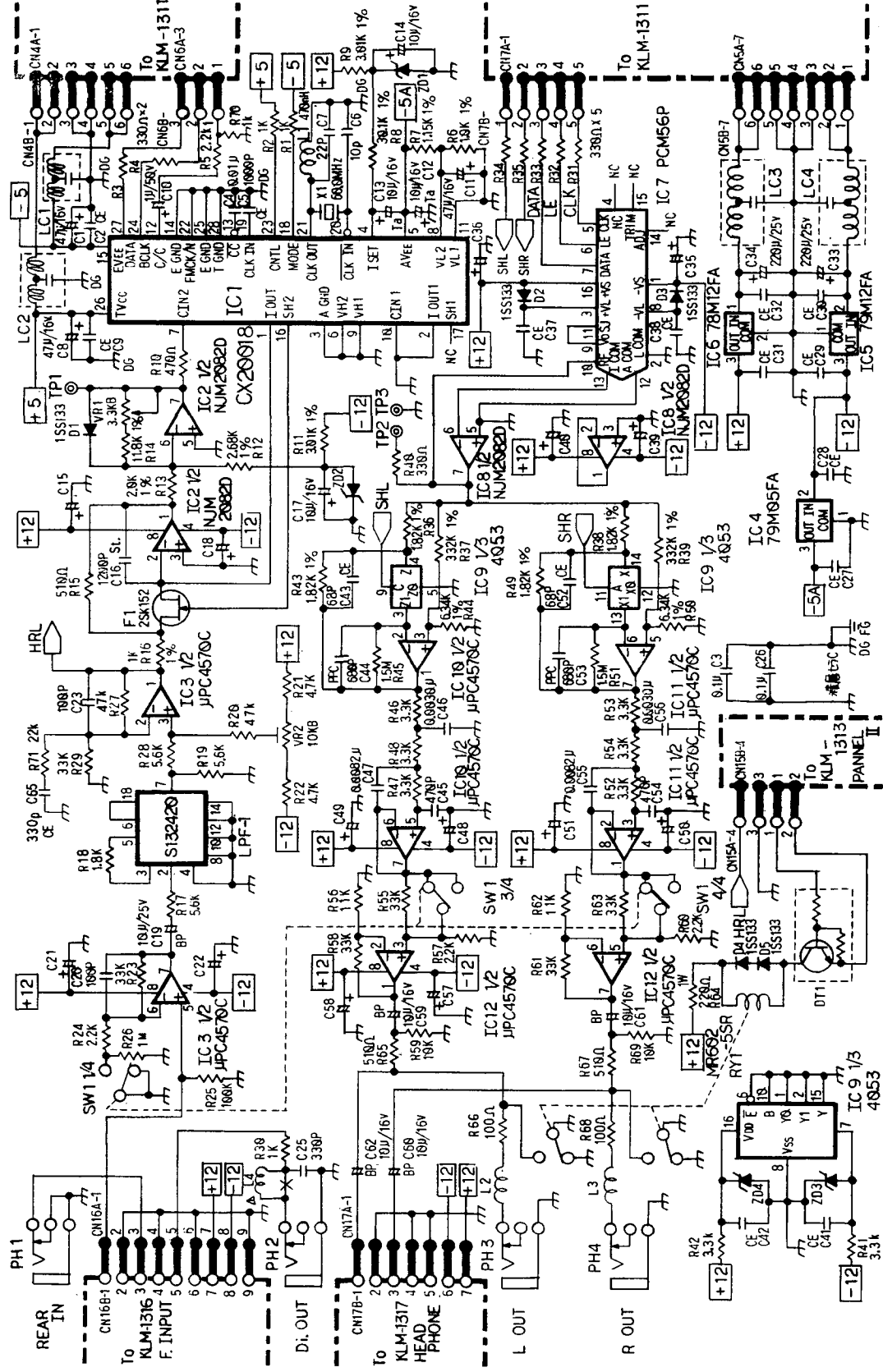
3. BLOCK DIAGRAM



KLM-1312, 1313



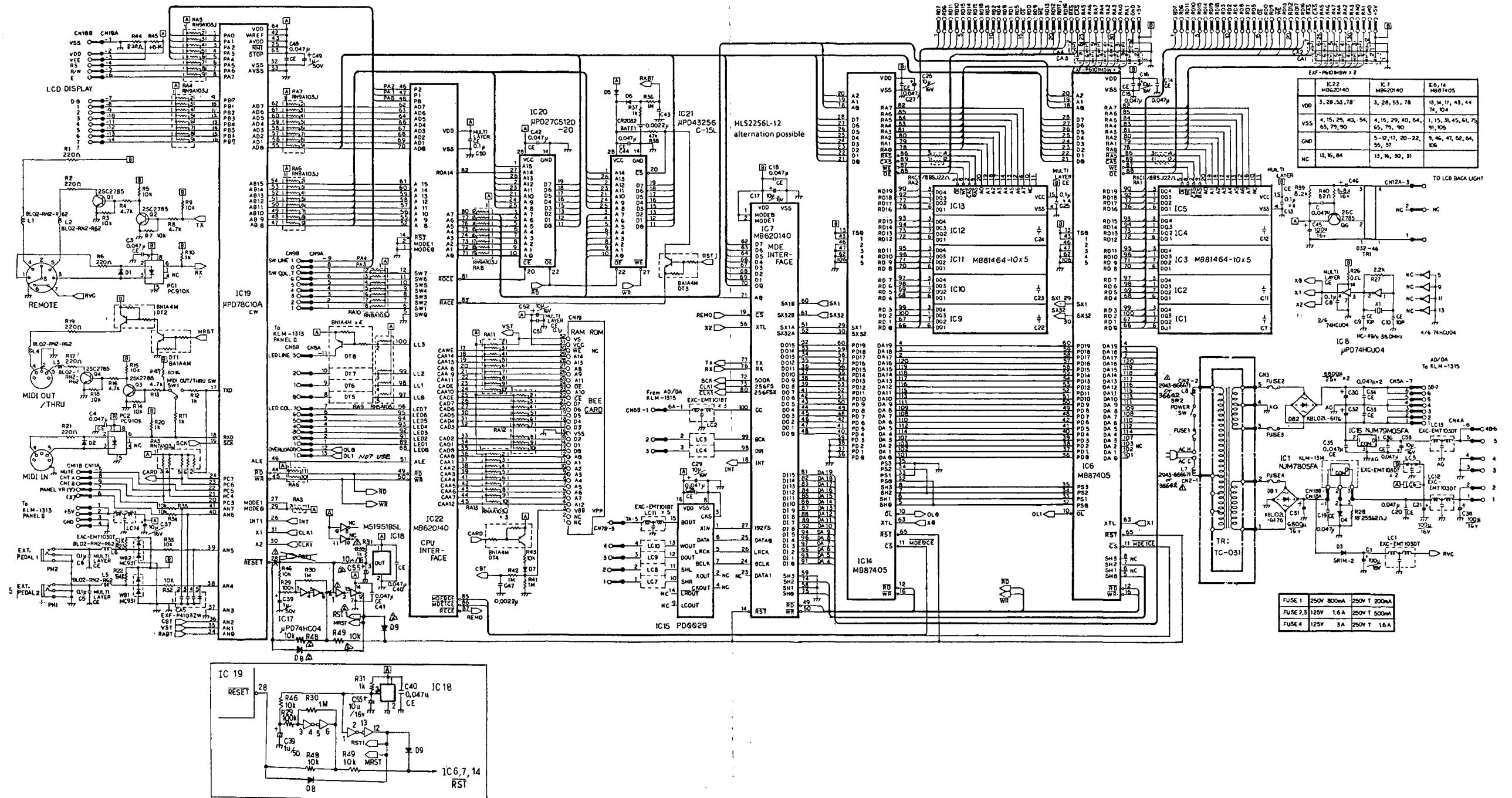
KLM-1315



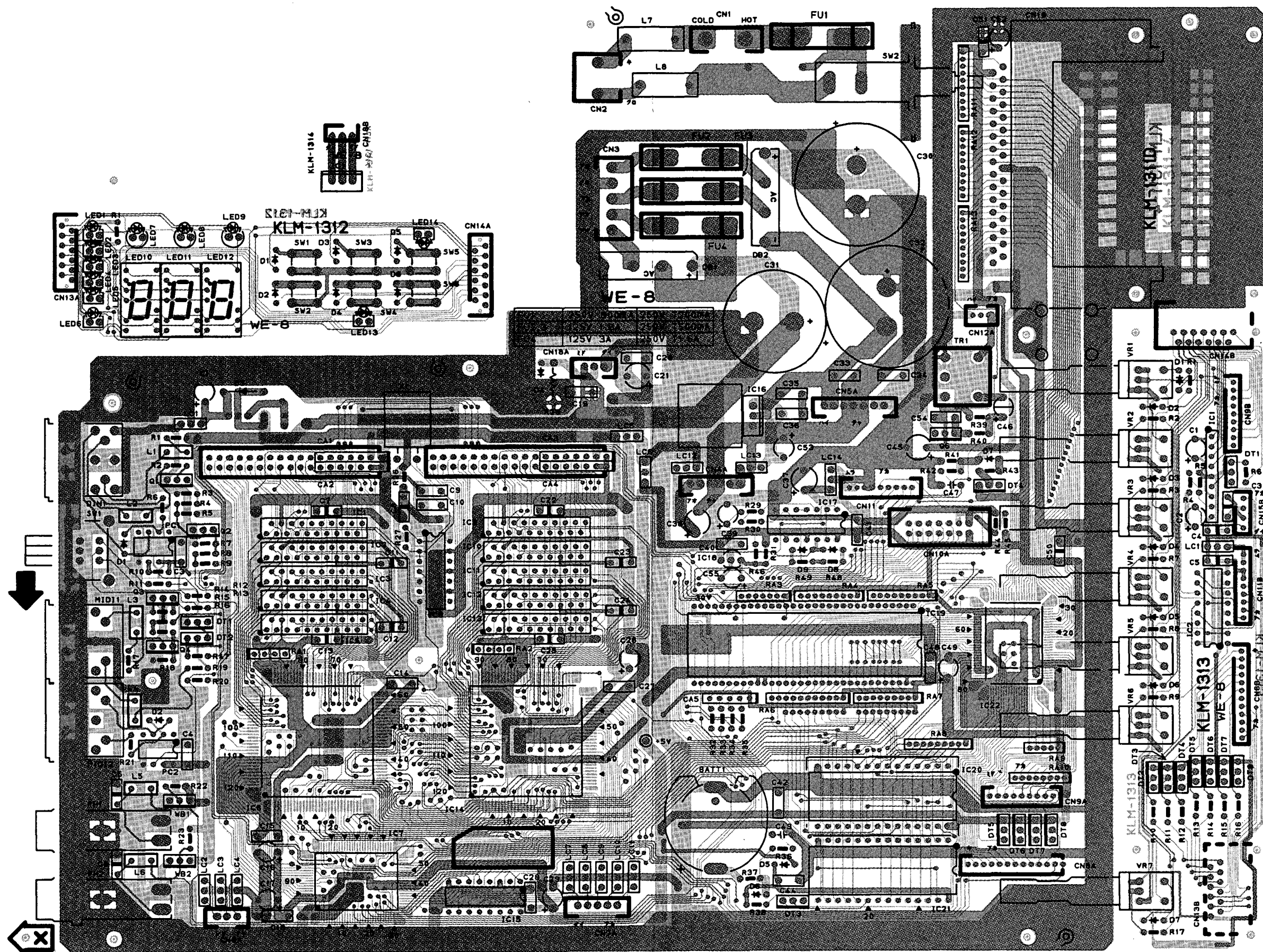
ELECTROLYTIC CAP. NOT SPECIFIED : 10µ/16V
 CERAMIC CAP. NOT SPECIFIED : 0.047µF
 : HZ56B1L
 ZD1~2 : RD62E5B1
 ZD3~4 : EXC-EMT103DT
 LC1~4A : #2943-666671or#36642
 L2~3,4

4. CIRCUIT DIAGRAM

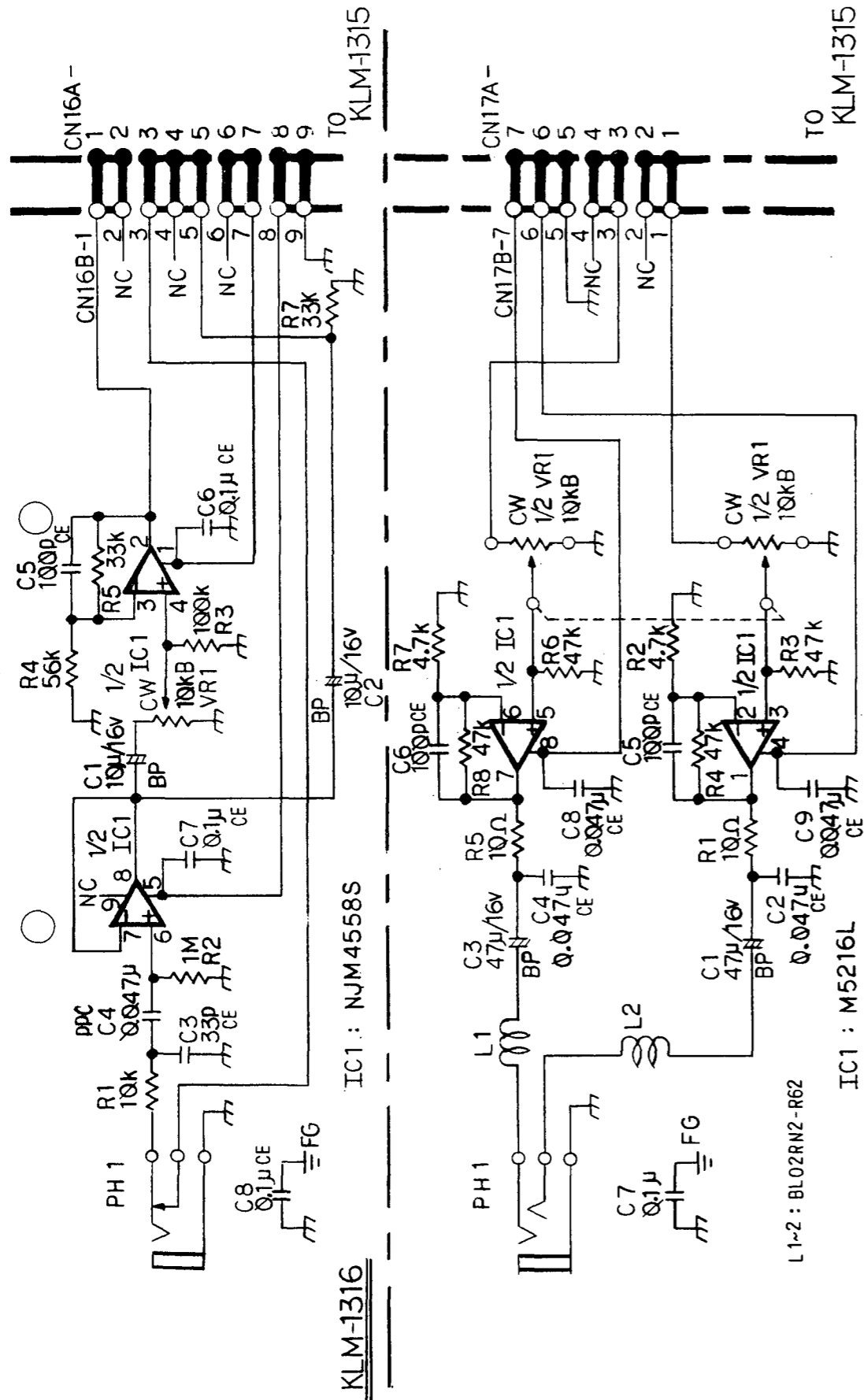
KLM-1311, 1314



KLM-1311, 1312, 1313, 1314

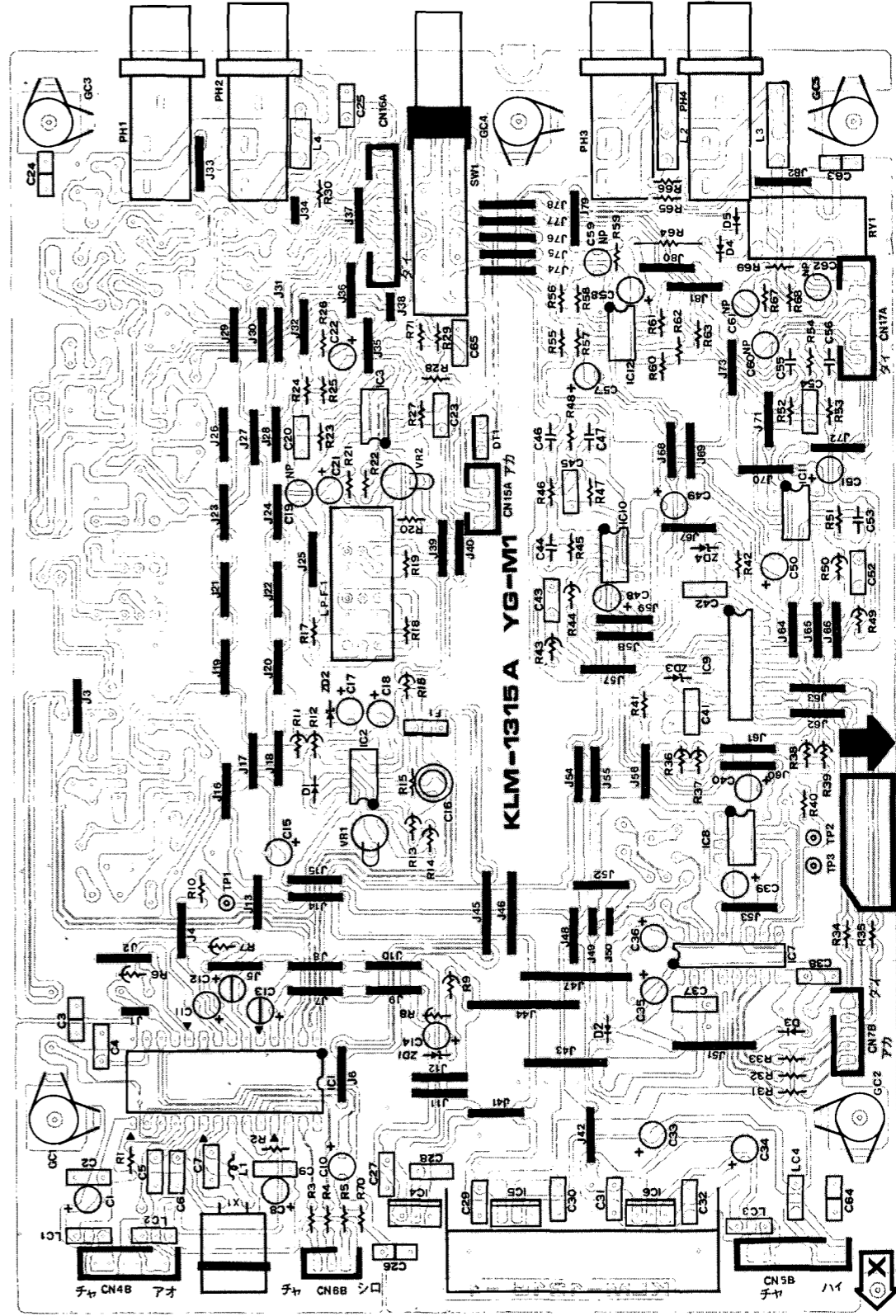


KLM-1316, 1317

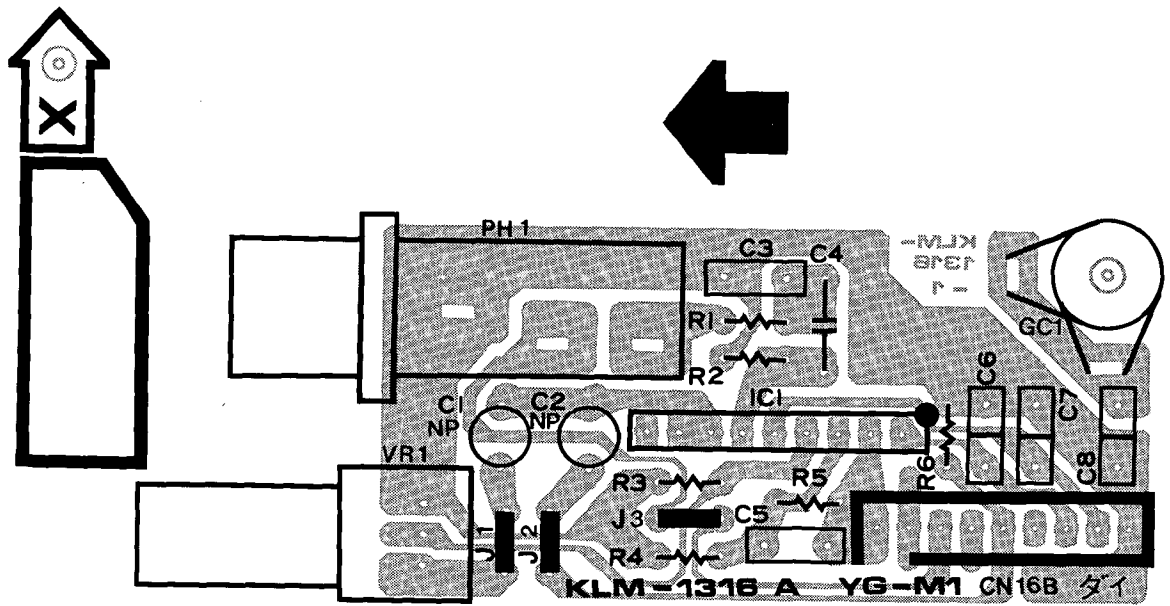


5. P. C. BOARD

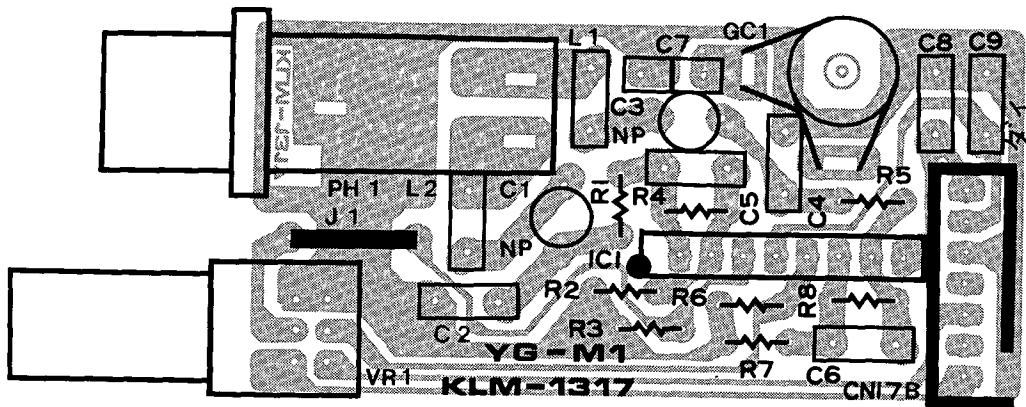
KLM-1315



KLM-1316



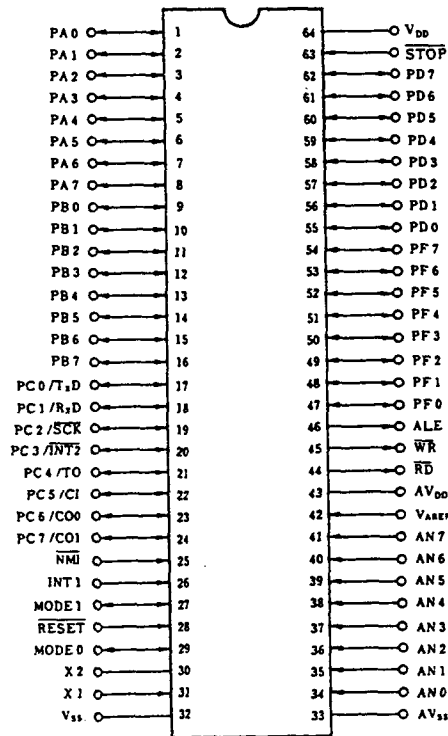
KLM-1317



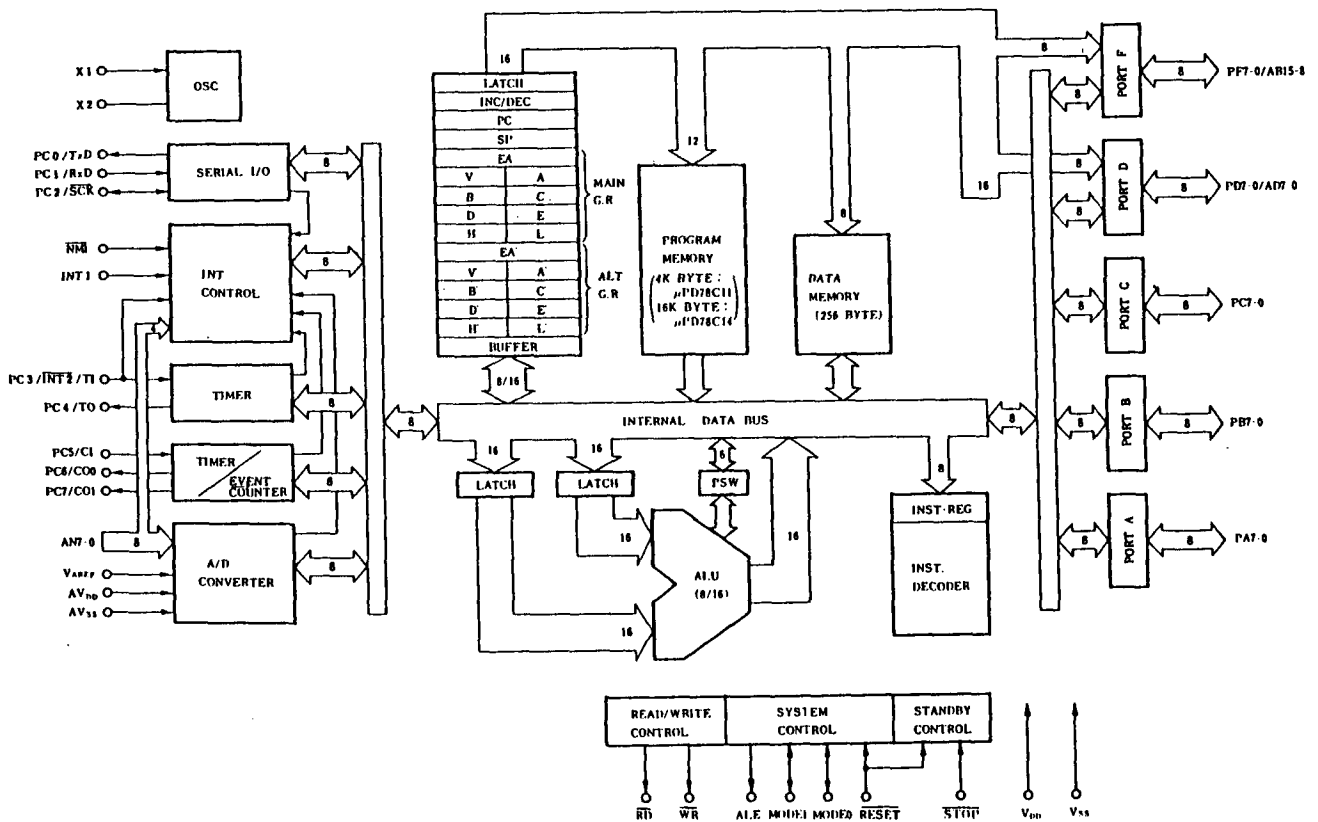
6. REFERENCE DATA

78C10CW

PIN ASSIGNMENT



BLOCK DIAGRAM



PIN FUNCTION

Pin Name	I/O	Pin Name	I/O	Pin Name	I/O
PA7-0 (Port A)	I/O	PD7-0/AD7-0	I/O/O	V _{AREF} (Reference Voltage)	I
PB7-0 (Port B)	I/O	PF7-0/AB15-8	O	A V _{DD} (Analog V _{DD})	
PC0/TxD	I/O/O	\overline{WR} (Write Strobe)	O	A V _{SS} (Analog V _{SS})	
PC 1/RxD	I/O/I	\overline{RD} (Read Strobe)	O	X1, X2 (Crystal)	
PC2 / \overline{SCK}	I/O/I/O	ALE (Address Latch Enable)	I/O	\overline{RESET} (Reset)	I
PC3/ $\overline{INT2}$ /T1	I/O/I/I	MODE 0 MODE 1 (Mode)	I	\overline{STOP} (Stop)	I
PC4/TO	I/O/O	\overline{NMI} (Non-Maskable Interrupt)	I	V _{DD}	
PC5/CI	I/O/I	INT 1 (Interrupt Request)	I	V _{SS}	
PC6/CO0 PC7/CO1	I/O/O	AN7-0 (Analog Input)	I		
PC6/CO0 PC7/CO1	I/O/I/O				

PORT SETTING

PA 0 PA 1 PA 2 PA 3 PA 4 PA 5 PA 6 PA 7	P 0 (BANK SET) P 1 (BANK SET) P 2 (BANK SET) SL 0 (SWITCH LINE 0) SL 1 (SWITCH LINE 1) RS (LCD CONTROL) R/W (LCD CONTROL) E (LCD CONTROL)
PB 0 I PB 7	LCD DATA (D0 - D7)
PC 0 PC 1 PC 2 PC 3 PC 4 PC 5 PC 6 PC 7	TxD (MIDI) RxD (MIDI) SCK (MIDI CLOCK IN : 500 KHZ) CONT B (A/D MULTIPLEX) CONT A (A/D MULTIPLEX) MUTE (TO ANALOG BOARD) CARD (CARD BATTERY ON/OFF) NOT USED (PULL UP)
PD 0 I PD 7	ADDRESS (A0 - A7 / LOWER) DATA (D0 - D7)
PF 0 I PF 7	ADDRESS (A8 - A15 / UPPER)
AN 0 AN 1 AN 2 AN 3 AN 4 AN 5 AN 6 AN 7	S-RAM BATTERY CARD IN / OUT (VST) CARD BATTERY GND (NOT USED) EXT. PEDAL2 EXT. PEDAL1 PANEL VR (4052 X pin) PANEL VR (4052 Y pin)

MB620140 (IC7, IC22)

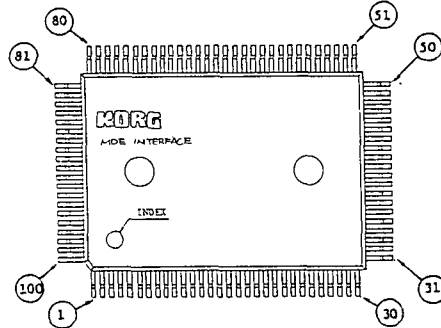
KLM-1311 IC7 and IC22 of MB620140 are identical ICs but, by changing MODE 0, 1 of pin No.1, 2, they will become double functioned.

IC7 (MDE INTERFACE)

Main Functions

- * Serial/Parallel conversion of input signal. Inputs converted signal to MDE 1.
- * Serial/Parallel conversion of MDE 2 output. Inputs converted signal to IC15 digital filter (PD0029).

KLM-1311 IC7 MB620140 MDE INTERFACE PIN ASSIGNMENT



PIN FUNCTION

Pin No.	Pin Name	I/O	Function	Pin No.	Pin Name	I/O	Function
1	MODE 0	I		51	SX 1A	I	
2	MODE 1	I		52	SX 32A	I	
3	V _{DD}			53	V _{DD}		
4	V _{SS}			54	V _{SS}		
5	G 0	I		○55	G 12	I	38 MHz master clock input
6	G 1	I		○56	XTL	I	
7	G 2	I		○57	G 13	I	
8	G 3	I		○58	SH 1	I	
9	G 4	I		○59	SH 3	I	
10	G 5	I		60	SX 1B	I	
11	G 6	I		61	SX 32B	I	
12	G 7	I		62	D 7	I/O	CPU data bus
13	NC			63	D 6	I/O	
○14	RST	I	Reset pin. Low active	64	D 5	I/O	
15	V _{SS}			65	V _{SS}		
16	NC			66	D 4	I/O	
○17	G 8	I		67	D 3	I/O	
○18	INT	O	Outputs trigger signal when remote control signal is received by RX.	68	D 2	I/O	
19	CE	I	Chip select of MDE INTERFACE	69	D 1	I/O	
20	G 9	I		70	D 0	I/O	
21	G 10	I		71	A 0	I	CPU address bus (output from IC22, MB620140)
22	G 11	I		72	500 K	O	CPU external clock output pin. Outputs 500KHz
23	DATA 1 (DF)	O	Option data output pin. Outputs 2ch data like DATA 0. Uses SH 1 and SH 3, and may be used only when data is written in the corresponding register.	73	256 FS	O	CPU master clock output pin. 256 FSX is reversed 256 FS. Outputs 9.5 MHz.
24	BCLK (DF)	O		74	SH 2	I	
25	DATA 0 (DF)	O		75	SH 0	I	
26	LRCK (DF)	O		76	RX	I	Remote control serial data input/output pin TX outputs, RX inputs.
27	192 FS (DF)	O		77	TX	O	
28	V _{DD}			78	V _{DD}		
29	V _{SS}			79	V _{SS}		
30	ERR 0	O		80	256 FSX	O	CPU master clock output pin. 256 FSX is reversed 256 FS. Outputs 9.5MHz.
31	ERR 1	O		81	DI 15	I	
32	DO 15	O		82	DI 14	I	
33	DO 14	O		83	DI 13	I	
34	DO 13	O		84	DI 12	I	
35	DO 12	O		85	DI 11	I	
36	DO 11	O		86	DI 10	I	
37	DO 10	O		87	DI 9	I	
38	DO 9	O		88	DI 8	I	
39	DO 8	O		89	DI 7	I	
40	V _{SS}			90	V _{SS}		
41	DO 7	O		91	DI 0	I	
42	DO 6	O		92	DI 6	I	
43	DO 5	O		93	DI 1	I	
44	DO 4	O		94	DI 5	I	
45	DO 3	O		95	DI 2	I	
46	DO 2	O		96	DI 4	I	
47	DO 1	O		97	DI 3	I	
48	DO 0	O		98	DIN (AD)	I	
49	RD	I		99	BCK (AD)	O	
50	WR	I	Reading and writing pin	100	CC (AD)	O	

(NOTE)

GX Set at GND

X mark on left of pin No., indicate change (8)

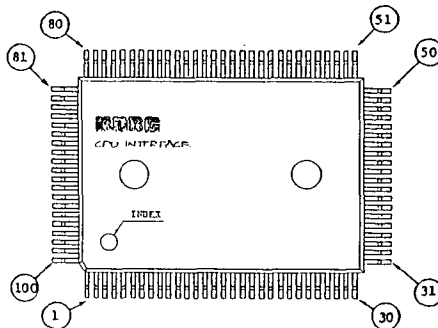
- * Produces CPU clock (IC19, MPD78C10A, Pin 30, 31) and digital filter clock (IC15, PD0029 Pin 1).
- * Controls remote control signal (FC-6).

IC22 (CPU INTERFACE)

Main Functions

- * Produces \overline{CE} , \overline{CS} signals of each IC.
- * Latches low order address (A0-A7).
- * BE card interface
- * Controls panel SW input signal and LED.

KLM-1311 IC22 MB620140 CPU INTERFACE PIN ASSIGNMENT



PIN FUNCTION

Pin No.	Pin Name	I/O	Function	Pin No.	Pin Name	I/O	Function
1	MODE 0	I		51	ALE	I	CPU address latch enable input
2	MODE 1	I		52	A8	I	
3	V _{DD}			53	V _{DD}		
4	V _{SS}			54	V _{SS}		
5	SW 0	I	SW data input pin (SW 0 not used)	55	A 9	I	CPU high order address bus
6	SW 1	I					
7	SW 2	I					
8	SW 3	I					
9	SW 4	I					
10	SW 5	I					
11	SW 6	I					
12	SW 7	I		56	A 10	I	
13	NC			57	A 11	I	
○14	RST	I		58	A 12	I	
15	V _{SS}			59	A 13	I	
16	NC			60	A 14	I	
○17	CAWE	O	Outputs write signal to card (Low active)	61	A 15	I	
○18	CAA 14	O	Address and data bus to card (Low active)	62	AD 7	I/O	CPU low order address bus
19	CAA 13	O					
20	CAA 8	O					
21	CAA 9	O					
22	CAA 11	O					
23	CAOE	O	Outputs output enable to card (Low active)	63	AD 6	I/O	
24	CAA10	O	Address and data bus to card (Low active)	64	AD 5	I/O	
25	CACE	O	Outputs chip select to card (Low active)	65	V _{SS}		
26	CAD 7	I/O	Address and data bus to card (Low active)	66	AD 4	I/O	CPU low order address bus
27	CAD 6	I/O					
28	V _{DD}						
29	V _{SS}						
30	CAD 5	I/O					
31	CAD 4	I/O					
32	CAD 3	I/O					
33	CAD2	I/O					
34	CAD 1	I/O					
35	CAD 0	I/O					
36	CAA 0	O	Address and data bus to card (Low active)	67	AD 3	I/O	CPU low order address bus
37	CAA 1	O					
38	CAA 2	O					
39	CAA 3	O					
40	V _{SS}						
41	CAA 4	O					
42	CAA 5	O					
43	CAA 6	O					
44	CAA 7	O					
45	CAA 12	O					
46	P2	I		68	AD 2	I/O	Low order address bus output
47	P1	I	Bank switching CPU port A input	69	AD 1	I/O	
48	P0	I		70	AD 0	I/O	
49	RD	I	CPU read, write input	71	A 0	O	
50	WR	I		72	A 1	O	
				73	A 2	O	
				74	A 3	O	
				75	A 4	O	
				76	A 5	O	
				77	A 6	O	
				78	V _{DD}		
				79	V _{SS}		
				80	A 7	O	
				81	ROCE	O	ROM chip select output
				82	ROA14	O	ROM 14th bit address output
				83	RACE	O	RAM chip select output
				84	AUXCE	O	
				85	MDE 0 CE	O	MDE0 chip select
				86	MDE 1 CE	O	MDE1 chip select
				87	RECE	O	MDE INTERFACE chip select
				88	LED 0	O	LED data output (LED 0 not used)
				89	LED 1	O	
				90	V _{SS}		
				91	LED 2	O	
				92	LED 3	O	
				93	LED 4	O	
				94	LED 5	O	
				95	LED 6	O	
				96	LED7	O	LED line output
				97	LL 0	O	
				98	LL 1	O	
				99	LL 2	O	
				100	LL 3	O	

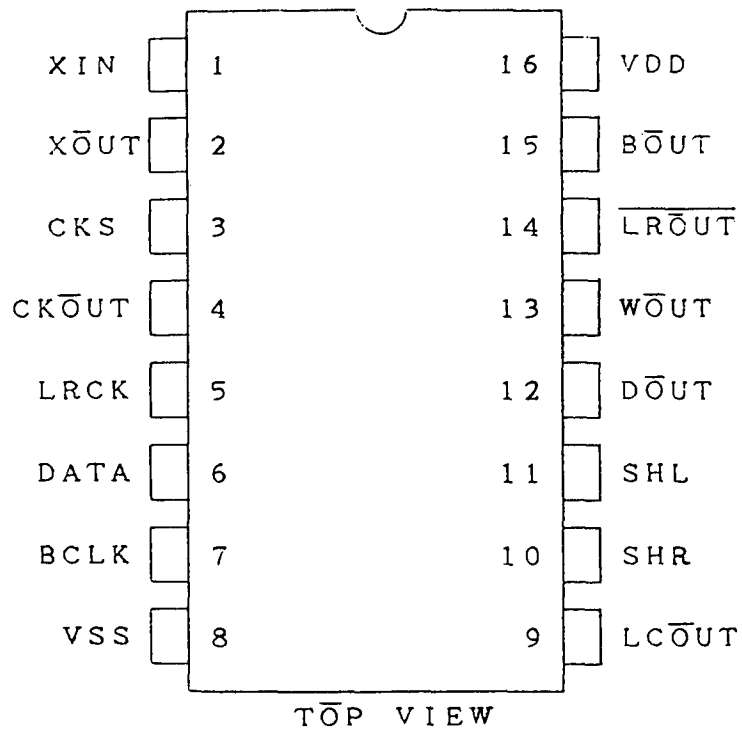
(NOTE)

- CAXX Card pin
- ROXX EP-ROM pin
- RAXX S-RAM pin

- X mark on left of pin No., indicate change (3)
- REXX Remote pin
- LLXX LED LINE Pin

KLM-1311 IC15 PD0029

PIN ASSIGNMENT

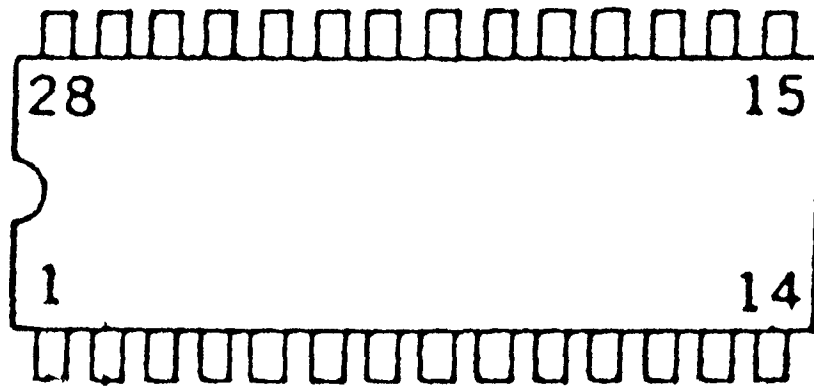


PIN FUNCTION

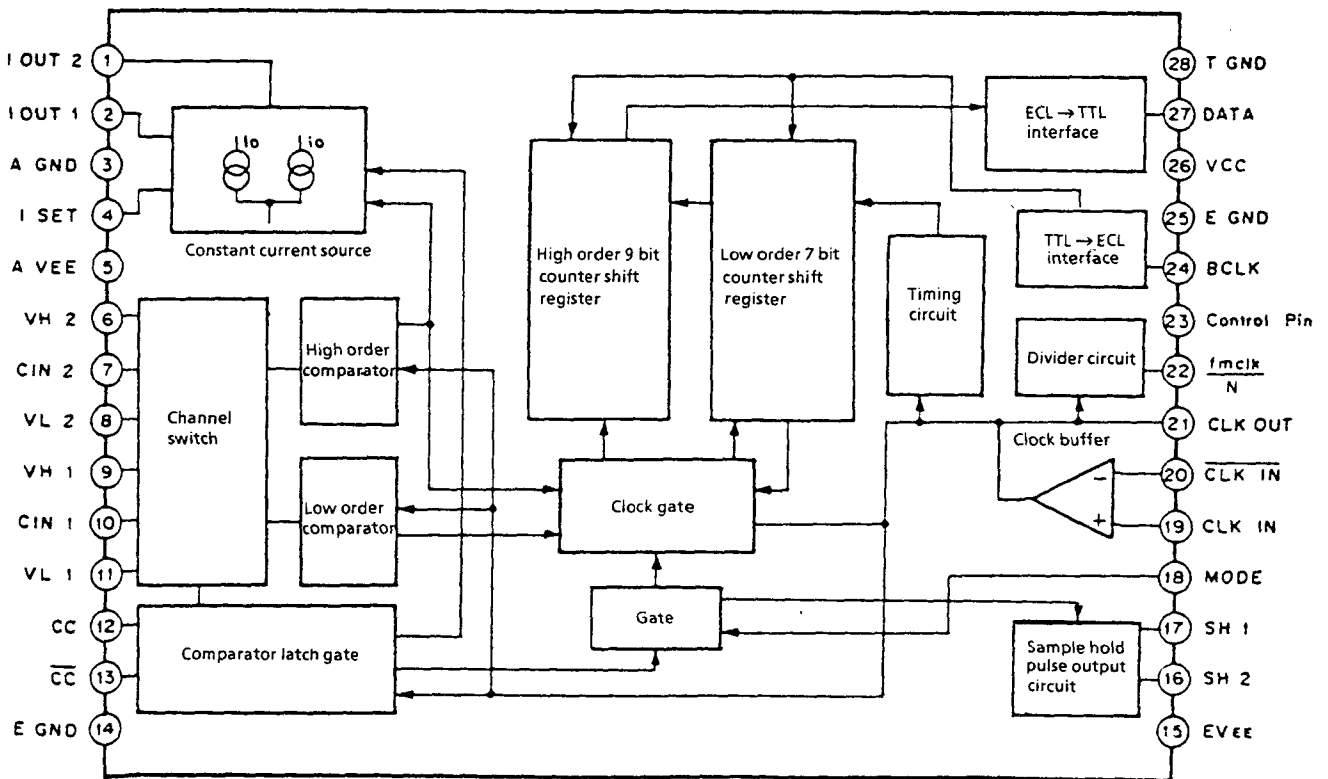
Pin No.	Symbol	Pin Name	I/O	Function
1	XIN	XIN	I	Quartz oscillator circuit input or external input
2	XOUT	XOUT	O	Quartz oscillator circuit output
3	CKS	CLOCK SELECT	I	16.9344 MHz at H 8.4672 MHz at L
4	CKOUT	CLOCK OUT	O	16.934 MHz clock output when CKS = H 8.4672 MHz clock output when CKS = L
5	LRCK	LR CLOCK	I	LR clock input
6	DATA	DATA	I	Serial data input
7	BCLK	BIT CLOCK	I	Input data bit clock input
8	Vss			Ground pin
9	LCOUT	L CLOCK OUT	O	Lch DAC clock output when using DAC2
10	SHR	SHR	O	Rch sample hold pulse output
11	SHL	SHL	O	Lch sample hold pulse output
12	DOUT	DATA OUT	O	Serial data output
13	WOUT	WOUT CK OUT	O	Word clock output
14	LROUT	LR CK OUT	O	LR select clock output
15	BOUT	BIT CK OUT	O	D OUT bit clock output
16	VDD			+5V power pin

CX20018

PIN ASSIGNMENT



BLOCK DIAGRAM

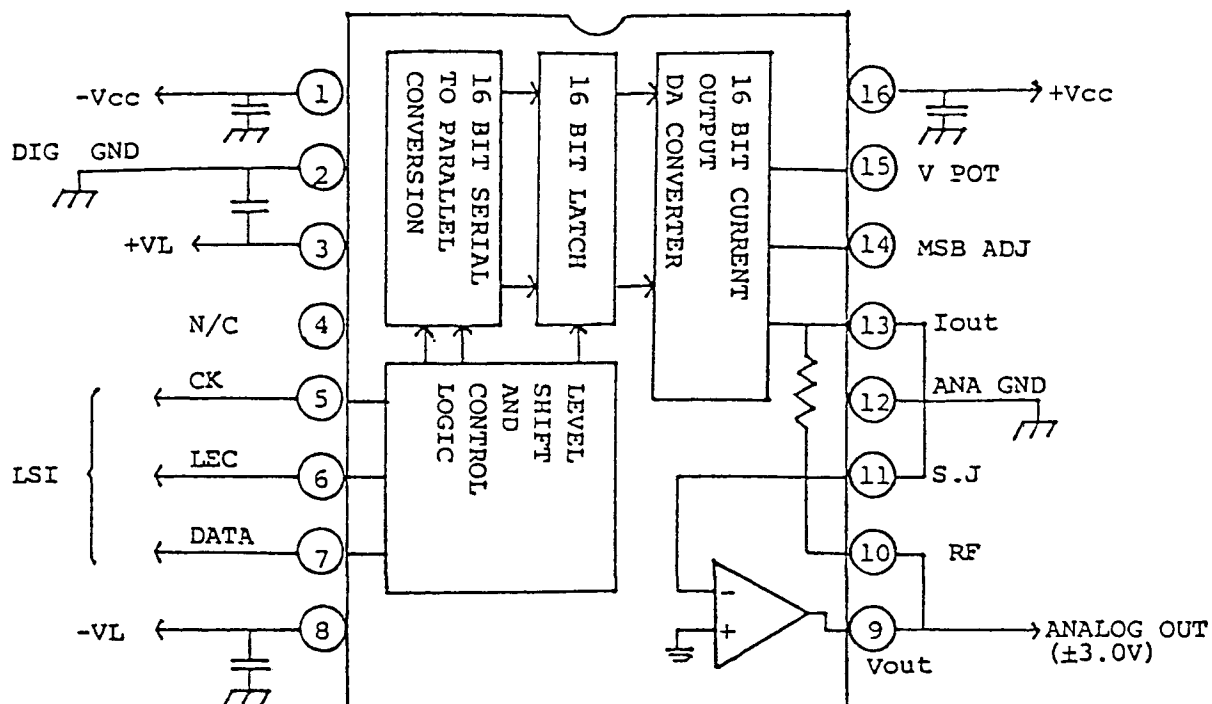


PIN FUNCTION

Pin No.	Pin Name	Function
1	Iout2	Channel 2 integral current output pin
2	Iout1	Channel 1 integral current output pin
3	AGND	Analog ground pin
4	ISET	Sets integral current value ($I_{set} = 32I_o$, $I_{SET} = 4I_o$), $I_{SET} \leq 750\mu A$
5	A V _{EE}	Analog power pin
6	VH2	Channel 2 high order comparator input pin
7	CIN2	Common input pin for Channel 2 high/low order
8	VL2	Channel 2 low order comparator input pin
9	VH1	Channel 1 high order comparator input pin
10	CIN1	Common input pin for Channel 1 high/low order
11	VL1	Channel 1 low order comparator input pin
12	CC	Conversion order input pin (Positive input), $600mV \leq CC \leq 4.0V$
13	\overline{CC}	Conversion order input pin (Negative input)
14	EGND	Digital ground pin (ECL)
15	E V _{EE}	Digital power pin
16	SH2	Channel 2 sample hold pulse output pin
17	SH1	Channel 1 sample hold pulse output pin
18	MODE	Switches stereo/mono, and sample hold pulse ON/OFF
19	CLKIN	Clock buffer positive input pin
20	\overline{CLKIN}	Clock buffer negative input pin
21	CLKOUT	Clock buffer output pin
22	$\frac{f_{MCLK}}{N}$	Divider output pin (open collector)
23	Control Pin	Decides divider output dividing ratio. Selects dividing ratio from OFF, 1/2, 1/4 and 1/8
24	BCLK	Input pin for clock which shifts inside conversion data to outside
25	EGND	Digital ground pin
26	TVcc	Digital power pin
27	D _{OUT}	Conversion data output pin. Output is at TTL level.
28	TGND	TTL ground pin

KLM-1315 IC7 PCM56P

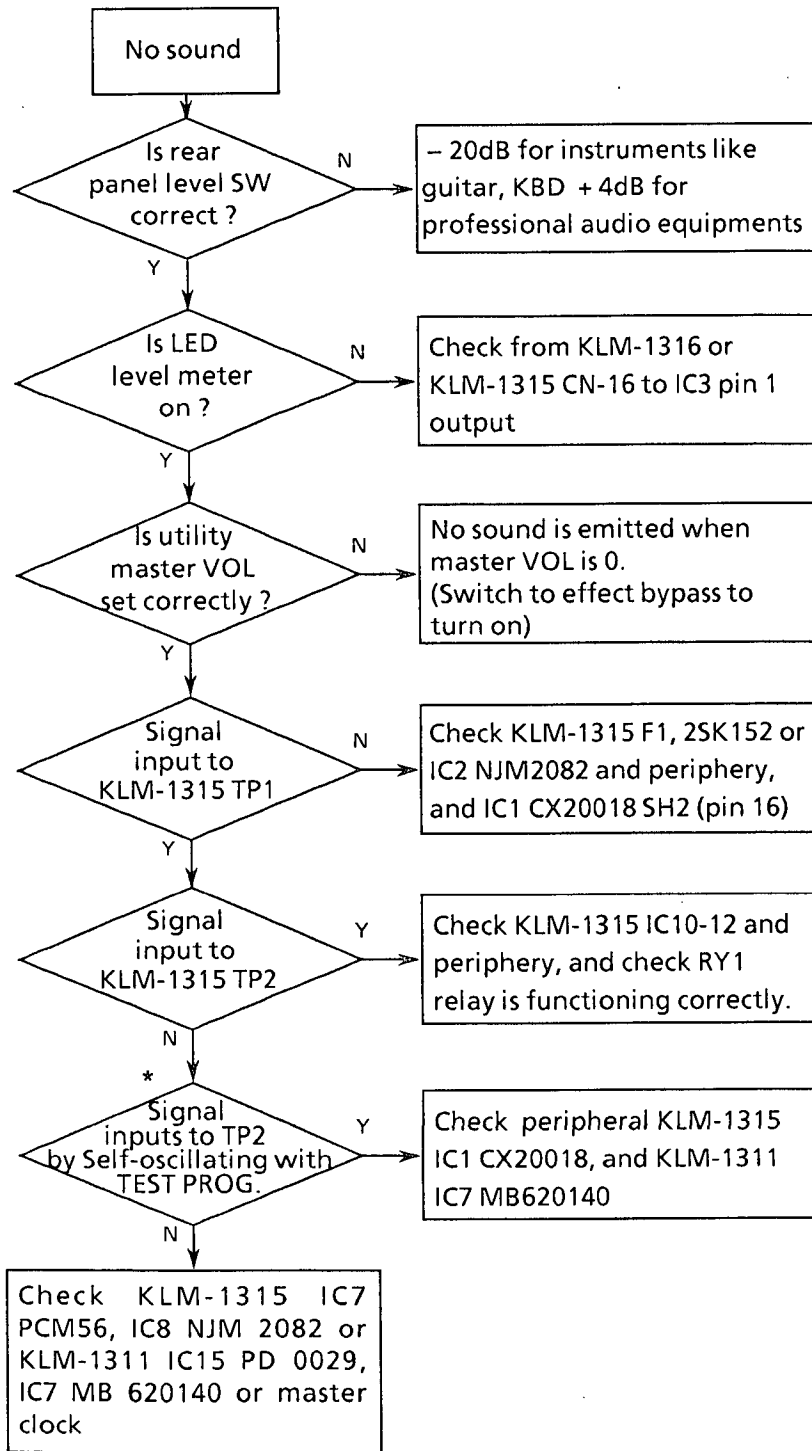
PIN ASSIGNMENT AND BLOCK DIAGRAM



PIN FUNCTION

Pin No.	Pin Name	Function
1	- Vcc	Analog negative power
2	DIG GND	Digital ground
3	+ VL	Logic positive power
4	NC	No connection
5	CK	Clock input
6	LEC	Latch enable control input
7	DATA	Data input
8	- VL	Logic negative power
9	V out	Voltage output
10	FR	Feedback resistance
11	S · J	Summing junction (Operation amplifier input)
12	ANA GND	Analog ground
13	I OUT	Power output
14	MSB ADJ	MSB regulator pin
15	VPOT	Potentiometer pin
16	+ Vcc	Analog positive power

TROUBLESHOOTING



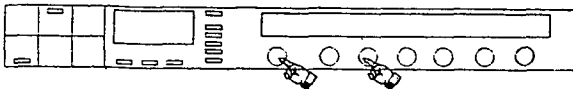
* See CHECKS AND ADJUSTMENTS

7. CHECK AND ADJUSTMENT

1. Starting Self-Test

- 1) Connect MIDI IN and OUT (rear panel SW is OUT) with MIDI cable. Insert check plug* to remote jack and check RAM CARD (blank) to CARD slot.

How to Start Test Mode



Turn power ON while pressing CHAIN/ EFFCT and B

- * Ignore check plug as it is only for plant use.
- 2) Before test mode,

PARAMETER INITIALIZE? YES/NO

is displayed on the LCD screen.
Press [E] (YES) as instructed to initialize the parameter. (If necessary data is entered in the main unit, always save data)

- 3) At test mode, MIDI IN-OUT circuit test, REMOTE circuit test and CARD slot RAM CARD write/read test are conducted automatically.
Error message

MIDI ERROR !

is displayed when MIDI IN and OUT is wrongly connected or rear panel THRU/OUT is set at THRU.

Error message

REMOTE ERROR !

is displayed when short check plug (shorts between 3-5, 2-4) is not inserted in REMOTE.
Error message

RAM CARD ERROR !

is displayed when RAM CARD is not inserted in front panel or CARD PROTECT is ON.

- * RAM CARD is MCR-03(256K). RAM CARD will go through write test and contents will be destroyed.

- 4) At end of self-test, next 'check mode waiting' LCD screen

ANLG PANL FO6- - EXIT

A B _ C F

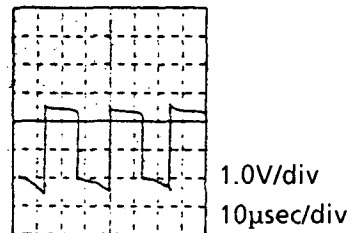
is displayed.

2. KLM-1315 P.C. Board Check and Adjustment
Always conduct KLM-1315 P.C. Board adjustment more than 5 minutes after turning power ON.

- 1) When [A] (ANLG) is pressed with 'check mode waiting' screen displayed, the mode will switch to analogue check mode and the LCD screen will display

TEST 1: OFFSET TRIMMING

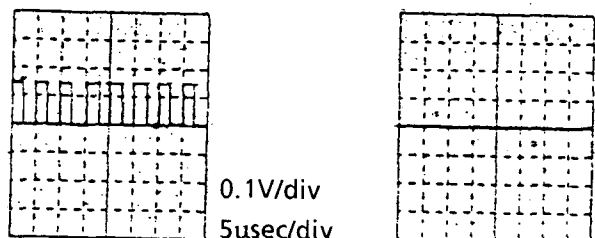
- 2) Connect an oscilloscope to KLM-1315 P.C. Board test point TP1 and TP3 (GND).
Check that the lower limit (end) of the wave shown in the diagram below is -2.4V.
If offset, adjust with KLM-1315 P.C. Board VR1.



- * When offset, a high buzzing tone will sound when signal is not input.

- 3) Connect an oscilloscope to KLM-1315 P.C. Board test point TP2 and TP3 (GND), and check that the wave forms a line as shown in the diagram below.

If offset, adjust with KLM-1315 P.C. Board VR2.



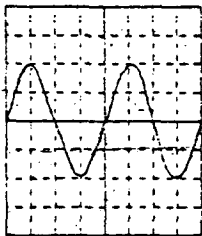
3. Pedal Operation Check

- 1) When double function editor [D] is pressed, the LCD screen will display [TEST4: PEDAL 1], and the mode changes to pedal operation check mode.

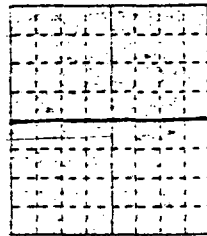
TEST 4: PEDAL 1

- 2) Connect volume pedal(KVP-001) to rear PEDAL 1 and an oscilloscope to OUTPUT L.
- 3) Check that the sine wave level output from OUTPUT changes according to the pedal movement when connected volume pedal is operated.

When pedal is tilted forward



When pedal is tilted backward



- 4) When double function editor [E] is pressed, the LCD screen displays

TEST 5: PEDAL 2

and the mode changes to PEDAL 2 operation check mode.

- 5) Connect the volume pedal to rear panel PEDAL 2 and check as PEDAL 1.
- 6) After pedal operation check, press [F] to return LCD screen to 'check mode waiting'.

4. Panel SW and LED Operation Check

- 1) At 'check mode waiting', press [B] to automatically light the front panel 7 segment LED, all SW LEDs and the mode display LED.

After check, light all LEDs except for the level meter and 7-segment LED 1.

- 2) When LED operation check is completed, LCD screen will display

SWITCH :_ VALUE: ***

*** is optional and changes to 'KEY input waiting'.

- 3) When [WRITE] is pressed, the LCD will display SW name,

SWITCH: WR VALUE: ***

and operation can be confirmed. Then, press the 6 SWs on the operation panel, WRITE, PARAM EDIT, ▲(UP), UTILITY, DISPLAY, SELECT, ▼(DOWN) in succession.

- 4) Press [CHAIN/EFFECT].

When the LCD displays SW (Editor) name,

SWITCH: BYPS VALUE: ???

turn the knob and check that numbers 5-252 are displayed depending on the number of turns.

(Both maximum and minimum values are off by 1 or 2) Press the 7 editors in succession and select. Turn knob further and when value change is confirmed, press editor [F] again. The LCD screen will return to 'check mode waiting'.

- 5) After check, press [F] again (under "EXIT") and return to normal mode.

ANLG PANL F06 - -EXIT

A B C F

8. PARTS LIST

25

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
CARBON RESISTORS				
104016000	1/6 JTP 0 OHM	1311-14		1
		1315		5
		1316,17		3
104016210	1/6 JTP 10 OHM			2
104016282	1/6 JY 82 OHM	1311-14		1
104016310	1/6 JTP 100 OHM	1315		2
104016322	1/6 JTP 220 OHM	1311-14		7
104016333	1/6 JTP 330 OHM			8
		1315		8
104016347	1/6 JTP 470 OHM			1
104016351	1/6 JTP 510 OHM			3
104016375	1/6 JTP 750 OHM	1311-14		1
104016382	1/6 JTP 820 OHM			1
104016410	1/6 JTP 1.0K			13
		1315		4
104016418	1/6 JTP 1.8K			1
104016422	1/6 JTP 2.2K	1311-14		1
		1315		4
104016433	1/6 JTP 3.3K			8
104016447	1/6 JTP 4.7K	1311-14		4
		1315		2
		1316,17		2
104016456	1/6 JTP 5.6K	1315		3
104016482	1/6 JTP 8.2K	1311-14		2
104016510	1/6 JTP 10K			17
		1315		2
		1316,17		1
104016511	1/6 JTP 11K	1315		2
104016522	1/6 JTP 22K			1
104016533	1/6 JTP 33K			6
		1316,17		2
104016547	1/6 JTP 47K	1311-14		1
		1315		2
		1316,17		4
104016551	1/6 JTP 51K	1311-14		2
104016556	1/6 JTP 56K	1316,17		1
104016610	1/6 JTP 100K	1311-14		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
CARBON RESISTORS				
104016610	1/6 JTP 100K	1315		1
		1316,17		1
104016710	1/6 JTP 1.0M	1311-14		4
		1315		1
		1316,17		1
104016715	1/6 JTP 1.5M	1315		2
METAL FILM RESISTORS				
124214100	1.00K	1315		2
124214115	1.15K			1
124214182	1.82K			4
124214200	2.00K			1
124214267	2.67K			1
124214301	3.01K			2
124214634	6.34K			2
124215118	11.8K			1
124215301	1/4TP 30.1K			1
124216332	332K			2
BLOCK RESISTORS				
137002222	RKC1/4B2SJ 220HM	1311-14		2
138009010	RN3H9A103J 10K			4
138015012	RN3H5A103J 10K			1
138015013	RN3H8A103J 10K			1
138015014	RN3HAA103J 10K			3
138015015	RN3HBA103J 10K			1
138015016	RN3H7A103J 10K			1
METAL OXIDE RESISTOR				
170054322	1WJY 220 OHM	1315		1
FUSE RESISTOR				
182013262	1/4WJ 62 OHM	1311-1314		1
MYLAR CAPACITORS				
204001422	50V 0.0022μF	1311-14		2
204001430	50V 0.0030μF J	1315		2

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
MYLAR CAPACITOR				
204001482	50V 0.0082 μ F	1315		2
STYROL CAPACITOR				
205003412	50V JT 1200pF	1315		1
CERAMIC CAPACITORS				
214052100	50V 10pF TP	1311-14 1315		2 1
214052220	50V 22pF TP			1
214052330	50V 33pF TP	1316,17		1
214052680	50V 68pF TP	1315		2
214053100	50V 100pF TP			2
		1316,17		3
214053330	50V 330pF TP	1315		2
214053470	50V 470pF TP			2
214054100	50V 1000pF TP			1
214055100	50V 0.01 μ F TP			1
214055470	50V 0.047 μ F TP	1311-14 1315		19 12
		1316,17		4
214076100	50V 0.1 μ F	1311-14 1315		16 2
		1316,17		4
LC FILTER				
219051300	S132420	1315		1
EMI FILTERS				
219400200	EXC-EMT103DT	1311-14 1315		7 4
219400400	EXC-EMT101BT	1311-14		8
TAMTALUM CAPACITORS				
224007168	16V 6.8 μ F	1311-14		1
224007210	16V 10 μ F	1315		2

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
ELECTROLYTIC CAPACITORS				
239027468	16V 6800 μ F	1311-14		1
239041468	25V 6800 μ F			2
254003210	16V 10 μ F			9
		1315		16
254003247	16V 47 μ F			Ø3
254003310	16V 100 μ F	1311-14		4
254004147	25V 4.7 μ F			1
254004322	25V 220 μ F	1315		2
254006110	50V 1 μ F	1311-14 1315		2 1
254063210	16V 10 μ F			4
		1316,17		2
254064210	25V 10 μ F	1315		1
254073247	16V 47 μ F	1316,17		2
BLOCK CAPACITORS				
248015001	50V 0.01 μ F \times 4	1311-14		1
248015312	50V 100 μ F \times 6			4
PPCs				
260002547	100V 0.047 μ F J	1316,17		1
264003368	100V 680pF J	1315		2
TRANSISTORS				
304020070	2SC2785	1311-14		5
304020100	BA1A4M-T			9
304020110	BN1A4M-T			7
FET				
306000600	2SK-152-3	1315		1
DIODES				
310002100	SR1M-2	1311-14		1
314001300	1SS-133			21
		1315		5

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
BRIDGE DIODE				
310011000	KBL02L-6176	1311-14		2
LEDs				
312007800	GL3HD8	1311-14		5
312008200	SL-1179-37H (RED)			3
312008700	GL-9HD22			3
312008800	GL-9EG22			3
LCD				
313001700	LU3138 40×1			1
ZENER DIODES				
314024300	HZS-6B1L-TD			2
314024400	RD6.2ESB 1-T1			2
DOUBLE DIODE				
315000100	MC931	1311-14		2
ICs				
320001063	μPD-4053BC	1315		1
320001068	μPD74HCU04C	1311-14		1
320001097	μPD74HC04C			1
320001190	μPD4570C	1315		4
320001191	μPD4052BC	1311-14		1
320001193	μPD78C10ACW			1
320001209	μPD43256AC-15LL			1
320009005	NJM-4558S	1316,17		1
320009057	NJM-7805FA	1311-14		1
320009077	NJM2082D	1315		2
320009078	NJM78M12FA			1
320009079	NJM79M12FA			1
320009080	NJM79M05FA	1311-14		1
		1315		1
320010003	CX20018			1
320011026	M-5216 L	1316,17		1
320011089	M51951 BSL	1311-14		1
320011113	M5M4464 AL-10	1311-14		10

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
320012052	MB87405pF (QFP120)	1311-14		2 2
320012064	MB620140pF (QFP100 UHB2200)			1
320012067	MBM27C512-20CZ			1
320013007	IR2E31			1
320016001	PD0029			1
320036004	PCM56P	1315		
PHOTO COUPLER				
330001400	PC-910K	1311-14		2
COIL ELE				
334000200	XTR47MA 0.47UH	1315		1
CRYSTAL OSCILLATIONS				
335005700	HC-49/U 60MHz	1315		1
335005900	HC-49/U 38MHz	1311-14		1
P.C. BOARDS				
343013110	KLM-1311-14	1311-14		1
343013150	KLM-1315	1315		1
343013160	KLM-1316,17	1316,17		0.2
SEMI FIXED VRs				
350002233	RH0615C N3 3.3K	1315		1
350002310	RH0615C 14 10K			1
VRs				
360021700	RK0971110D86A 10KB	1316,17		1
362005300	RK0971220×45A 10KB×2			1
362005400	RK097111400BA 10KB	1311-14		7
SLIDE SWs				
373005300	SLS-25-2022-1	1311-14		1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
POWER SW				
375007800	ESB-8213 V	1311-14		1
TACT SW				
375008500	SKHHAJ	1311-14		6
PUSH SW				
375010200	SPUL 19265 A	1315		1
POWER TRANSFORMER				
400011700	TC-031			1
COILS				
402002300	BLO2RN2-R62	1311-14		6
		1316-17		2
402002800	2943-666671	1311-14		2
		1315		3
INVERTER				
402002400	NEL-D32-46	1311-14		1
RELAY SW				
403001200	MR-602-5SR			1
PHONE JACKS				
454004300	YKB21-5012			4
		1316-17		1
454004400	YKB21-5010	1311-14		2
		1316-17		1
DIN JACKS				
454005400	YKF-51-5008	1311-14		2
454006700	YKF-51-5104A			1
FUSES				
464002201	125V 1.6A UL		117US	2
			117CN	2
	125V 1.6A UL		117EX	2
			100JP	2

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
464002501	125V 3A UL		117US	1
			117CN	1
			117EX	1
			100JP	1
464011901	250V 0.8A UL		117US	1
			117CN	1
			117EX	1
			100JP	1
464061301	250V T200MA		220GE	1
			220SE	1
			240GE	1
			240AU	1
			240AF	1
			220WVG	1
			220SC	1
			220FR	1
			240UK	1
464061701	250V T500MA		220GE	2
			220SE	2
			240GE	2
			240AU	2
			240AF	2
			220WVG	2
			220SC	2
			220FR	2
			240UK	2
464062201	250V T1.6A		220GE	1
			220SE	1
			240GE	1
			240AU	1
			240AF	1
			220WVG	1
			220SC	1
			220FR	1
			240UK	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
CONNECTOR TOPS				
471050500	B5P-VH	1311-14		1
471060300	B3B-EH			2
471060400	B4B-EH	1315		1
471060500	B5B-EH	1311-14		1
471060600	B6B-EH			1
471060700	B7B-EH			1
		1315		1
471060900	B9B-EH			1
471070300	B3B-PH	1311-14		1
471070900	B9B-PH			2
471071200	B12B-PH			1
471090200	5096-02C			1
BC CONNECTOR				
474009900	L-32	1311-14		1
HEADER				
474010500	HIF 3FB-14 PA-2.54 DSA	1311-14		1
CARD FIT CONNECTORS				
474012300	ZC-112	1311-14		1
474012400	ZC-113			1
SMCD CONNECTORS				
474012500	FC-12 (1.6)	1311-14		1
474012600	FC-13 (1.6)			1
LV CONNECTOR				
474012700	B2P-LV-TN	1311-14		1
HARNESSES				
475001207	HNS-1207			1
475001208	HNS-1208	1315		1
475001209	HNS-1209			1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
475001210	HNS-1210			1
475001211	HNS-1211			1
475001212	HNS-1212	1311-14		1
475001213	HNS-1213			1
475001214	HNS-1214			1
475001215	HNS-1215	1311-14		1
475001216	HNS-1216			1
475001217	HNS-1217	1311-14		1
475001218	HNS-1218	1316-17		1
475001219	HNS-1219			1
475001269	HNS-1269	1311-14		1
IC SOCKET				
480001283	28P DICF-28CS-E	1311-14		1
RUBBER FOOT				
500013000	3 x 22 x 3			4
FUSE HOLDER				
515002300	S-N 5057 #01	1311-14		8
LITHIC BATTERY				
520001700	CR 2032	1311-14		1
DATA LINE FILTER				
525000100	ESD-R-250D-B		220WG 117US	1 1
BUSHINGS				
540000300	SR-4K-4		117EX 100JP	1 1
540000400	SR-5P-4		240AU	1
540000500	SR-6W-1		220GE 220SE 240GE 240AF 220WG	1 1 1 1 1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
BUSHINGS				
540000500	SR-6W-1		220SC	1
			220FR	1
			240UK	1
540000501	SR-6N3-4		117CN	1
TEST PINS				
540007100	LC-2-G-YELLOW	1315		2
540011901	LC-2-G			1
WIRE BAND				
540007200	PLT-IM			6
SPIRAL CLIP				
540008600	CS-8			6
SMCD HARNESSSES				
545020310	12 x 140 ES x 10	1311-14		1
545020320	12 x 340ES x 10			1
HEAT SINKS				
560005500	WSD-25-BS-T	1315		1
560005600	MT-25-S-T	1311-14		1
560005700				1
LED SPACERS				
575013900	L = 4MM	1311-14		5
575014100	L = 4.5MM			6
GND SEAL				
580001900			220SC	1
MINI FUSE CAUTION				
580019700				1
FCC LABEL				
580021000			117US	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
FTZ LABEL				
580021700			220WG	1
SERVICE MAN CAUTION 3				
580026000				1
WIRING CAUTION				
580026200			240UK	1
AC CORDS				
600000301	CLASS1 (SU429-58)		220GE	1
			240GE	1
			220WG	1
			220SC	1
			240UK	1
600000401	SAA (SU428-58) 3X.75		240AU	1
600000501	BS PLUG (SU431A-58)		240AF	1
600000901	SEV (SU430-58)		220SE	1
600001301	KP-4819D GTCE-3.75		220FR	1
600002000	SJT (SU338-56) 18/3MM		117CN	1
600003900	SPT-2 UP-686-JOI		117US	1
			117EX	1
600004100	DP-127-J06		100JP	1
POWER SW KNOB				
620018200				1
PUSH SW KNOB				
620020800	4093-1			1
KNOB (SMALL)				
620020900				9

ADVARSEL!

Lithiumbatteri. Eksplosionsfare. Udskiftning må kun foretages af en sagkyndig, og som beskrevet i service manualen. Batteriet må kun udskiftes med batterier af samme fabrikat og type.

Litiumparisto!

Pariston saa vaihtaa ainoastaan huoltohenkilöstö saman valmistajan vastaavalla tyypillä. Virheellisestä käsittelystä syntyy räjähdysvaara.

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
NAME PLATES				
686000600			100JP	1
686000700			220GE	1
			220SE	1
			240GE	1
			240AU	1
			240AF	1
			220W	1
			117US	1
			117CN	1
			117EX	1
			220FR	1
			240UK	1
686000900			220SC	1
CSA LABEL				
686003200			117CN	1
SCREWS				
705032606	FE B ZMC 2.6 x 6			2
705060312	FE B BZMC 3 x 12			1
708060512	FE WS BZMC 5 x 12 W-1			4
711060306	CT F BZMC 3 x 6			7
715130306	TS B ZMC 3 x 6			15
715230308	CT B ZMC 3 x 8	1311-14		3
715260308	CT B BZMC 3 x 8			17
		1315		2
715260410	CT B BZMC 4 x 10			2
			220GE	1
			220SE	1
			240GE	1
			240AU	1
			240AF	1
			220WG	1
			117CN	1
			220SC	1
			220FR	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
715260410			240UK	1
721060410	TP 2GF BZ MC 4 x 10			4
745060310	PLAX B BZMC 3 x 10	1311-14		4
NUTS				
770030300	FHN ZMC 3			2
770030400	FHN ZMC 4			2
773030700	VN ZMC 7			7
773060700	VN BZMC 7			2
WASHERS				
784030400	TWU ZMC 4		220GE	1
			220SE	1
			240GE	1
			240AU	1
			240AF	1
			220WG	1
			117CN	1
			220SC	1
			220FR	1
			240UK	1

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
LCD WINDOW				
630007400				1
ISORATION SHEET				
630007500				1
CHAIN CHART				
630008900				1
COPPER SHEET				
630010100			220WG 117US	1 1
GROUNDING CONTACT				
640084600		1315 1316/17		5 2
CARD GUIDE				
640088500				1
FRONT PANEL				
640096300				1
REAR PANEL				
640096400				1
LOWER CASE				
640096500				1
COVER				
640096600				1
PSW SUPPORT				
640096700		1311-14		1
PSW BAR				
640096800				1

31

PARTS CODE	PARTS NAME SPECIFICATIONS	P.C. BOARD	IDENTIFICATION NO. FUNCTION	Q'TY
FIO PLATE				
640096900				1
RACK MOUNT ADAPTOR				
640097000				2
SPRING PLATE				
644003000			220WG 117US	1 1
PSW FRAME				
646030200				1
CT HOOD				
646030500				1
BATTERY HOLDER				
649007400		1311-14		1
VINYL TUBE				
670000300	3PHY L = 8MM			
LUG				
672001600	4PHY N3		220GE 220SE 240GE 240AU 240AF 220WG 117CN 220FR 240UK	1 1 1 1 1 1 1 1 1
SERIAL No.				
685099999				1

KORG

KORG INC. 15-12, Shimotakaido 1-chome, Suginami-ku, Tokyo 168
