

GUITAR PRE-AMPLIFIER WITH EFFECTS

DG-Stomp

SERVICE MANUAL



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This document is printed on chlorine free (ECF) paper with soy ink.

GA 011537

20001001-39800



1.57K-786 I.T. Printed in Japan 2000.09

IMPORTANT NOTICE

This manual has been provided for the use of authorized Yamaha Retailers and their service personnel. It has been assumed that basic service procedures inherent to the industry, and more specifically Yamaha Products, are already known and understood by the users, and have therefore not been restated.

WARNING : Failure to follow appropriate service and safety procedures when servicing this product may result in personal injury, destruction of expensive components and failure of the product to perform as specified. For these reasons, we advise all Yamaha product owners that all service required should be performed by an authorized Yamaha Retailer or the appointed service representative.

IMPORTANT : This presentation or sale of this manual to any individual or firm does not constitute authorization certification, recognition of any applicable technical capabilities, or establish a principal-agent relationship of any form.

The data provided is believed to be accurate and applicable to the unit(s) indicated on the cover. The research engineering, and service departments of Yamaha are continually striving to improve Yamaha products. Modifications are, therefore, inevitable and changes in specification are subject to change without notice or obligation to retrofit. Should any discrepancy appear to exist, please contact the distributor's Service Division.

WARNING : Static discharges can destroy expensive components. Discharge any static electricity your body may have accumulated by grounding yourself to the ground bus in the unit (heavy gauge black wires connect to this bus.)

IMPORTANT : Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

LITHIUM BATTERY HANDLING

This product uses a lithium battery for memory back-up.

WARNING : Lithium batteries are dangerous because they can be exploded by improper handling. Observe the following precautions when handling or replacing lithium batteries.

- Leave lithium battery replacement to qualified service personnel.
- Always replace with batteries of the same type.
- When installing on the PC board by soldering, solder using the connection terminals provided on the battery cells.
- Never solder directly to the cells. Perform the soldering as quickly as possible.
- Never reverse the battery polarities when installing.
- Do not short the batteries.
- Do not attempt to recharge these batteries.
- Do not disassemble the batteries.
- Never heat batteries or throw them into fire.

ADVARSEL!

Lithiumbatteri-Eksplosionsfare ved fejlagtig handling. Udskiftning ma kun ske med batteri af samme fabrikat og type. lever det brugte batteri tilbage til leverandren.

VARNING

Explosionsfara vid felaktigt batteribyte. Anvand samma batterityp eller en ekvivalent typ som rekommenderas av apparatillverkaren. Kassera anvant batteri enligt fabrikantens instruktion.

VAROITUS

Paristo voi rajahtaa, jos se on virheellisesti asennettu. Vaihda paristo ainoastaan laitevalmistajan suosittelemaan tyyppiin. Havita kaytetty paristo valmistajan ohjeiden mukaisesti.

The following information complies with Dutch official Gazette 1995. 45; ESSENTIALS OF ORDER ON THE COLLECTION OF BATTERIES.

- Please refer to the disassembly procedure for the removal of Back-up Battery.
- Leest u voor het verwijderen van de backup batterij deze beschrijving.

WARNING: CHEMICAL CONTENT NOTICE!


The solder used in the production of this product contains LEAD. In addition, other electrical/electronic and/or plastic (Where applicable) components may also contain traces of chemicals found by the California Health and Welfare Agency (and possibly other entities) to cause cancer and/or birth defects or other reproductive harm.

DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHAT SO EVER!

Avoid prolonged, unprotected contact between solder and your skin! When soldering, do not inhale solder fumes or expose eyes to solder/flux vapor!

If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

■ SPECIFICATIONS

Digital Section

- Full Digital Signal Processing
- 8 Channel Preamp
- Digital Effects
 - Compressor
 - Chorus, Flanger, Phaser, Rotary Speaker, Tremolo
 - Digital Delay, Tape Echo
 - Spring Reverb, Hall Reverb, Plate Reverb
- Tap Tempo Function (Delay Time)
- Speaker Simulator (16 Types)
- External Controller Function (EXP Pedal/MIDI):8 Controllers/Parameters
- Wah Function
- Tuner Function (Chromatic, Auto)

MIDI Functions

Receive: Program Change (Program Change Table can be created), Control Change, Bulk In

Transmit: Program Change, Control Change, Bulk Out, Merge Out

Controller Switch

Top Panel

Push Switch x17

UP, DOWN, MANUAL, UTILITY, STORE, COMP, CHORUS, FLANGER, PHASER, ROTARY, TREMOLO, DELAY, TAPE ECHO, SPRING, HALL, PLATE, SP. SIM

Knob x15

AMP SELECT, GAIN, MASTER, TREBLE, MIDDLE, BASS, PRESENCE, COMP, SPEED, DEPTH, TIME, FEEDBACK, LEVEL, REVERB, OUTPUT

Footswitch x4

1, 2, 3, BANK

Rear panel

STAND-BY ON/OFF, INPUT LOW/HIGH

Display

7 Segment LED (3 digit) x1

Push Switch LED x17

Foot Switch LED x4

Connections/Jacks

INPUT: Standard Monaural Phone Jack

OUTPUT L/MONO, R: Standard Monaural Phone Jack

PHONES: Standard Stereo Phone Jack

EXP. PEDAL: Standard Stereo Phone Jack

DIGITAL OUT: COAXIAL

MIDI IN, MIDI OUT: 5 pin DIN

A/D Converter

20 bit + 3 bit Floating

D/A Converter

20 bit

Sampling Frequency

48 kHz

Memory Allocations

Preset: 90

User: 90

Input Level/Impedance (When using preamp bypass)

INPUT HIGH: -25dBm/1Mohm

INPUT LOW: -15dBm/1Mohm

Output Level/Impedance

OUTPUT L/MONO, R: 0dBm/1kohm

PHONES: 0dBm/47ohms (47ohms load)

Power

Exclusive Power Adaptor (AC-10)

AC Output: AC12V, 1000mA

Power Consumption

15W

Dimensions (WxHxD)

280x70x184mm (11.0"x2.8"x7.2")

Weight

2.2kg (4lbs 14oz)

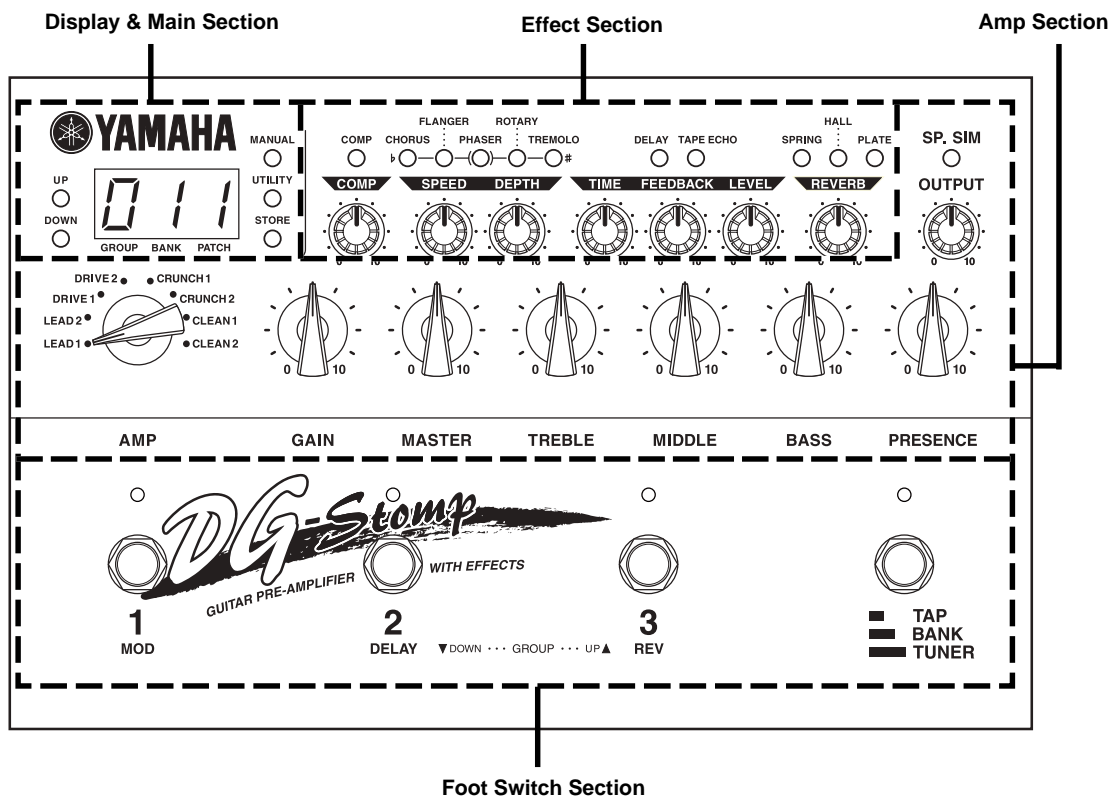
Accessories

Power Adaptor (AC-10)

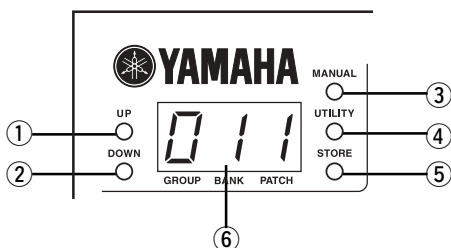
Owner's Manual (this booklet)

PANEL LAYOUT

• Top Panel

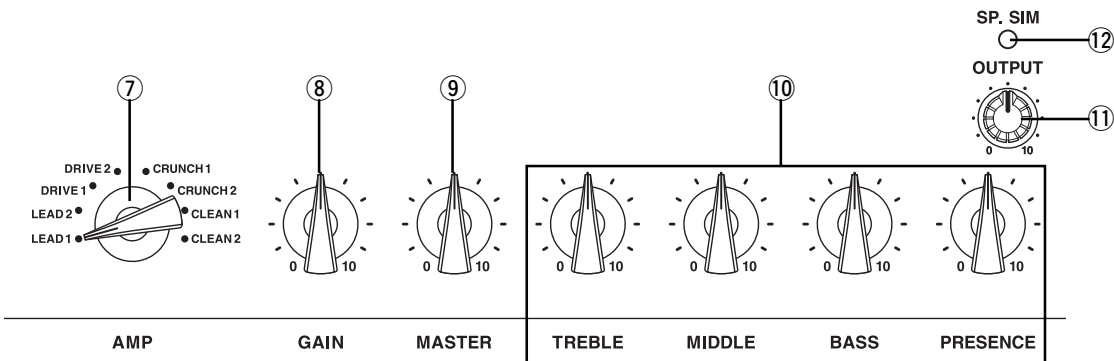


• Display & Main Section



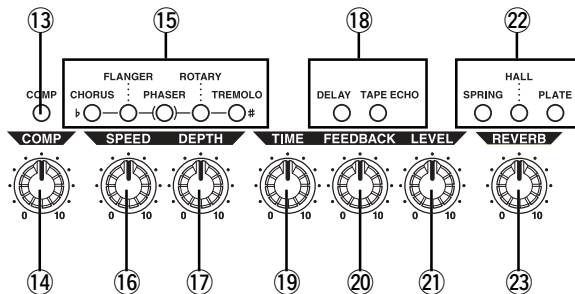
- ① Up Button (UP)
- ② Down Button (DOWN)
- ③ Manual Button (MANUAL)
- ④ Utility Button (UTILITY)
- ⑤ Store Button (STORE)
- ⑥ Display

• Amp Section



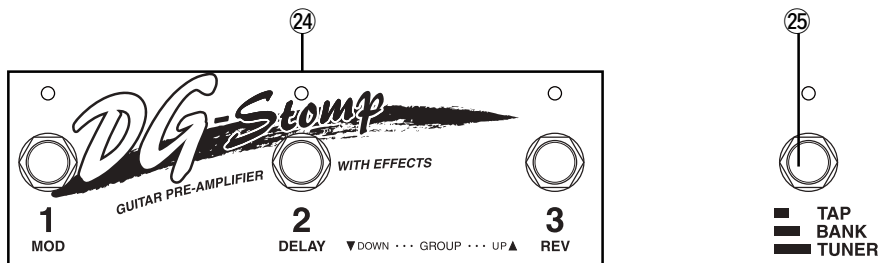
- ⑦ Amp Select Switch (LEAD1-CLEAN2)
- ⑧ Gain Control (GAIN)
- ⑨ Master Volume (MASTER)
- ⑩ Tone Controls
- ⑪ Output Level Control (OUTPUT)
- ⑫ Speaker Simulator Button (SP. SIM)

• Effect Section



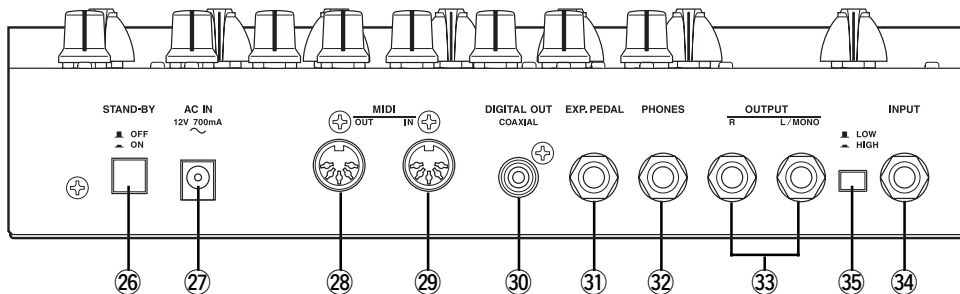
- ⑬ Compressor Button (COMP)
- ⑭ Compressor Knob (COMP)
- ⑮ Modulation Group Effect Buttons (CHORUS/FLANGER/PHASER/ROTARY/TREMOLO)
- ⑯ Speed Knob (SPEED)
- ⑰ Depth Knob (DEPTH)
- ⑱ Delay Group Effect Buttons (DELAY/TAPE ECHO)
- ⑲ Time Knob (TIME)
- ⑳ Feedback Knob (FEEDBACK)
- ㉑ Level Knob (LEVEL)
- ㉒ Reverb Group Effect Buttons (SPRING/HALL/PLATE)
- ㉓ Reverb Knob (REVERB)

• Foot Switch Section



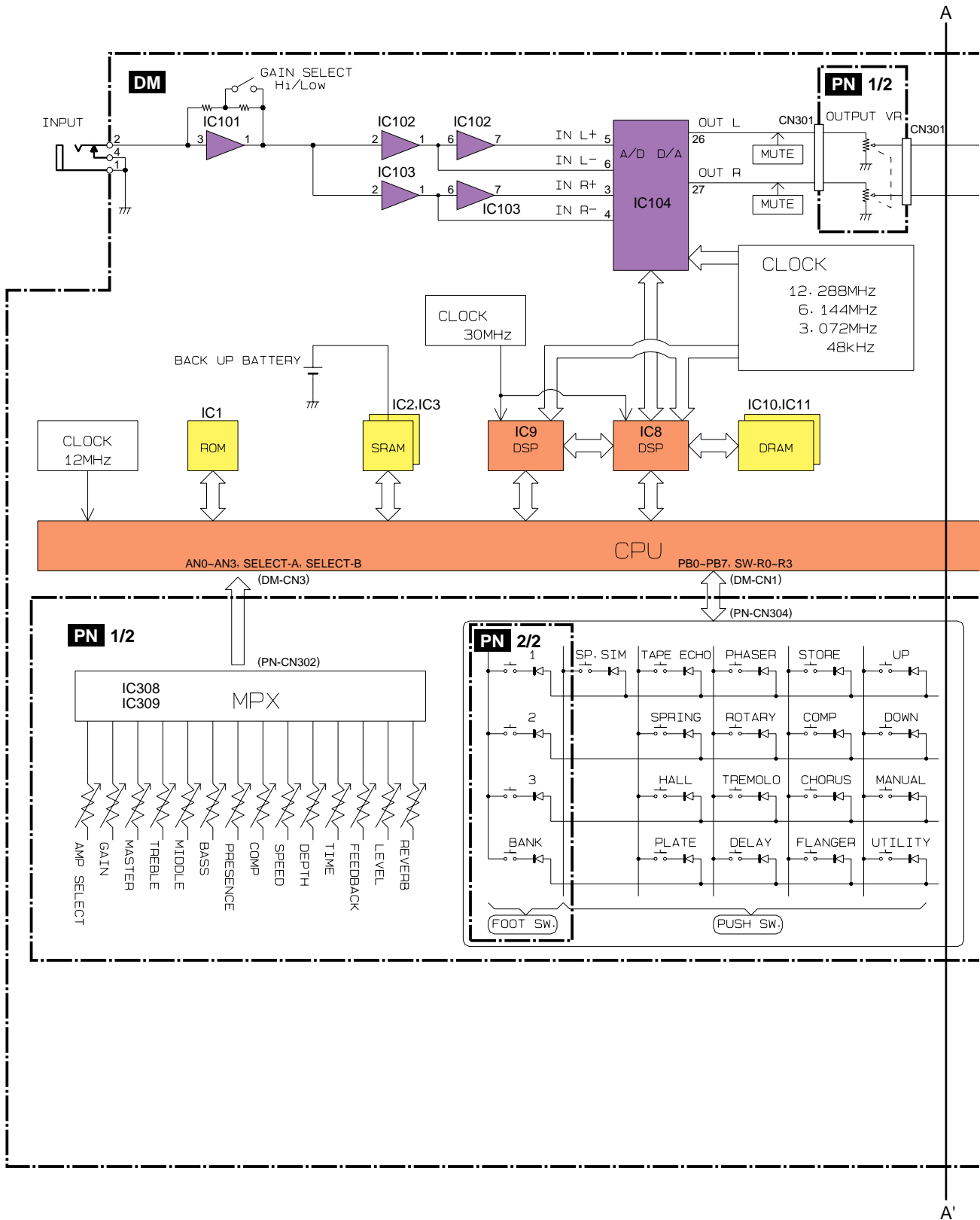
- ②④ Foot Switches 1, 2, 3
- ②⑤ Bank Switch (TAP/BANK/TUNER)

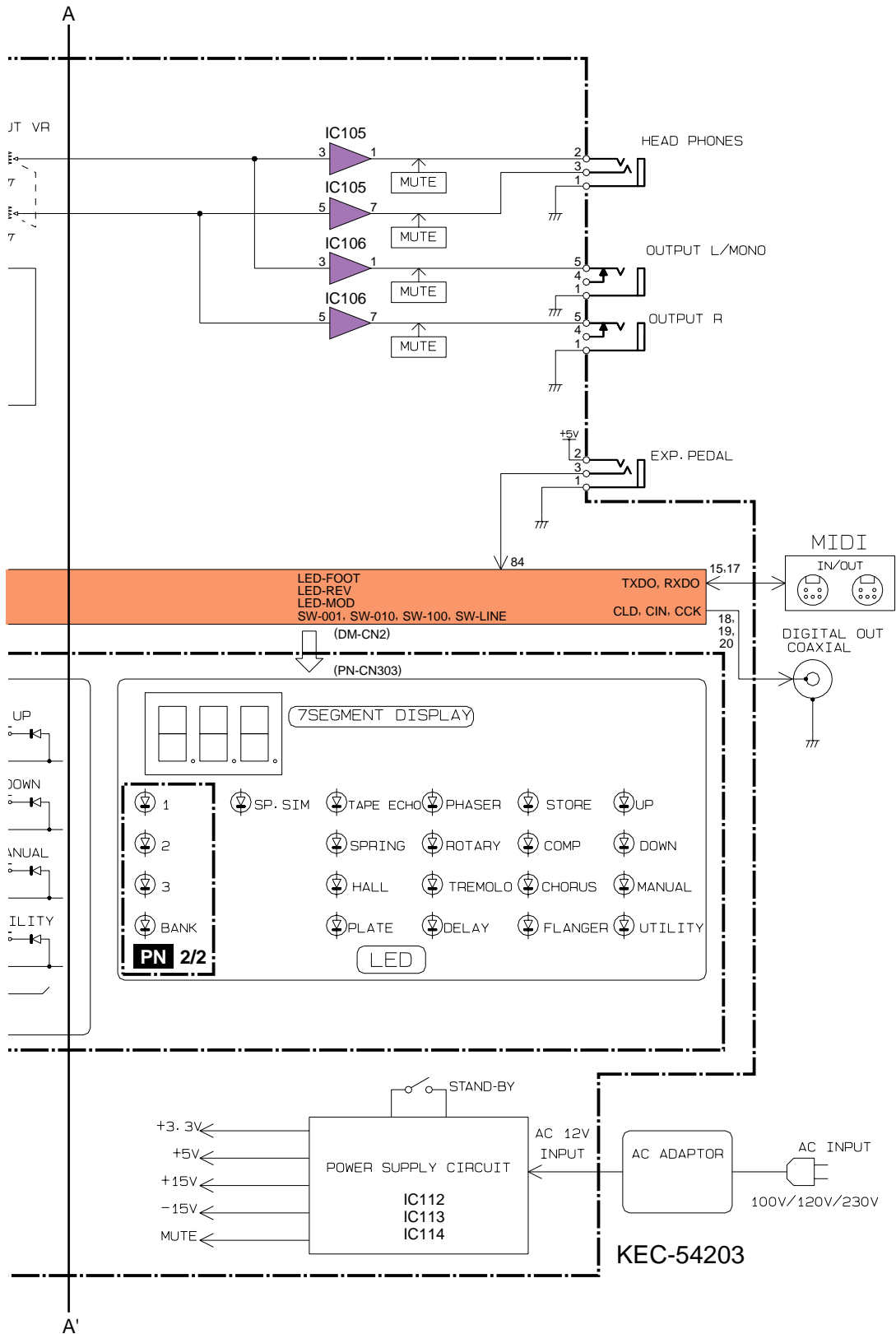
• Rear Panel



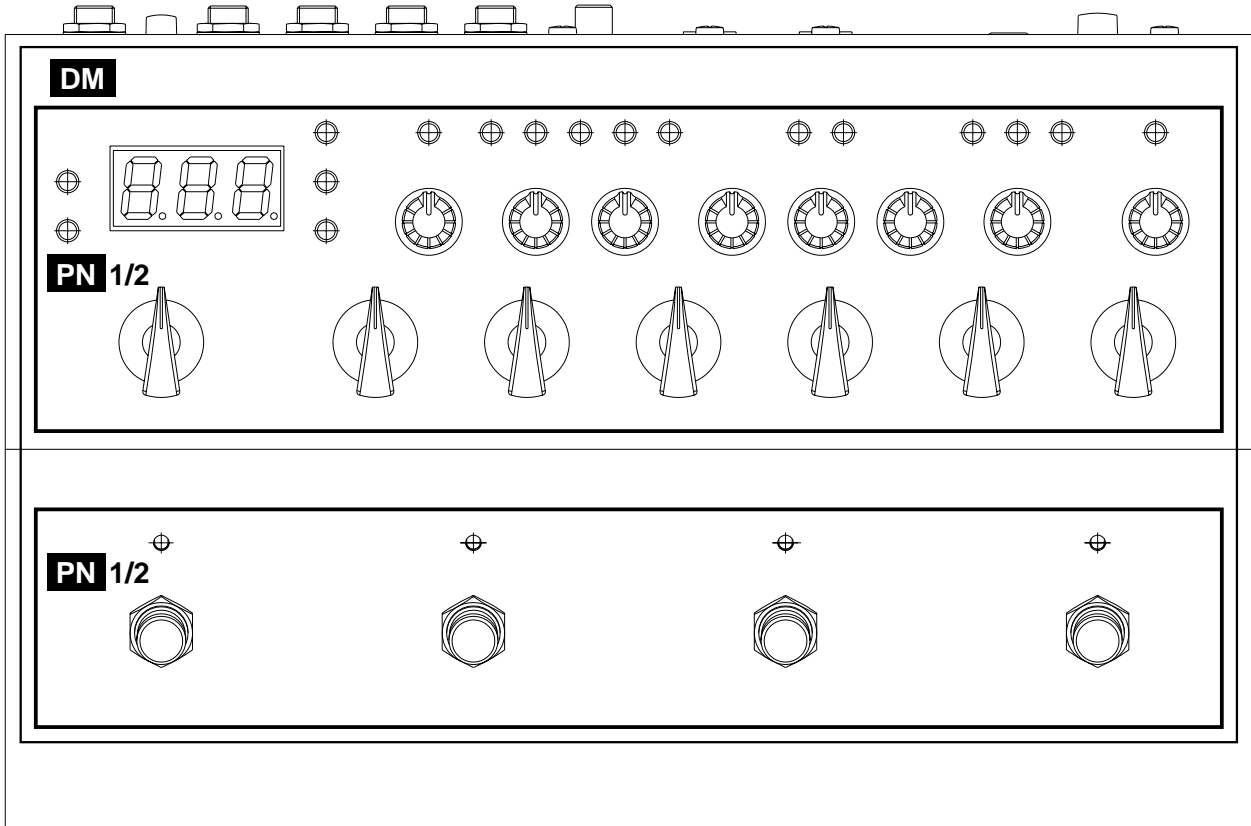
- ②⑥ Power Switch (STAND-BY ON/OFF)
- ②⑦ Power Adaptor Jack (AC IN 12V 700mA)
- ②⑧ MIDI OUT Jack
- ②⑨ MIDI IN Jack
- ③⑩ Digital Out Jack (DIGITAL OUT)
- ③① EXP Pedal Jack (EXP. PEDAL)
- ③② Headphones Jack (PHONES)
- ③③ Output Jacks (OUTPUT R, L/MONO)
- ③④ Input Jack (INPUT)
- ③⑤ Input Level Switch (LOW/HIGH)

BLOCK DIAGRAM

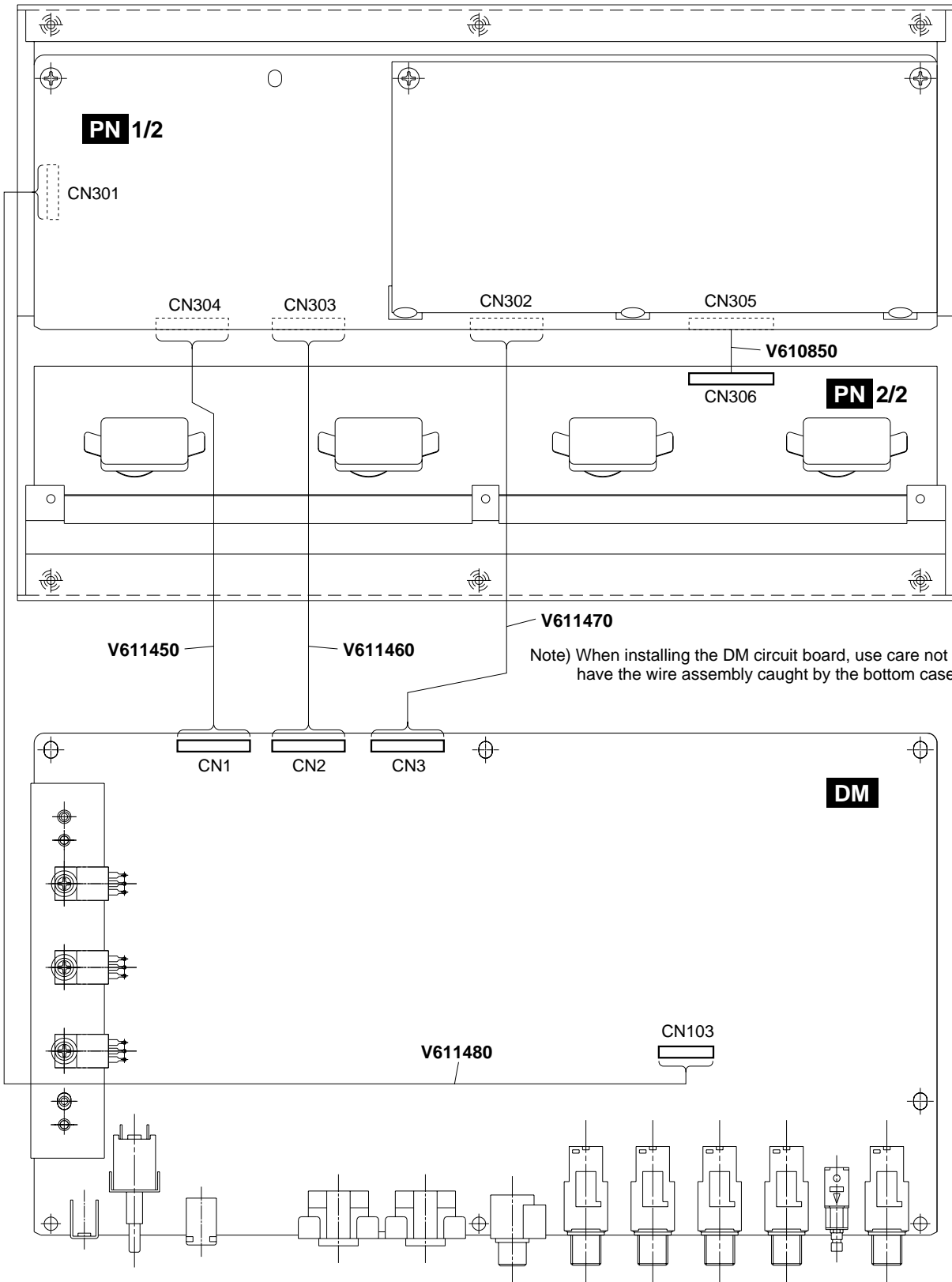




■ CIRCUIT BOARD LAYOUT



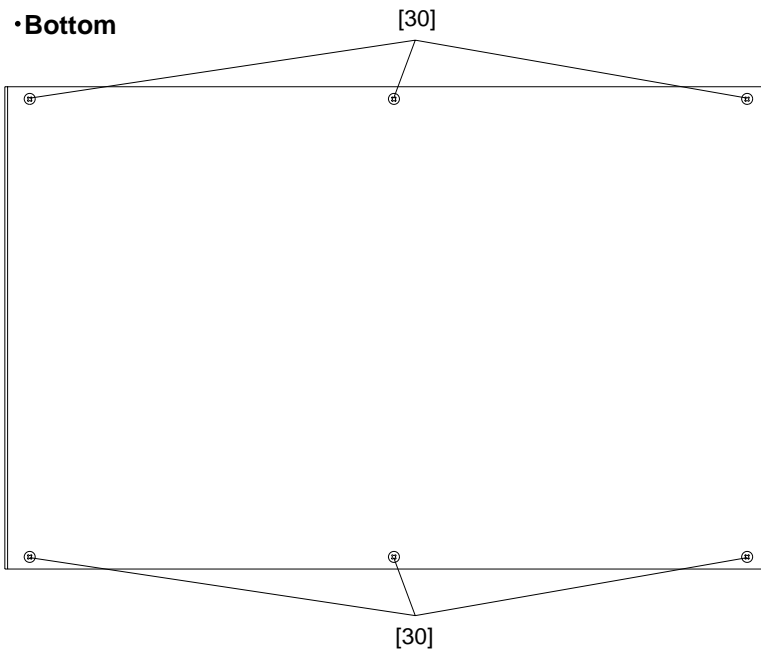
WIRING



■ DISASSEMBLY PROCEDURE

1. Bottom Case

Remove the six (6) screws marked [30]. The bottom case can then be removed. (Fig. 1)



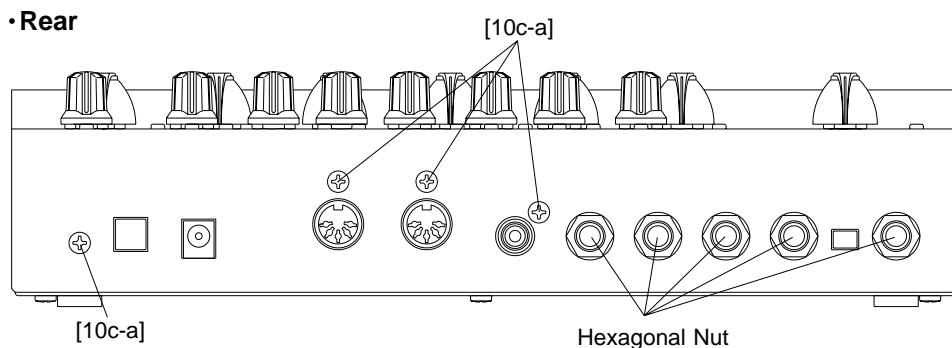
[30]: Bind Head Tapping Screw-B 3.0x8 MFZN2BL (EP600190)

Fig.1

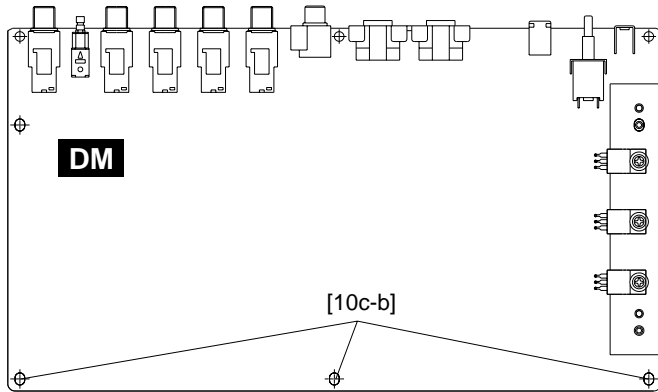
2. DM Circuit Board

2-1. Remove the bottom case. (See Procedure 1.)

2-2. Remove the four (4) screws marked [10c-a] and the five (5) special hexagonal nuts marked [10e] from the rear panel and the three (3) screws marked [10c-b] from the DM circuit board. The DM circuit board can then be removed. (Fig. 2)



•Topcover



[10c]: Bind Head Tapping Screw-B 3.0x8 MFZN2BL (EP600190)

[10e]: Hexagonal Nut 9.0 12x2 MFNI33 (LX200060)

Battery VN103500

VN103600(Battery holder for VN103500)

- Notice for back-up battery removal
Push the battery as shows in figure,
then the battery will pop up.

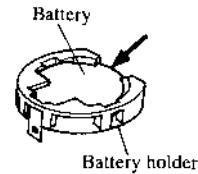


Fig.2

3. PN Circuit Boards (1/2, 2/2)

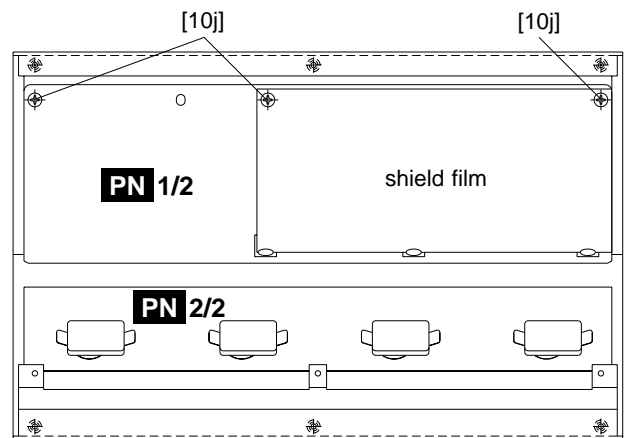
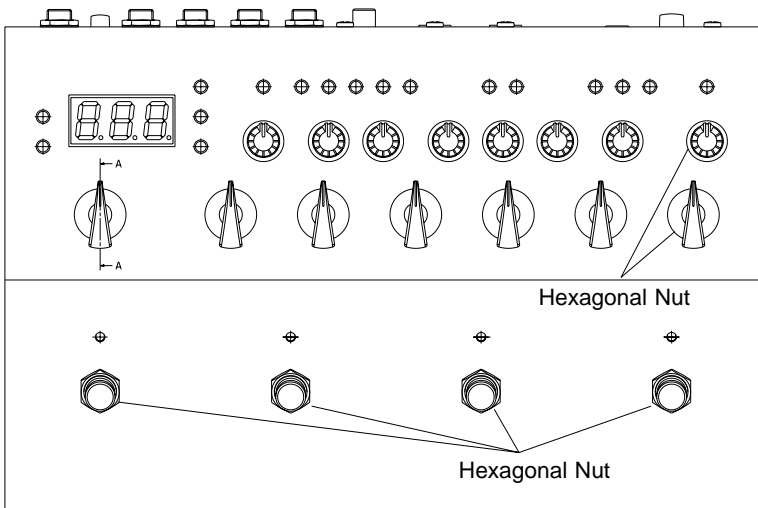
- 3-1. Remove the bottom case. (See Procedure 1.)
- 3-2. Remove the DM circuit board. (See Procedure 2.)

3-3-1. PN1/2 Circuit Board

Remove the controls, knobs and special hexagonal nuts from the front panel, the three (3) screws marked [10j] and the shield film from the PN1/2 circuit board. The PN1/2 circuit board can then be removed. (Fig. 3)

3-3-2. PN2/2 Circuit Board

Remove the four (4) special hexagonal nuts from foot switches. The PN 2/2 circuit board can then be removed. (Fig. 3)



[10j]: Bind Head Tapping Screw-P 3.0x12 MFZN2BL (VC161100)

Fig.3

4. Heat Sink

- 4-1. Remove the two (2) screws marked [A-a] from the soldered face of the DM circuit board and the three (3) screws marked [A-b] from IC112, IC113 and IC114. The heat sink can then be removed from the DM circuit board. (Fig. 4)

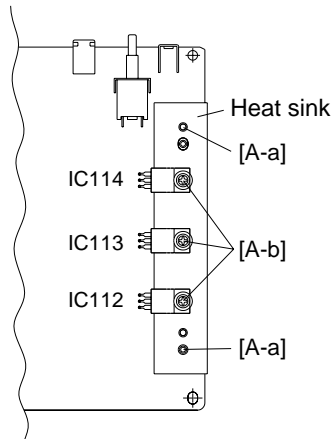


Fig.4

LSI PIN DESCRIPTION

● HD6413002FP16 (XQ375A00) CPU

DM: IC12

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION	
1	PA6	O	Port A	51	A12	O	} Address bus	
2	PA7	O	Address bus	52	A13	O		
3	VCC		Power supply	53	A14	O		
4	PB0	I	} Port B	54	A15	O		
5	PB1	I						
6	PB2	I						
7	PB3	I						
8	PB4	I						
9	PB5	I						
10	PB6//DREQ0	I	} Port 6	59	VSS		Ground	
11	PB7//DREQ1	I		60	P60//WAIT	I		
12	/RESO	O		Reset	61	P61//BREQ	I	
13	VSS		Ground	62	P62//BACK	I		
14	P90/TXD0	O	Transmit data (MIDI OUT)	63	∅	O	∅out	
15	P91/TXD1	O	KSN-ACK	64	/STBY	I	Stand-by mode signal	
16	P92/RXD0	I	Receive data (MIDI IN)	65	/RES	I	Reset	
17	P93/RXD1	I	KSN-RX	66	NMI	I	Non-maskable interrupt	
18	P94/SCK0	O	Port 9	67	VSS		Ground	
19	P95/SCK1	I	Port 9	68	EXTAL	I	Clock	
20	P40/D0	I/O	} Data bus	69	XTAL	O	Clock	
21	P41/D1	I/O			70	VCC		Power supply
22	P42/D2	I/O			71	/AS	O	Address strobe
23	P43/D3	I/O			72	/RD	O	Read strobe
24	VSS			(Ground)	73	/HWR	O	Write strobe (High)
25	P44/D4	I/O			74	/LWR	O	Write strobe (Low)
26	P45/D5	I/O			75	MD0	I	} Mode select
27	P46/D6	I/O			76	MD1	I	
28	P47/D7	I/O			77	MD2	I	
29	D8	I/O		} Power supply	78	AVCC		Analog power supply
30	D9	I/O			79	VREF	I	Reference voltage
31	D10	I/O			80	P70/AN0	I	Analog data input (EQ)
32	D11	I/O			81	P71/AN1	I	Analog input (EQ)
33	D12	I/O			82	P72/AN2	I	Analog data input
34	D13	I/O			83	P73/AN3	I	Analog input (CS)
35	D14	I/O			84	P74/AN4	I	Analog data input (BEND)
36	D15	I/O			85	P75/AN5	I	Analog input (MOD)
37	VCC			86	P76/AN6	I	Analog input (FC)	
38	A0	O	} Address bus	87	P77/AN7	I	Analog input (BAT)	
39	A1	O			88	AVSS		Analog ground
40	A2	O			89	P80	O	Port 8
41	A3	O			90	P81//CS3	O	} Chip select
42	A4	O			91	P82//CS2	O	
43	A5	O			92	P83//CS1	O	
44	A6	O			93	P84//CS0	O	
45	A7	O			94	VSS		Ground
46	VSS			(Ground)	95	PA0	I	} Port A
47	A8	O			96	PA1	I	
48	A9	O		97	PA2	I		
49	A10	O		98	PA3	O		
50	A11	O		99	PA4	O		
				100	PA5	O		

● YSS910-S (XV988A00) DSP6 (Digital Signal Processor)

DM: IC8, IC9

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION				
1	Vdd		Power supply (3.3 V)	89	Vss		Ground				
2	Vss		Ground	90	DB13	I/O	Parallel data bus				
3	XI	I	System master clock input (60 MHz or 30 MHz)	91	DB14	I/O					
4	XO	O	System master clock output (High or 30 MHz)	92	DB15	I/O					
5	Vdd		Power supply (5 V)	93	DB16	I/O					
6	/SYNCl	I	Sync. signal input	94	DB17	I/O					
7	/SYNCO	O	Sync. signal output	95	DB18	I/O					
8	Vdd		Power supply (5 V)	96	DB19	I/O	Parallel data bus				
9	CKI	I	System clock input (30 MHz)	97	DB20	I/O					
10	CKO	O	System clock output (30 MHz)	98	DB21	I/O					
11	CKSEL	I	System master clock select (0: 60 MHz, 1: 30 MHz)	99	DB22	I/O					
12	Vss		Ground	100	Vss		Ground				
13	MCKS	I	Serial I/O master clock input (128 x Fs)	101	Vdd		Power supply (3.3 V)				
14	/SSYNCl	I	Serial I/O Sync. signal input	102	DB23	I/O	Parallel data bus				
15	/IC	I	Initial clear	103	DB24	I/O					
16	/TEST	I	Test mode setting (0: Test, 1: Normal)	104	DB25	I/O					
17	BTYP	I	Data bus type select (0: 8 bit, 1: 16 bit)	105	DB26	I/O					
18	/IRQ	O	IRQ output	106	DB27	I/O	Parallel data bus				
19	TRIG	I/O	Trigger signal input/output	107	DB28	I/O					
20	Vdd		Power supply (5 V)	108	DB29	I/O	Parallel data bus				
21	Vss		Ground	109	DB30	I/O					
22	/CS	I	chip select signal input	110	DB31	I/O	Timing signal output/ Parallel data bus output/ input				
23	/WR	I	Write signal input	111	TIMO/DBOB	I/O					
24	/RD	I	Read signal input	112	Vss		Ground				
25	CA7	I/O	Address bus of internal register	113	Vdd		Power supply (5 V)				
26	CA6	I/O		Memory data bus	114	DA00	I/O				
27	CA5	I/O			Memory data bus	115	DA01	I/O			
28	CA4	I/O				Memory data bus	116	DA02	I/O		
29	CA3	I/O					Memory data bus	117	DA03	I/O	
30	CA2	I/O						Memory data bus	118	DA04	I/O
31	CA1	I/O							Memory data bus	119	DA05
32	Vss		Memory data bus							120	DA06
33	Vdd			Memory data bus						121	DA07
34	CD15	I/O			Memory data bus					122	Vss
35	CD14	I/O				Memory data bus				123	DA08
36	CD13	I/O					Memory data bus			124	DA09
37	CD12	I/O						Memory data bus		125	DA10
38	CD11	I/O							Memory data bus	126	DA11
39	CD10	I/O	Memory data bus							127	DA12
40	CD09	I/O		Memory data bus						128	DA13
41	CD08	I/O			Memory data bus					129	DA14
42	CD07	I/O				Memory data bus				130	DA15
43	CD06	I/O					Memory data bus			131	Vss
44	Vss							Memory data bus		132	Vdd
45	Vdd								Memory data bus	133	(n.c)
46	Vdd		Memory data bus							134	Vdd
47	CD05	I/O		Memory data bus						135	DA16
48	CD04	I/O			Memory data bus					136	DA17
49	CD03	I/O				Memory data bus				137	DA18
50	CD02	I/O					Memory data bus			138	DA19
51	CD01	I/O						Memory data bus		139	DA20
52	CD00	I/O							Memory data bus	140	DA21
53	/WAIT	O	Memory data bus							141	DA22
54	Vss			Memory data bus						142	DA23
55	SI0	I			Memory data bus					143	Vss
56	SI1	I				Memory data bus				144	DA24
57	SI2	I					Memory data bus			145	DA25
58	SI3	I						Memory data bus		146	DA26
59	SI4	I							Memory data bus	147	DA27
60	SI5	I	Memory data bus							148	DA28
61	SI6	I		Memory data bus						149	DA29
62	SI7	I			Memory data bus					150	DA30
63	Vss					Memory data bus				151	DA31
64	Vdd						Memory data bus			152	Vdd
65	SO0	O						Memory data bus		153	Vss
66	SO1	O							Memory data bus	154	A00
67	SO2	O	Memory data bus							155	A01
68	SO3	O		Memory data bus						156	A02
69	SO4	O			Memory data bus					157	A03
70	SO5	O				Memory data bus				158	A04
71	SO6	O					Memory data bus			159	A05
72	SO7	O						Memory data bus		160	A06
73	Vss								Memory data bus	161	A07
74	DB00	I/O	Memory data bus							162	A08
75	DB01	I/O		Memory data bus						163	A09
76	DB02	I/O			Memory data bus					164	Vss
77	DB03	I/O				Memory data bus				165	Vdd
78	DB04	I/O					Memory data bus			166	A10
79	DB05	I/O						Memory data bus		167	A11
80	DB06	I/O							Memory data bus	168	A12
81	DB07	I/O	Memory data bus							169	A13
82	DB08	I/O		Memory data bus						170	A14
83	DB09	I/O			Memory data bus					171	A15/RAS
84	DB10	I/O				Memory data bus				172	A16/CAS
85	DB11	I/O					Memory data bus			173	A17/CE
86	DB12	I/O						Memory data bus		174	/WE
87	Vdd								Memory data bus	175	/OE
88	Vdd		Memory data bus							176	Vdd

● **YM3437C-F (XM530A00) DIT2 (Digital Format Interface Transmitter)**

DM: IC17

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION	
1	Vss		Ground	9	MUTE	I	Mute	
2	MCLK	I	Master clock input	10	VFL	I	Validity flag	
3	DM0	I	} DIN/BCLK/WCLK format select DM1,DM0=0,0 DSP,LDSP (64 bit,LSB first) DM1,DM0=0,1stereo,DSP (64 bit,MSB first) DM1,DM0=1,0 DSP2 (128 bit,MSB first) DM1,DM0=1,1 BB (64 bit,MSB first)	11	CCK	I	C,U bit clock input/C bit data input	
4	DM1	I		12	CIN	I	C,U bit data input/U bit data input	
5	RES	I		System reset	13	CLD	I	End of C,U bit input/16,20 bit/24 bit select
6	WCIN	I		Word clock input	14	CNTR	I	32 bit counter reset/Top of block
7	DIN	I	Digital audio serial data input	15	CSM	I	Channel status input mode select CSM=0 Asynchronous mode CSM=1 Synchronous mode	
8	VDD		Power supply (+5 V)	16	DOUT	O	Digital interface formatted data output	

● **AK4520A-VF-E2 (XT802A00) DAC & ADC**

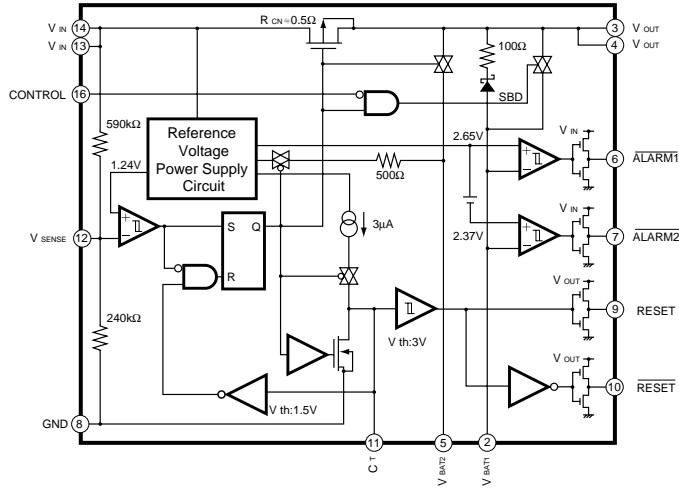
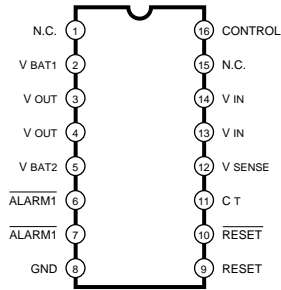
DM: IC104

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VREFH	I	Positive Voltage Reference Input, VA	15	MCLK	I	Master Clock Input
2	VREFL	I	Negative Voltage Reference Input, AGND	16	DEM0	I	De-emphasis Frequency Select
3	AINR+	I	Rch Analog Positive Input	17	DEM1	I	De-emphasis Frequency Select
4	AINR-	I	Rch analog Negative Input	18	TST3	I/O	} Test Pins (Pull Down Pins)
5	AINL+	I	Lch Analog Positive Input	19	TST2	I/O	
6	AINL-	I	Lch analog Negative Input	20	TST1	I	
7	VA	-	Analog Power Supply	21	VD	-	
8	AGND	-	Analog Ground	22	DGND	-	Digital Ground
9	DIF0	I	Audio Data Interface Format	23	/PWDA	I	DAC power-Down Mode
10	DIF1	I	Audio Data Interface Format	24	/PWAD	I	ADC power-Down Mode
11	LRCK	I	Input/Output Channel Clock	25	CMODE	I	Master Clock Select ("H":384 fs,"L":256 fs)
12	SCLK	I	Audio Serial Data Clock	26	AOUTL	O	Lch Analog Output
13	SDTI	I	Audio Serial Data Input	27	AOUTR	O	Rch Analog Output
14	SDTO	O	Audio Serial Data Output	28	VCOM	O	Common Voltage Output, VA/2

IC BLOCK DIAGRAM

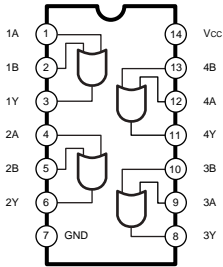
● **MB3790PF**(XR967A00)

DM: IC4
ASSP



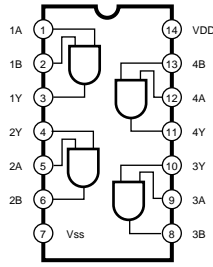
● **74HC32DT**(XZ103A00)

DM: IC5, IC6
OR



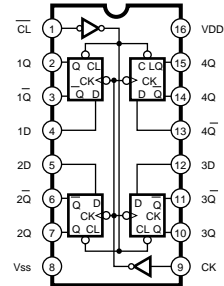
● **74HC08DT**(XZ108A00)

DM: IC7
AND



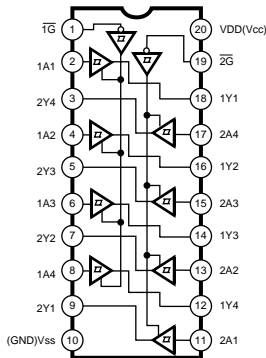
● **74HC175DT**(XZ113A00)

DM: IC110
Quad D-Type Flip-Flop



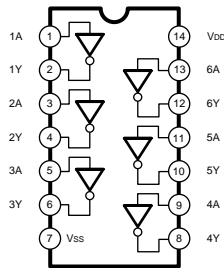
● **74HC244DT**(XZ109A00)

DM: IC14, IC15, IC16
Bus Buffer



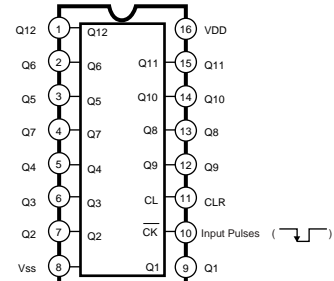
● **74HCU04DT** (XZ110A00)

DM: IC107
INVERTER

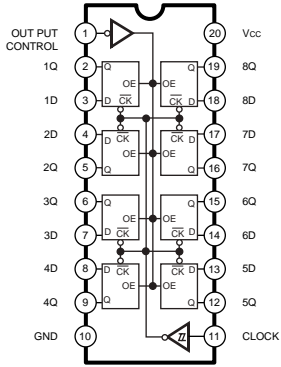


● **TC74HC4040F**(XR684A00)

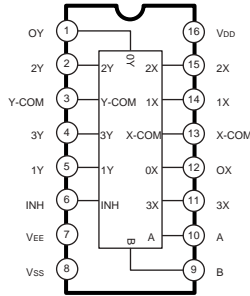
DM: IC108
12-Stage Binary Ripple Counter



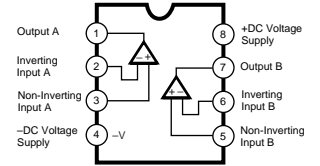
- **74HC374DT**(XZ102A00)
PN: IC301~IC307
D-FF



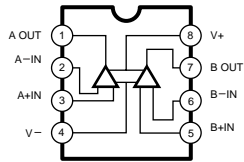
- **74HC4052DT**(XZ101A00)
PN: IC308, IC309
Multiplexer



- **NJM072M**(XC458A00)
DM: IC101
OP AMP

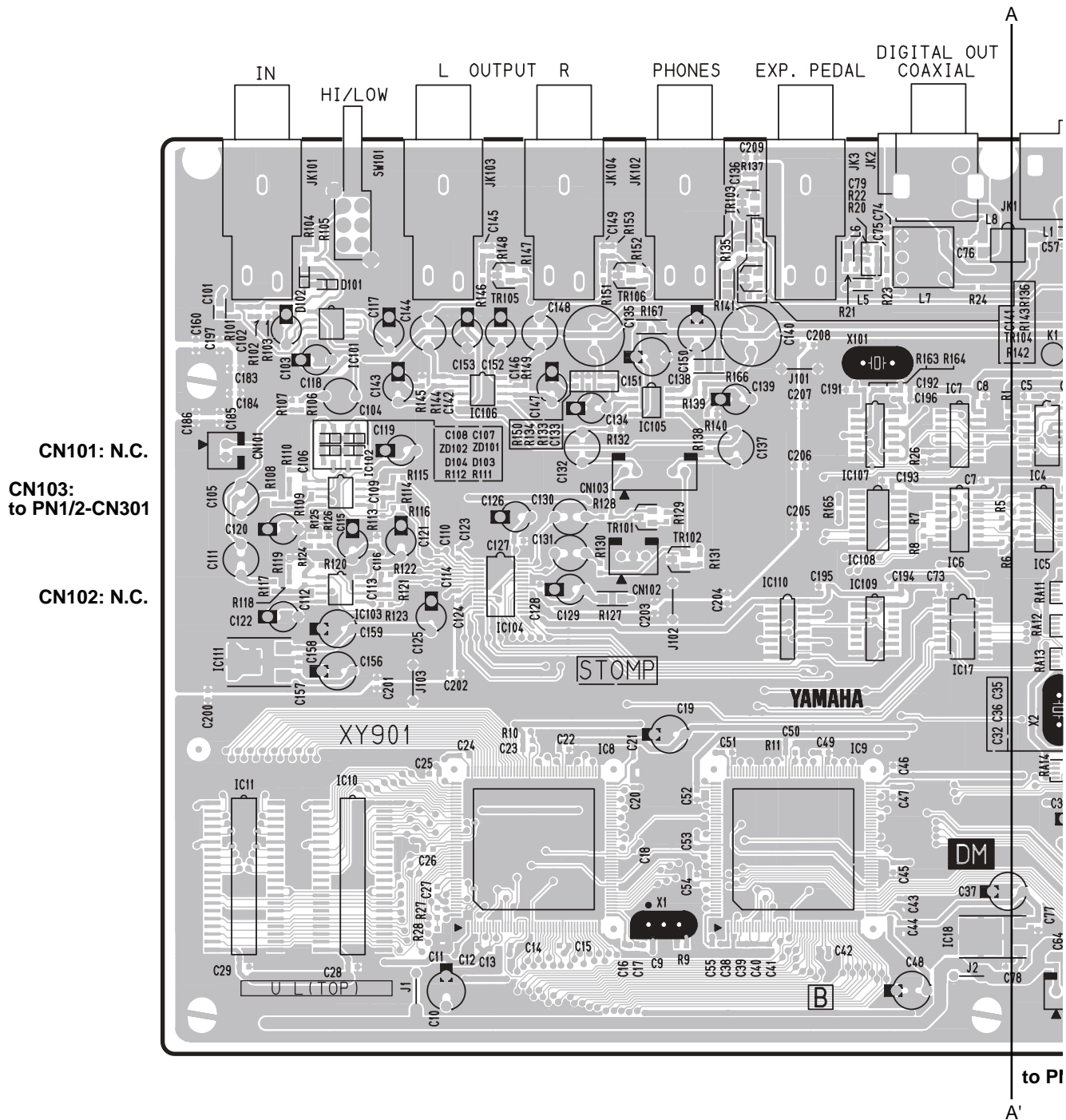


- **NJM5532M** (XC011A00)
DM: IC102, IC103, IC106
- **NJM4556AMT1** (XQ138A00)
DM: IC105
OP AMP



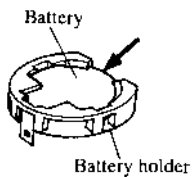
CIRCUIT BOARDS

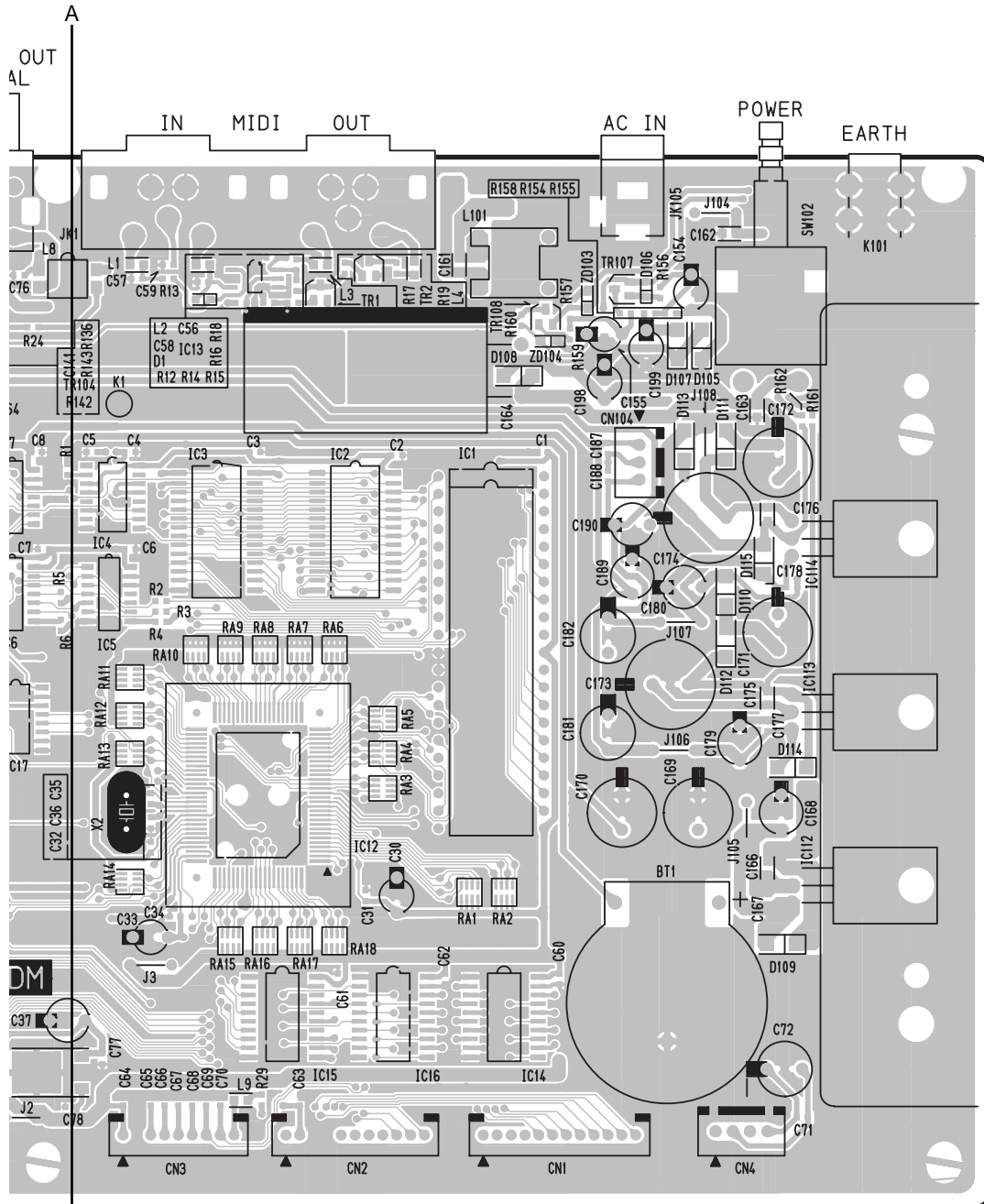
• DM Circuit Board



Battery VN103500
 VN103600(Battery holder for VN103500)

- Notice for back-up battery removal
 Push the battery as shows in figure,
 then the battery will pop up.

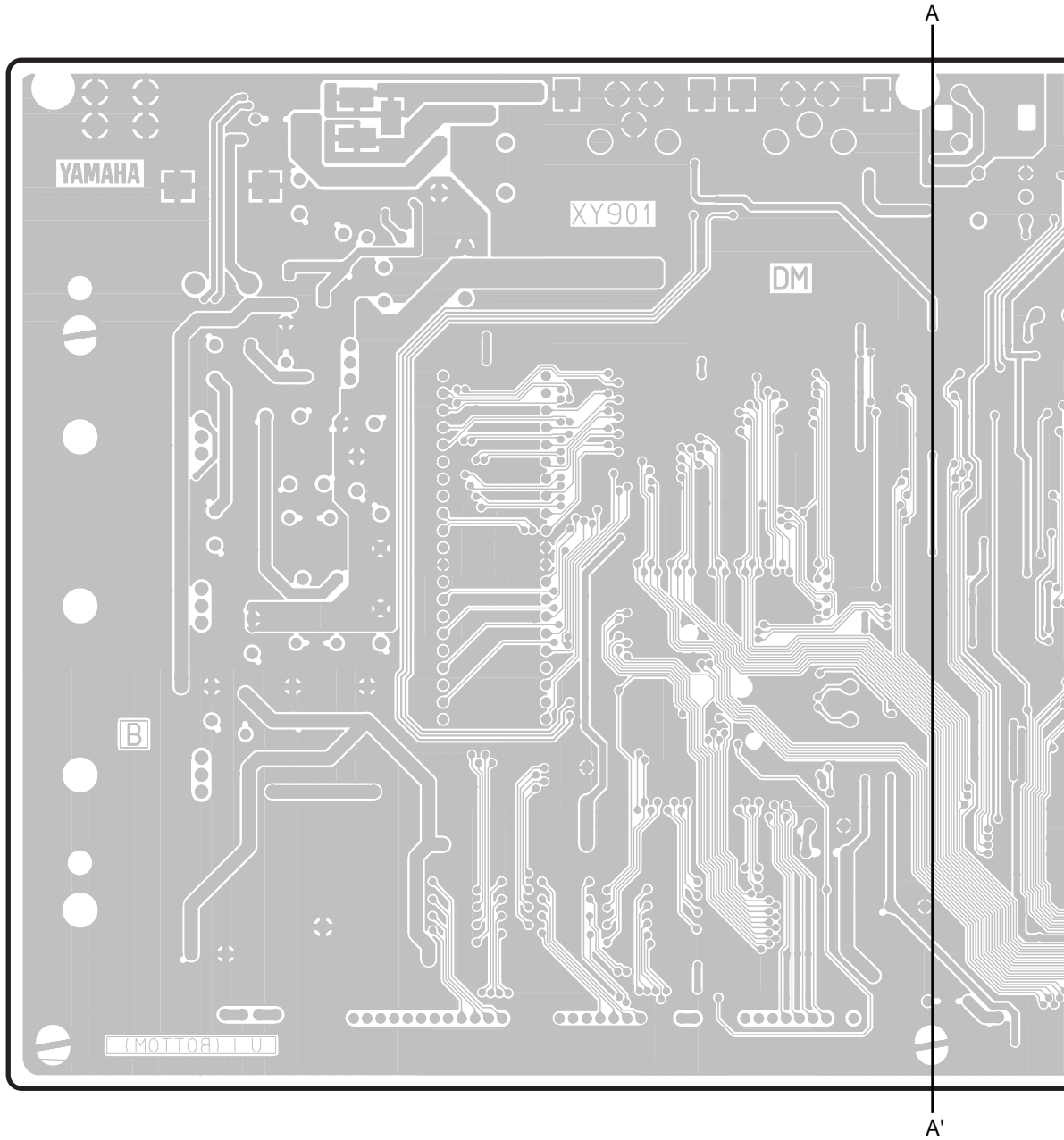


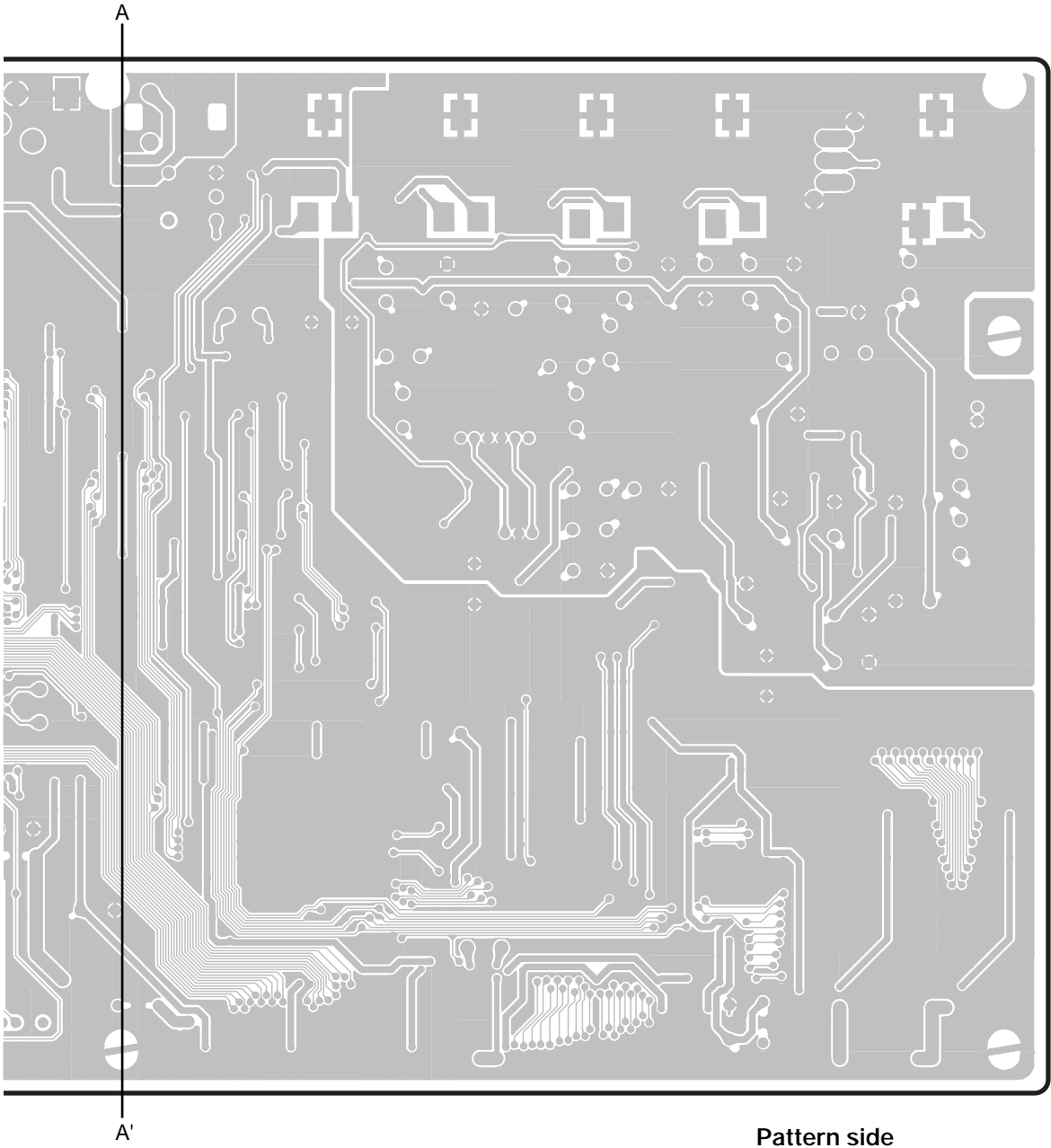


to PN1/2-CN302 to PN1/2-CN303 to PN1/2-CN304 CN104: N.C.

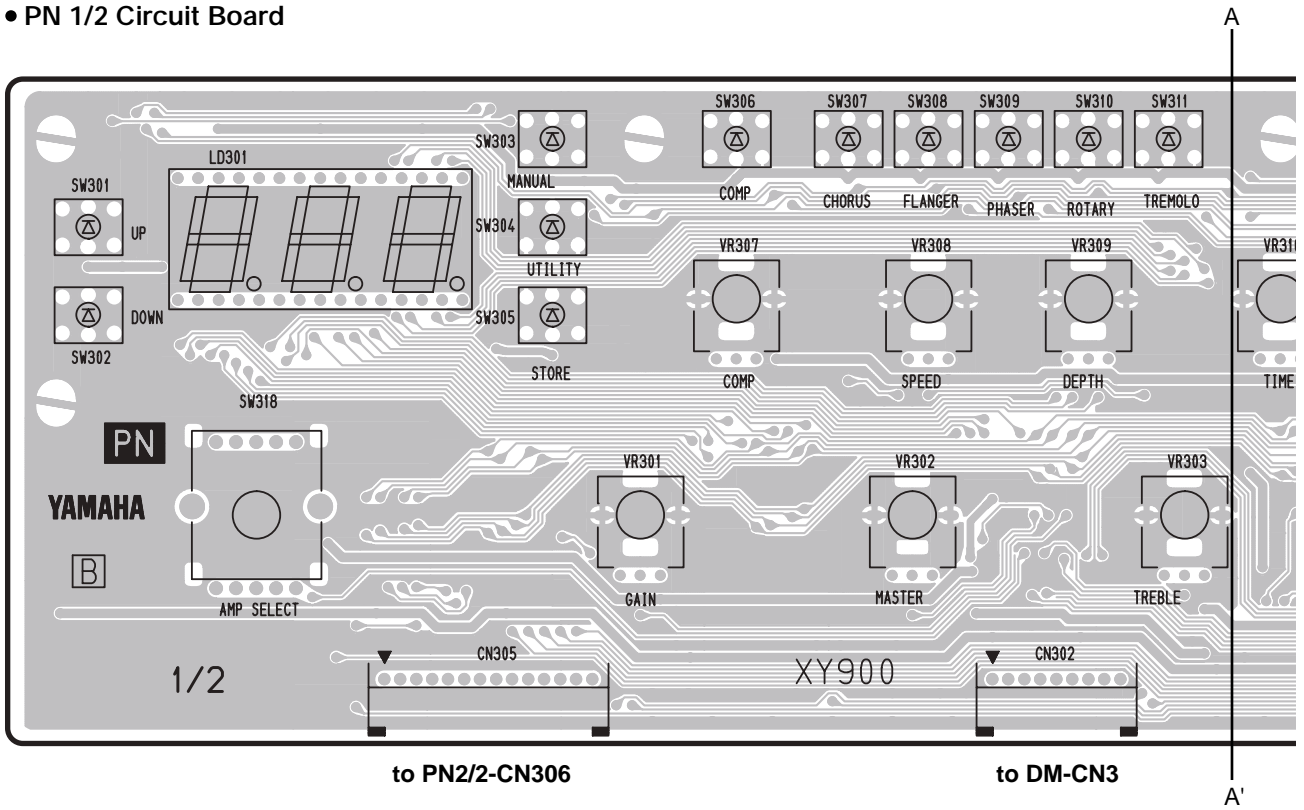
Component side

• DM Circuit Board

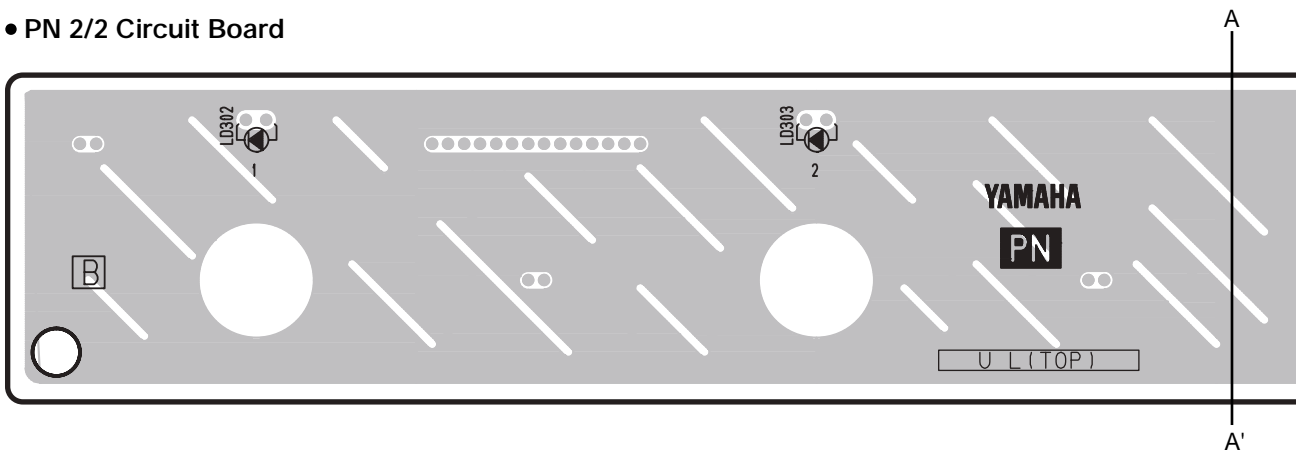




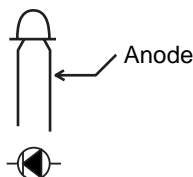
• PN 1/2 Circuit Board



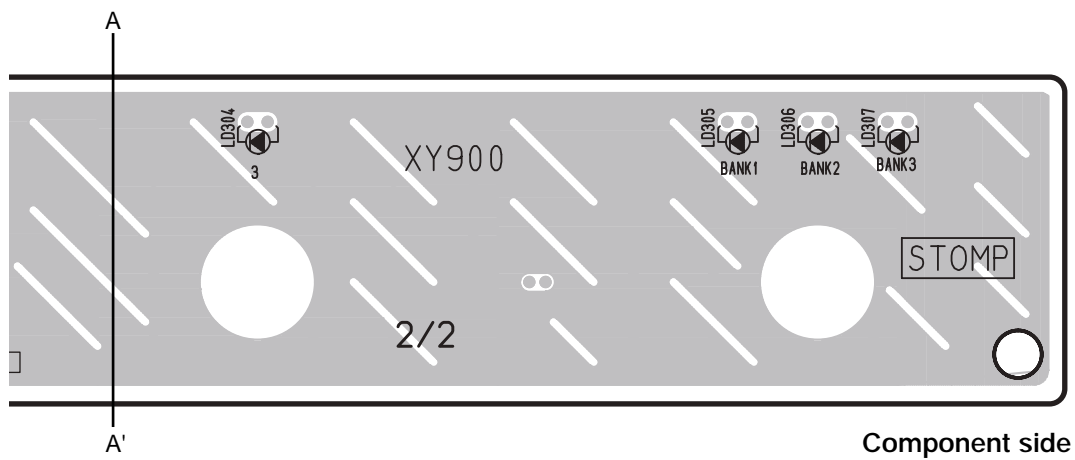
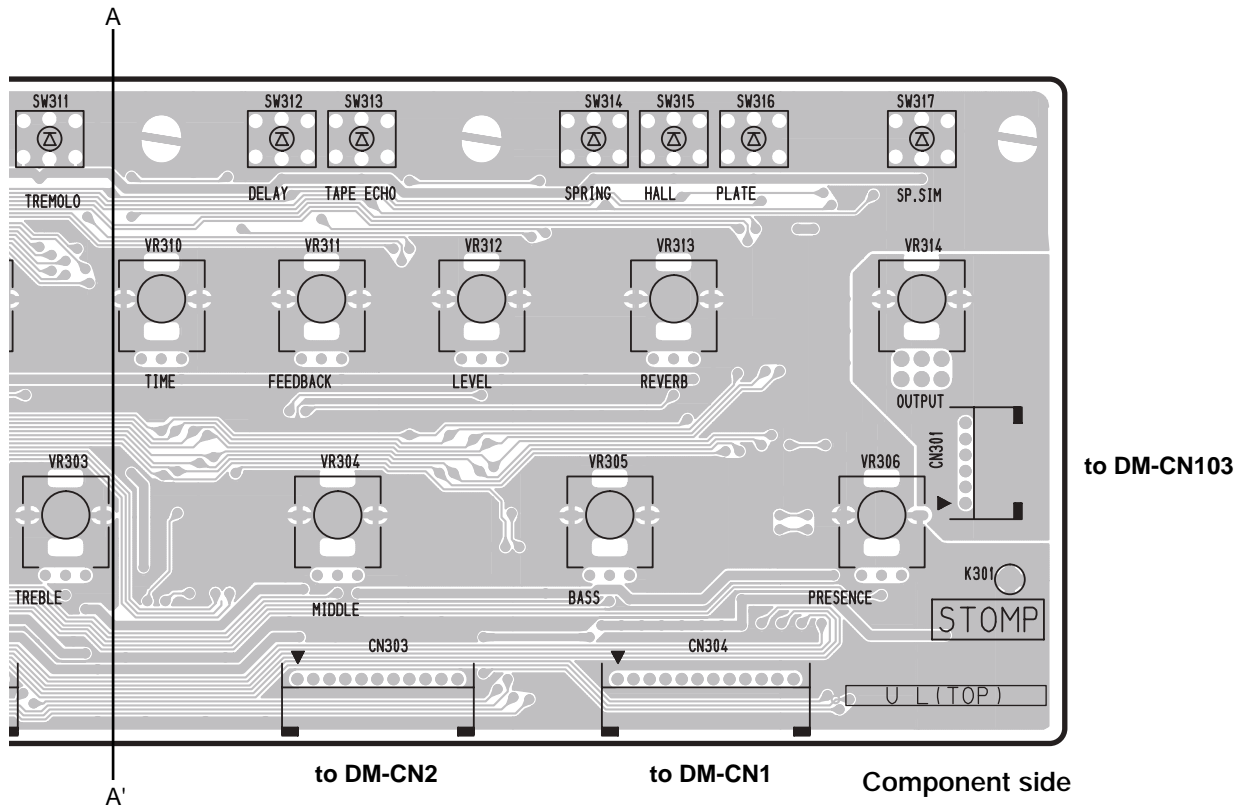
• PN 2/2 Circuit Board



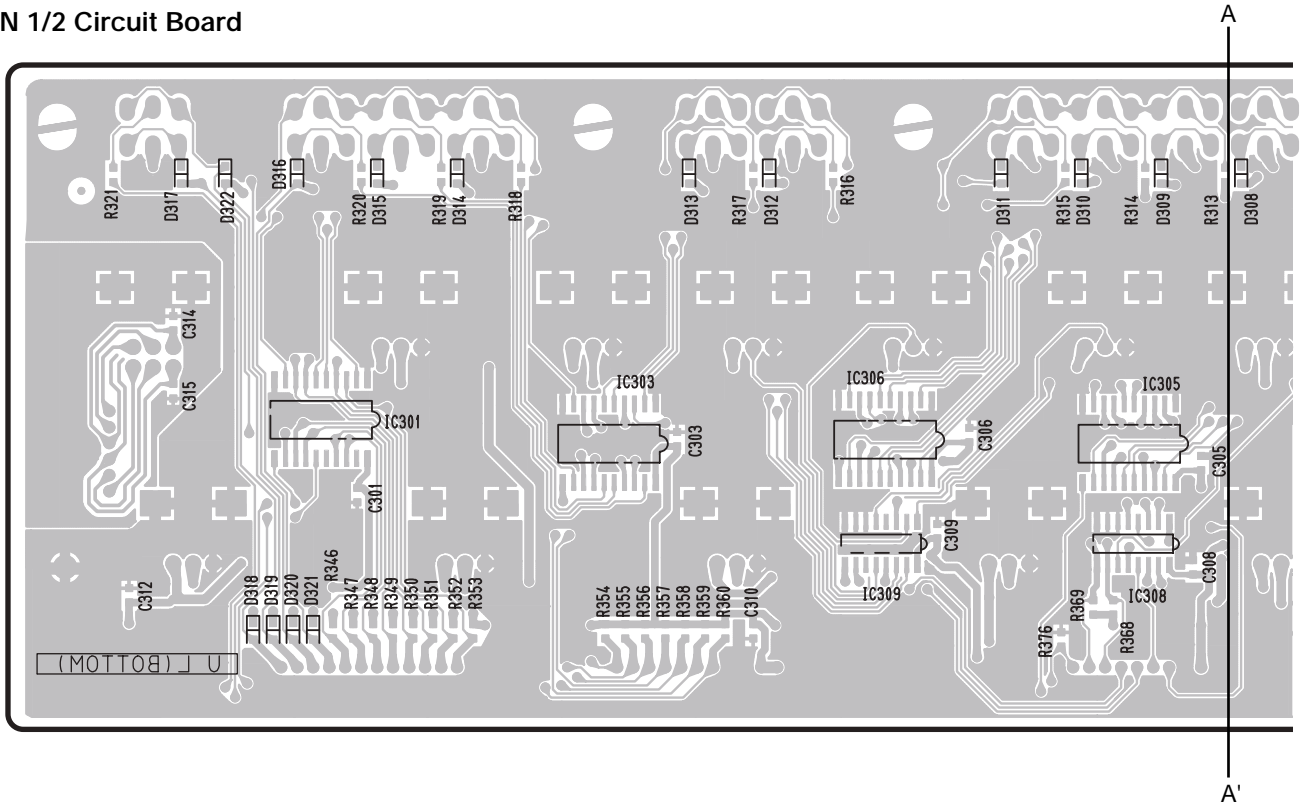
• LD302, LD303, LD304 and LD306 installation



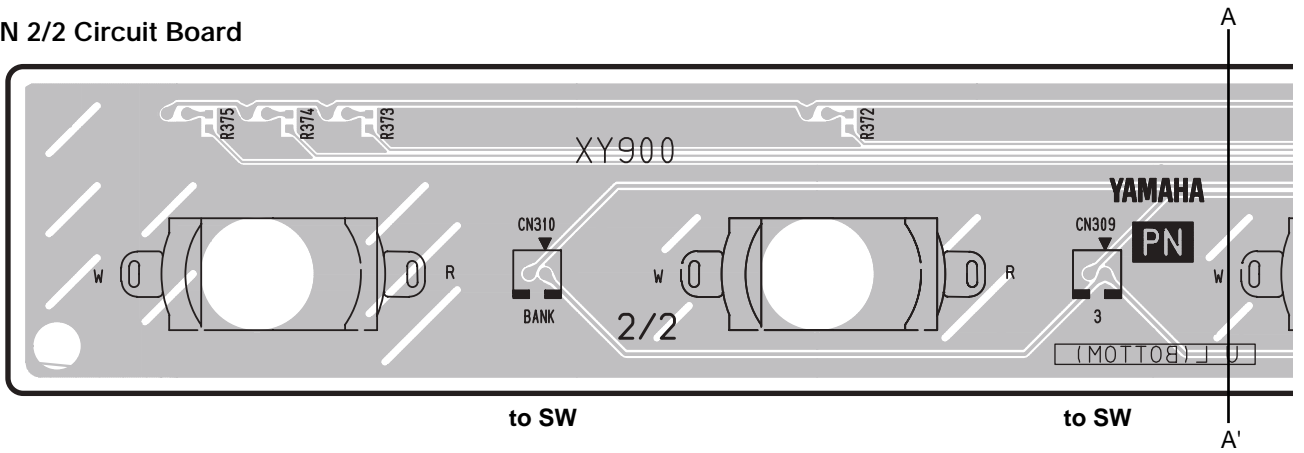
PN: CNA-V587990



• PN 1/2 Circuit Board



• PN 2/2 Circuit Board



■ TEST PROGRAM

A. Connect each terminal as follows

- INPUT Monaural input
- OUT L/MONO Monaural output (RL47Kohm)
- OUT R Monaural output (RL47Kohm)
- HEAD PHONES Stereo output (323ohm each)
- EXP. PEDAL Connect VR of B50K.
Pin 1 of JK: MIN of VR, Pin 2 of JK: MAX of VR, Pin3
of JK: CENTER of VR
- DIGITAL OUT Connect the DA converter.
- MIDI IN, MIDI OUT Connect IN and OUT by using
DIN 5P cable.
- HIGH/LOW SW Used to select the input level.
OFF: 0dB, ON: +10dB
- AC IN Connect the AC adapter.
- STAND-BY SW Power switch

B. TEST PROGRAM

- 0: LED Check
- 1: SW Check
- 2: VR Check
- 3: Battery Check
- 4: MIDI Check
- 5: SRAM Check
- 6: DSP Check

C. STARTING THE TEST PROGRAM

While pressing the MANUAL, STORE and HALL switches, turn on the POWER switch. The TEST program will then be started.

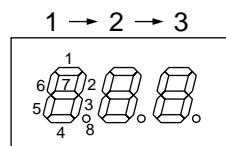
D. SELECTING THE TEST NUMBER

Using the UP and DOWN switches, select the test number and press the STORE switch to confirm selection.

E. TEST PROCEDURE

0: LED Check

- Using the UP and DOWN switches, select "0" and then press the STORE switch.
- LED segments light up one after another starting with "UP". When "SP.SIM" is reached, "BANK", "3", "2" and "1" light up followed by 7 segments in the following order from the left end. After that, all LED segments light up and go out.



1: SW Check

- Using the UP and DOWN switches, select "1" and then press the STORE switch.
- Starting with the UP switch, press the switches whose LED lights up one after another. After "SP.SIM", "BANK", "3", "2" and "1", all LED segments should light up and then go out.
- Numbers (0 to 20) are indicated at the right end of the 7 segment LED.
- If "E" representing an error appears at the left end, press the UTILITY switch for resetting.

2: VR Check

- Using the UP and DOWN switches, select "2" and then press the STORE switch.
- Execute checking with "AMP SELECT" and "GAIN" to "PRESENCE" in that order, next from "COMP" to "REVERB" and finally until "EXP. PEDAL"
- Turn the control fully in the direction toward the left 7 segment LED which is turned on. If the test result is OK, the right 7 segment LED lights up. Then turn the control to that direction. If the test result is OK, proceed to the next VR. After completing this check, return the control to the center position.
- If an error exists outside of the control being checked, "E" meaning an error appears at the left end. In such case, press the UTILITY switch for resetting.
- At the end of all VR checks, all LED segments light up and go out.

3: Battery Check

- Using the UP and DOWN switches, select "3" and then press the STORE switch.
- If the check result is OK, all LED segments light up and go out.
- "E" appears in case of an error.

4: MIDI Check

- Using the UP and DOWN switches, select "4" and then press the STORE switch.
- If the check result is OK, all LED segments light up and go out. Then checking advances to the next step.
- In case of an error, "E" is indicated by LED.
- The numeric figure at the right end of LEF represents, 0: transmission and 1: reception.

5: SRAM Check

- Using the UP and DOWN switches, select "5" and then press the STORE switch.
- If the check result is OK, all LED segments light up and go out.
- "0" and "1" at the right end represent IC2 and IC3 respectively.

6: DSP Electric Characteristic

- Using the UP and DOWN switches, select “6” and then press the STORE switch. The output level becomes the same when the right end No. is “0” and when it is “1”.
- The output level, noise level and distortion rate can be checked by inputting the signal for measurement (by shorting the input with GND for the noise level check).
- Initial setting: HIGH/LOW SW (SW101) ●● OFF (LOW), VR ●● Center, OUTPUT VR ●● MAX

ITEM	INPUT	OUTPUT
1. INPUT sensitivity	JK101(INPUT) -5dBm(1kHz)	JK103(OUT L/MONO) +1.0dBm+/-3dB
2. INPUT sensitivity	JK101(INPUT) -5dBm(10kHz)	JK103(OUT L/MONO) +1.0dBm+/-3dB
3. INPUT sensitivity	JK101(INPUT) -5dBm(100Hz)	JK103(OUT L/MONO) +1.0dBm+/-3dB
4. INPUT sensitivity	JK101(INPUT) -25dBm(100Hz)	JK104(OUT R) -1.0dBm+/-3dB
5. INPUT sensitivity	JK101(INPUT) -25dBm(10kHz)	JK104(OUT R) -1.0dBm+/-3dB
6. INPUT sensitivity	JK101(INPUT) -25dBm(1kHz)	JK104(OUT R) -1.0dBm+/-3dB
7. INPUT sensitivity	JK101(INPUT) -5dBm(1kHz)	JK102(HP L) -0.5dBm+/-3dB
8. INPUT sensitivity	JK101(INPUT) -5dBm(10kHz)	JK102(HP L) -0.5dBm+/-3dB
9. INPUT sensitivity	JK101(INPUT) -5dBm(100Hz)	JK102(HP L) -1.5dBm+/-3dB
10. INPUT sensitivity	JK101(INPUT) -25dBm(100Hz)	JK102(HP R) -3.5dBm+/-3dB
11. INPUT sensitivity	JK101(INPUT) -25dBm(10kHz)	JK102(HP R) -2.5dBm+/-3dB
12. INPUT sensitivity	JK101(INPUT) -25dBm(1kHz)	JK102(HP R) -2.5dBm+/-3dB
13. INPUT sensitivity	JK101(INPUT), SW101 ON -35dBm(1kHz)	JK104(OUT R) -0.5dBm+/-3dB
14. INPUT sensitivity	JK101(INPUT), SW101 ON -35dBm(10kHz)	JK104(OUT R) -0.5dBm+/-3dB
15. INPUT sensitivity	JK101(INPUT), SW101 ON -35dBm(100Hz)	JK104(OUT R) -0.5dBm+/-3dB
16. NOISE LEVEL	JK101(INPUT)/No Filter/GND short	JK103(OUT L/MONO) -45dBm
17. NOISE LEVEL	JK101(INPUT)/No Filter/GND short	JK104(OUT R) -45dBm
18. NOISE LEVEL	JK101(INPUT)/No Filter/GND short	JK102(HP L) -45dBm
19. NOISE LEVEL	JK101(INPUT) /No Filter/GND short	JK102(HP R) -45dBm
20. DISTORTION FACTOR	JK101(INPUT) /No Filter-5dBm(1kHz)	JK103(OUT L/MONO) 0.5%
21. DISTORTION FACTOR	JK101(INPUT)/No Filter -25dBm(1kHz)	JK104(OUT R) 0.5%
22. DISTORTION FACTOR	JK101(INPUT)/No Filter -5dBm(1kHz)	JK102(HP L) 0.5%
23. DISTORTION FACTOR	JK101(INPUT)/No Filter -25dBm(1kHz)	JK102(HP R) 0.5%
24. Digital Out	JK101(INPUT)/No Filter -15dBm(1kHz)	JK2(Digital Out) Lch -18dBm+/-3dB Rch 0dBm+/-3dB

F. HOW TO CONFIRM ROM VERSION

Turn on the power while pressing “DOWN” and “MANUAL SW” switches, and the model name appears as dG.S for about 2 seconds and then the version number as *.* also for about 2 seconds. (Each * represents a numeric figure.) Read that number for confirmation. The normal mode will then be resumed.

■ ERROR MESSAGES

If an error occurs during operation, one of the following error message numbers will appear on the display.

E1: MIDI Receive Buffer Full

CAUSE: Too much MIDI data is being received by the DG amplifier at one time.

SOLUTION: Try reducing the amount of data being sent or, break the data into smaller blocks.

E2: Communication Error.

CAUSE: An abnormality is detected during MIDI communications.

SOLUTION: Check all connections, etc. and try again.

E3: Bulk Receive Check Sum Error.

CAUSE: The check sum does not match the received MIDI bulk data.

SOLUTION: Check all connections and data, and try again.

E4: Bulk Receive Data Abnormality.

CAUSE: An abnormality is detected in the received MIDI bulk data.

SOLUTION: Check all connections and data, and try again.

E5: Backup Battery Error.

CAUSE: Backup battery power is depleted.

SOLUTION: Continued use of the device will result in the loss of data. Return the device to the music dealer where you purchased it or, have the battery replaced.

DG-Stomp

YAMAHA [Guitar Pre Amplifier with Multi Effects] Date:30-Jun-2000
 Model DG stomp MIDI Implementation Chart Version : 1.0

Function ...	Transmitted	Recognized	Remarks
:Basic Default	: 1 - 16	: 1 - 16, off	: memorized
:Channel Changed	: 1 - 16	: 1 - 16, off	:
:Mode Default	: 1,3	: 1,3	: memorized
:Messages	: x	: x	:
:Altered	: *****	: x	:
:Note	: x	: x	:
:Number : True voice	: *****	: x	:
:Velocity Note ON	: x	: x	:
:Note OFF	: x	: x	:
:After Key's	: x	: x	:
:Touch Ch's	: x	: x	:
:Pitch Bender	: x	: x	:
: 0	: x	: x	:
: 1 - 31	: o	: o	:
: 32 - 63	: x	: x	:
: 64 - 95	: o	: o	:
: Control 95 -127	: x	: x	:
: Change	:	:	:
: Prog	: o 0 - 127	: o 0 - 127	:
: Change : True #	: *****	:	:
:System Exclusive	: o	: o	: Bulk Dump
:System : Song Pos.	: x	: x	:
: : Song Sel.	: x	: x	:
:common : Tune	: x	: x	:
:System :Clock	: x	: x	:
:Real Time :Commands	: x	: x	:
:Aux :All Sound OFF	: x	: x	:
: :Reset All Cntrls	: x	: x	:
: :Local ON/OFF	: x	: x	:
: :All Notes OFF	: x	: x	:
:Mes- :Active Sense	: o	: x	:
:sages:Reset	: x	: x	:
Mode 1 : OMNI ON, POLY	Mode 2 : OMNI ON, MONO	o : Yes	
Mode 3 : OMNI OFF, POLY	Mode 4 : OMNI OFF, MONO	x : No	

GUITAR PRE-AMPLIFIER WITH EFFECTS

DG-Stomp

PARTS LIST


■ CONTENTS

OVERALL ASSEMBLY	2
ELECTRICAL PARTS	4

Notes : DESTINATION ABBREVIATIONS

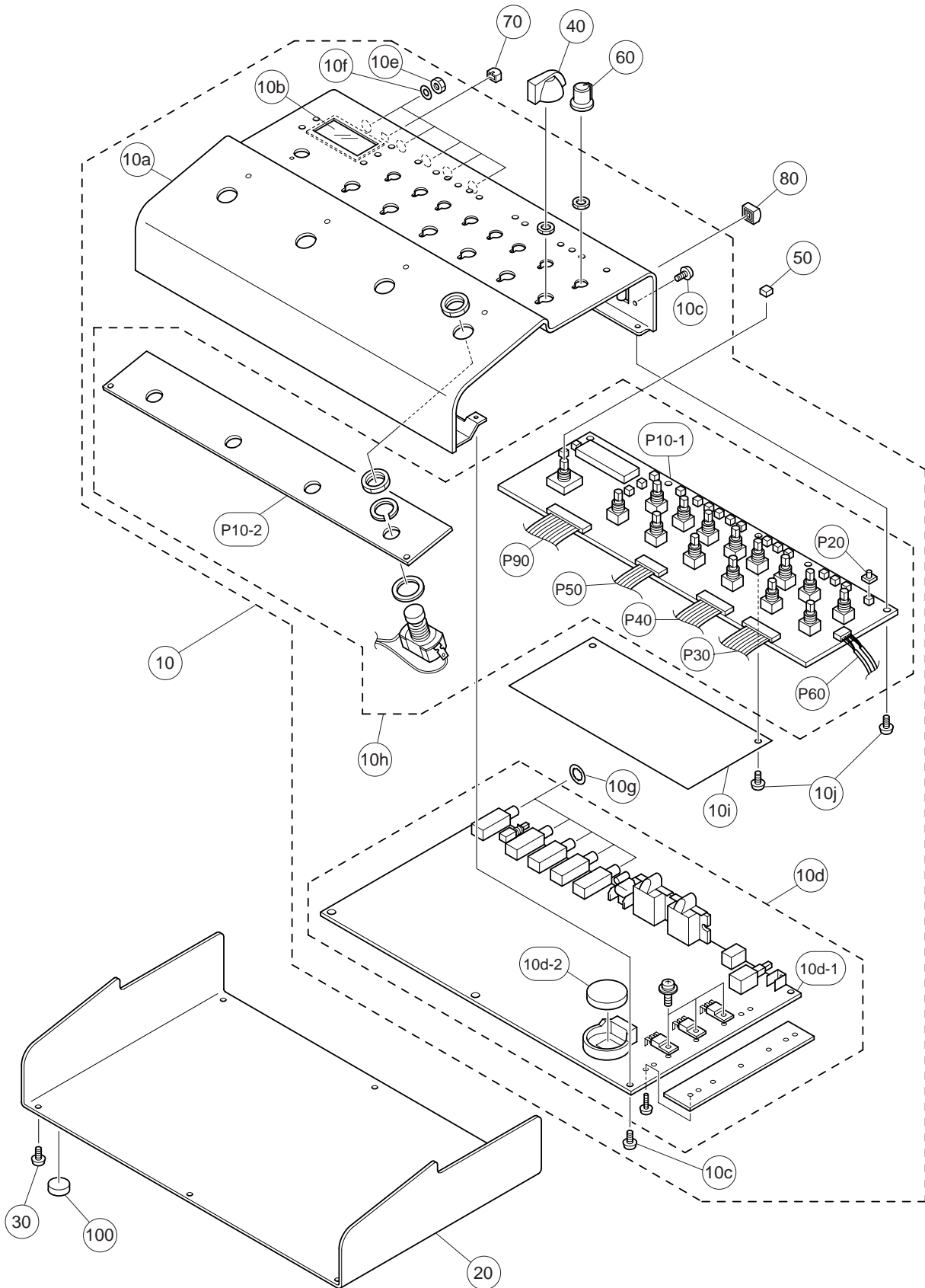
A : Australian model	M: South African model
B : British model	O : Chinese model
C : Canadian model	Q: South-east Asia model
D : German model	T : Taiwan model
E : European model	U : U.S.A. model
F : French model	V : General export model (110V)
H : North European model	W: General export model (220)
I : Indonesian model	N,X : General export model
J : Japanese model	Y : Export model

■ WARNING

Components having special characteristics are marked  and must be replaced with parts having specification equal to those originally installed.

- The numbers "QTY" show quantities for each unit.
- The parts with "--" in "PART NO." are not available as spare parts.
- This mark "}" in the REMARKS column means these parts are interchangeable.
- The second letter of the shaded (■) part number is O, not zero.
- The second letter of the shaded (■) part number is I, not one.

OVERALL ASSEMBLY



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		OVERALL ASSEMBLY		DG-STOMP		
	--	Overall Assembly		(V573350)		
10	--	Top Cover Assembly		(V573420)		
* 10a	V5734300	Top Cover				
* 10b	V5734500	Meter Cover				
10c	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		7	01
10d	--	Circuit Board Assembly		(V600780)		
* 10d-1	V5880000	Circuit Board	DG-STOMP			
10d-2	VS246400	Lithium Battery	CR2450			03
10e	LX200060	Hexagonal Nut	9.0 12X2 MFNI33		5	01
10f	VL802300	Flat Washer	9X14 0.5 FNM3		5	01
10g	ET800150	Toothed Lock Washer-A	9.0 MFZN2Y		5	01
10h	--	Circuit Board Assembly		(V600800)		
10i	--	Shield Film		(V585150)		
10j	VC161100	Bind Head Tapping Screw-P	3.0X12 MFZN2BL		3	01
* 20	V5734400	Bottom Case				
30	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL		6	01
40	V3694100	Knob (CH)	DG60-112		7	02
* 50	V5851800	Spacer				
* 60	V5852300	Knob (FX)			8	
70	VZ429100	Button(S)	GRAY			01
80	VZ968600	Button(L)	NO.947 CD-GRAY			01
100	VU859300	Leg	SR200		4	01
	--	Circuit Board Assembly	PN	(V600800)		
	--	Circuit Board	(AAX19500+AAX19510)	(V587990)		
* P10-1	AAX19500	Circuit Board				
* P10-2	AAX19510	Circuit Board		(Foot SW Sheet)		
* P20	V5852100	Button			17	
P30	--	Wire Assembly	C&C #28 12P L100	(V611450)		
P40	--	Wire Assembly	C&C #28 11P L100	(V611460)		
P50	--	Wire Assembly	C&C #28 9P L100	(V611470)		
P60	--	Wire Assembly	C&C #28 6P L250	(V611480)		
P90	--	Wire Assembly	C&C #28 14P L 50	(V610850)		
		Accessories				
⚠ *	V5882800	AC Adapter	AC-10 J	J		
⚠ *	V5883000	AC Adapter	AC-10 U,C	U, C		
⚠ *	V5883100	AC Adapter	AC-10 H	H		

*: New Parts

RANK: Japan only

ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
		ELCTRIC PARTS			
*	V5880000	Circuit Board	DM		
*	AAX19500	Circuit Board			
*	AAX19510	Circuit Board (Foot SW Sheet)			
*	V5880000	Circuit Board	DM		
	--	Heat Sink		(V573470)	
	VB763800	Bind Head Screw	SP 3.0X12 MFZN2Y	5	01
	VK863100	IC Socket	DICF-42CS-E		03
BT1	VS246300	Battery Holder	CR2450BH		03
* C1	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -9	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C10	UR838100	Electrolytic Cap.	100.00 16.0V		01
* C11	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -18	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C19	UR838100	Electrolytic Cap.	100.00 16.0V		01
* C20	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -29	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C30	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C31	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C32	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C33	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C34	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C35	UX061120	Electrolytic Cap.(chip)	12P 50V J		
* C36	UX061120	Electrolytic Cap.(chip)	12P 50V J		
C37	UR838100	Electrolytic Cap.	100.00 16.0V		01
* C38	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -47	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C48	UR838100	Electrolytic Cap.	100.00 16.0V		01
* C49	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -56	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C57	UX064100	Electrolytic Cap.(chip)	0.0100 50V K		
* C58	UX064100	Electrolytic Cap.(chip)	0.0100 50V K		
* C59	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -73	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C74	UX062220	Electrolytic Cap.(chip)	220P 50V J		
* C75	UX064100	Electrolytic Cap.(chip)	0.0100 50V K		
* C76	UX064100	Electrolytic Cap.(chip)	0.0100 50V K		
* C77	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C78	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C79	UX064100	Electrolytic Cap.(chip)	0.0100 50V K		
* C101	UY065220	Electrolytic Cap.(chip)	0.2200 50V Z		
* C102	UX062100	Electrolytic Cap.(chip)	100P 50V J		
C103	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C104	V6197100	Electrolytic Cap.-BP	10.00 35.0V		
* C105	V6197100	Electrolytic Cap.-BP	10.00 35.0V		
* C106	UX061100	Electrolytic Cap.(chip)	10P 50V D		
* C107	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C108	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C109	UX061220	Electrolytic Cap.(chip)	22P 50V J		
* C110	UX063100	Electrolytic Cap.(chip)	1000P 50V K		
* C111	V6197100	Electrolytic Cap.-BP	10.00 35.0V		
* C112	UX061680	Electrolytic Cap.(chip)	68P 50V J		
* C113	UX061220	Electrolytic Cap.(chip)	22P 50V J		
* C114	UX063100	Electrolytic Cap.(chip)	1000P 50V K		
C115	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C116	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C117	UR857100	Electrolytic Cap.	10.00 35.0V		01
-122	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C123	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C124	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C125	UR857100	Electrolytic Cap.	10.00 35.0V		01
C126	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C127	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* C128	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
C129	UR857100	Electrolytic Cap.	10.00 35.0V		01
* C130	V6197100	Electrolytic Cap.-BP	10.00 35.0V		
* -132	V6197100	Electrolytic Cap.-BP	10.00 35.0V		
* C133	UX061220	Electrolytic Cap.(chip)	22P 50V J		
C134	UR857100	Electrolytic Cap.	10.00 35.0V		01

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* C135	V6197000	Electrolytic Cap.-BP	47.00 25.0V			
C136	UX063100	Electrolytic Cap.(chip)	1000P 50V K			
* C137	V6197100	Electrolytic Cap.-BP	10.00 35.0V			
* C138	UX061220	Electrolytic Cap.(chip)	22P 50V J			
C139	UR857100	Electrolytic Cap.	10.00 35.0V			01
* C140	V6197000	Electrolytic Cap.-BP	47.00 25.0V			
* C141	UX063100	Electrolytic Cap.(chip)	1000P 50V K			
* C142	UX061220	Electrolytic Cap.(chip)	22P 50V J			
C143	UR857100	Electrolytic Cap.	10.00 35.0V			01
* C144	V6197100	Electrolytic Cap.-BP	10.00 35.0V			
* C145	UX062100	Electrolytic Cap.(chip)	100P 50V J			
* C146	UX061220	Electrolytic Cap.(chip)	22P 50V J			
C147	UR857100	Electrolytic Cap.	10.00 35.0V			01
* C148	V6197100	Electrolytic Cap.-BP	10.00 35.0V			
* C149	UX062100	Electrolytic Cap.(chip)	100P 50V J			
C150	UR848100	Electrolytic Cap.	100.00 25.0V			01
C151	UR848100	Electrolytic Cap.	100.00 25.0V			01
C152	UR857100	Electrolytic Cap.	10.00 35.0V			01
C153	UR857100	Electrolytic Cap.	10.00 35.0V			01
C154	UR866100	Electrolytic Cap.	1.00 50.0V			01
C155	UR866470	Electrolytic Cap.	4.70 50.0V			01
C156	UR848100	Electrolytic Cap.	100.00 25.0V			01
* C157	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
* C158	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
C159	UR848100	Electrolytic Cap.	100.00 25.0V			01
* C161	UY065100	Electrolytic Cap.(chip)	0.1000 50V Z			
* -163	UY065100	Electrolytic Cap.(chip)	0.1000 50V Z			
* C164	V6196900	Electrolytic Cap.	3300 35.0V			
* C166	UY065100	Electrolytic Cap.(chip)	0.1000 50V Z			
* C167	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
C168	UR838100	Electrolytic Cap.	100.00 16.0V			01
C169	UR839100	Electrolytic Cap.	1000 16.0V			01
C170	UR839100	Electrolytic Cap.	1000 16.0V			01
C171	UR858470	Electrolytic Cap.	470.00 35.0V			01
-174	UR868470	Electrolytic Cap.	470.00 50.0V			01
* C175	UY065100	Electrolytic Cap.(chip)	0.1000 50V Z			
* -178	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
C179	UR848100	Electrolytic Cap.	100.00 25.0V			01
C180	UR848100	Electrolytic Cap.	100.00 25.0V			01
C181	UR848220	Electrolytic Cap.	220.00 25.0V			01
C182	UR848220	Electrolytic Cap.	220.00 25.0V			01
* C191	UX060500	Electrolytic Cap.(chip)	5P 50V C			
* C192	UX060500	Electrolytic Cap.(chip)	5P 50V C			
* C193	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
* -196	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z			
C198	UR866100	Electrolytic Cap.	1.00 50.0V			01
C199	UR866100	Electrolytic Cap.	1.00 50.0V			01
CN1	VV067200	Connector Base Post	M2426XX 12P TE			01
CN2	VV067100	Connector Base Post	M2426XX 11P TE			01
CN3	VV066900	Connector Base Post	M2426XX 9P TE			01
CN103	VV066600	Connector Base Post	M2426XX 6P TE			01
D1	VT332900	Diode	1SS355 TE-17			01
D101	VT332900	Diode	1SS355 TE-17			01
-104	VT332900	Diode	1SS355 TE-17			01
D105	VT532500	Diode	1SR154-400			01
D106	VT332900	Diode	1SS355 TE-17			01
D107	VT532500	Diode	1SR154-400			01
-115	VT532500	Diode	1SR154-400			01
* IC1	XZ198B00	IC	MSM27C802CZ-NRS	8M		
IC2	XV411A00	IC	W24258S-70LE-EL10	256K		07
IC2	XW433A00	IC	CY62256LL-70SNCT	256K		05
IC3	XV411A00	IC	W24258S-70LE-EL10	256K		07
IC3	XW433A00	IC	CY62256LL-70SNCT	256K		05
IC4	XR967A00	IC	MB3790PF ASSP	ASSP		05
* IC5	XZ103A00	IC	74AHC32DT	OR		
* IC6	XZ103A00	IC	74AHC32DT	OR		
* IC7	XZ108A00	IC	74HC08DT	AND		
IC8	XV988A00	IC	YSS910-S	DSP6		10
IC9	XV988A00	IC	YSS910-S	DSP6		10
IC10	XV077A00	IC	MSM514260C-60JS	4M		07

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
IC10	XV839A00	IC	SDM4260CLU-6S	4M		08
IC11	XV077A00	IC	MSM514260C-60JS	4M		07
IC11	XV839A00	IC	SDM4260CLU-6S	4M		08
IC12	XQ375A00	IC	HD6413002FP16	CPU	9	
IC13	VN686000	Photo Coupler	PC410T			04
IC13	VR903700	Photo Coupler	HCPL-M600			04
* IC14	XZ109A00	IC	74HC244DT	BUS BUFFER		
* IC15	XZ109A00	IC	74HC244DT	BUS BUFFER		
* IC16	XZ109A00	IC	74HC244DT	BUS BUFFER		
IC17	XM530A00	IC	YM3437C-F	DIT2		07
IC18	XU965A00	IC	UPC29M33T-E1	3.3V REGULATOR		03
IC101	XC458A00	IC	NJM072M	OP AMP		03
IC102	XC011A00	IC	NJM5532M	OP AMP		03
IC103	XC011A00	IC	NJM5532M	OP AMP		03
IC104	XT802A00	IC	AK4520A-VF-E2	ADC&DAC		07
IC105	XQ138A00	IC	NJM4556AMT1	OP AMP		03
IC106	XC011A00	IC	NJM5532M	OP AMP		03
* IC107	XZ110A00	IC	74HCU04DT	INVERTER		
IC108	XR684A00	IC	TC74HC4040F	B. COUNTER		03
* IC109	XZ112A00	IC	74HC164DT	SHIFT REGISTANT		
* IC110	XZ113A00	IC	74HC175DT	D-FF		
* IC111	XZ162A00	IC	NJM78M05DLA	5V REGULATOR		
IC112	XJ607A00	IC	NJM7805FA	5V REGULATOR		02
IC113	XD853A00	IC	NJM7815FA	REGULATOR		03
IC114	XD854A00	IC	NJM7915FA	REGULATOR		03
* JK1	V6177500	DIN Connector	5P3 HDC-052A			
* JK2	V6178000	Pin Connector	HSP-241V1B			
* JK3	V6177700	Phone Jack	HTJ-064-12D			
* JK101	V3633400	Phone Jack	HTJ-064-12I			
* JK102	V6177700	Phone Jack	HTJ-064-12D			
* JK103	V3633400	Phone Jack	HTJ-064-12I			
* JK104	V3633400	Phone Jack	HTJ-064-12I			
* JK105	V6177200	Connector	HTJ-020-05A			
J1	--	Jumper Wire	0.55	(VA07890)		
-3	--	Jumper Wire	0.55	(VA07890)		
J101	--	Jumper Wire	0.55	(VA07890)		
-108	--	Jumper Wire	0.55	(VA07890)		
K1	VB966900	Style Pin	IMSA-6024			01
K101	VV075700	Terminal Plate				01
L1	VS740100	Chip Inductance	BLM21B751S 2125			03
-6	VS740100	Chip Inductance	BLM21B751S 2125			03
L7	VC548200	Pulse Transformer	TC-1019-06 7MM			04
* L8	V6178900	Noise Filter	ZJYS51R5-2PT			
L101	VG238200	LC Filter	PLT2003C			04
* RA1	RH047100	Resistor Array	10KX4			
* -18	RH047100	Resistor Array	10KX4			
* R1	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R2	RG005100	Carbon Resistor (chip)	100 0.1 J			
* -8	RG005100	Carbon Resistor (chip)	100 0.1 J			
* R9	RG005270	Carbon Resistor (chip)	270 0.1 J			
* R10	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R11	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R12	RG006100	Carbon Resistor (chip)	1.0K 0.1 J			
* R13	RG005220	Carbon Resistor (chip)	220 0.1 J			
* R14	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* -16	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R17	RG006220	Carbon Resistor (chip)	2.2K 0.1 J			
* R18	RG005220	Carbon Resistor (chip)	220 0.1 J			
* R19	RG005220	Carbon Resistor (chip)	220 0.1 J			
* R20	RG006100	Carbon Resistor (chip)	1.0K 0.1 J			
* R21	RG006100	Carbon Resistor (chip)	1.0K 0.1 J			
* R22	RG009100	Carbon Resistor (chip)	1.0M 0.1 J			
* R23	RG004470	Carbon Resistor (chip)	47 0.1 J			
* R24	RG004750	Carbon Resistor (chip)	75 0.1 J			
* R26	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R27	RG000000	Carbon Resistor (chip)	0 0.1 J			
* R101	RG007100	Carbon Resistor (chip)	10K 0.1 J			
* R102	RG009100	Carbon Resistor (chip)	1.0M 0.1 J			
* R103	RG006470	Carbon Resistor (chip)	4.7K 0.1 J			
* R104	RG006470	Carbon Resistor (chip)	4.7K 0.1 J			

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REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
* R105	RG007220	Carbon Resistor (chip)	22K 0.1 J		
R106	RG007120	Carbon Resistor (chip)	12K 0.1 J		
* R108	RG107100	Carbon Resistor (chip)	10K 0.1 F		
* R109	RG107220	Carbon Resistor (chip)	22K 0.1 F		
* R110	RG106330	Carbon Resistor (chip)	3.3K 0.1 F		
* R111	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R112	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R113	RG006560	Carbon Resistor (chip)	5.6K 0.1 J		
* R114	RG006560	Carbon Resistor (chip)	5.6K 0.1 J		
* R115	RG005470	Carbon Resistor (chip)	470 0.1 J		
* R116	RG005470	Carbon Resistor (chip)	470 0.1 J		
* R117	RG107100	Carbon Resistor (chip)	10K 0.1 F		
* R118	RG105470	Carbon Resistor (chip)	470 0.1 F		
* R119	RG106270	Carbon Resistor (chip)	2.7K 0.1 F		
* R120	RG006560	Carbon Resistor (chip)	5.6K 0.1 J		
* R121	RG006560	Carbon Resistor (chip)	5.6K 0.1 J		
* R122	RG005470	Carbon Resistor (chip)	470 0.1 J		
* R123	RG005470	Carbon Resistor (chip)	470 0.1 J		
* R124	RG006470	Carbon Resistor (chip)	4.7K 0.1 J		
* R125	RG004330	Carbon Resistor (chip)	33 0.1 J		
* R126	RG006470	Carbon Resistor (chip)	4.7K 0.1 J		
* R127	RG203470	Carbon Resistor (chip)	4.7 1/4 J		
* R128	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R129	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R130	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R131	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R132	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R133	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R134	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R135	RG204470	Carbon Resistor (chip)	47 1/4 J		
* R136	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R137	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R138	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R139	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R140	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R141	RG204470	Carbon Resistor (chip)	47 1/4 J		
* R142	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R143	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R144	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R145	RG006220	Carbon Resistor (chip)	2.2K 0.1 J		
* R146	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R147	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R148	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R149	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R150	RG006220	Carbon Resistor (chip)	2.2K 0.1 J		
* R151	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R152	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R153	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R154	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R155	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R156	RG007220	Carbon Resistor (chip)	22K 0.1 J		
* R157	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R158	RG006220	Carbon Resistor (chip)	2.2K 0.1 J		
* R159	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R160	RG008100	Carbon Resistor (chip)	100K 0.1 J		
* R161	RG006470	Carbon Resistor (chip)	4.7K 0.1 J		
* R162	RG006470	Carbon Resistor (chip)	4.7K 0.1 J		
* R163	RG009100	Carbon Resistor (chip)	1.0M 0.1 J		
* R164	RG005680	Carbon Resistor (chip)	680 0.1 J		
* R165	RG005220	Carbon Resistor (chip)	220 0.1 J		
* R166	RG205100	Carbon Resistor (chip)	100 1/4 J		
* R167	RG205100	Carbon Resistor (chip)	100 1/4 J		
SW101	V3633600	Push Switch	SPPJ22SE01		02
SW102	V4577800	Push Switch	SDKLA10200		
TR1	VV556400	Transistor	2SC2412K Q,R,S		01
TR2	VV556400	Transistor	2SC2412K Q,R,S		01
TR101	VD303700	Transistor	2SC3326 A,B TE85R		01
-106	VD303700	Transistor	2SC3326 A,B TE85R		01
TR107	VV556400	Transistor	2SC2412K Q,R,S		01
TR108	VJ927200	Transistor	2SA1162 O,Y		01

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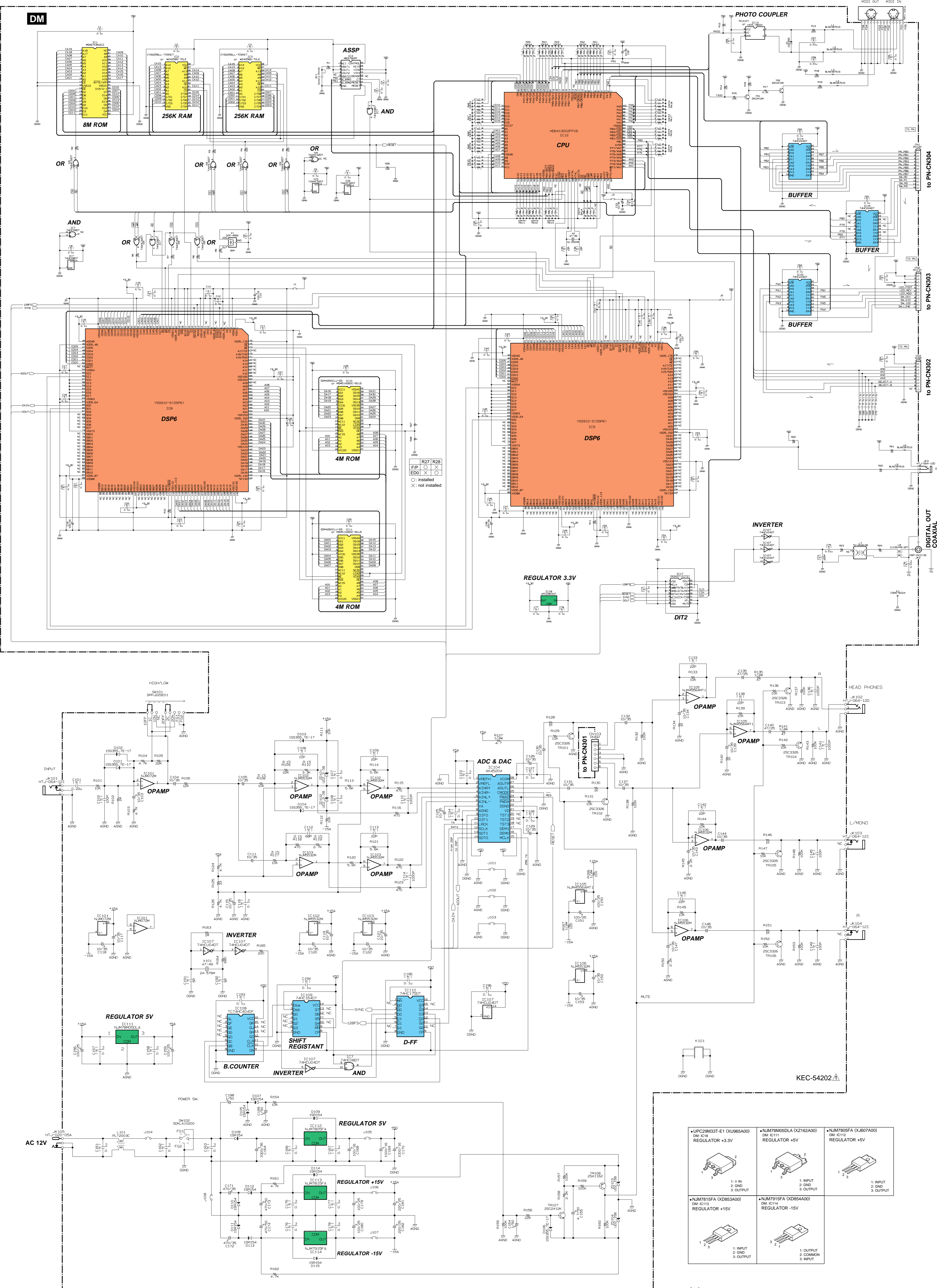
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REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
X1	VU682100	Quartz Crystal Unit	30.00M HZ DOC-49S2		06
X2	VE463500	Quartz Crystal Unit	AT-49/12.000MHZ		03
X101	VN277000	Quartz Crystal Unit	24.576M AF3817CQA		03
* ZD101	VU170900	Zener Diode	UDZ 2.0BTE-17 2.0V		
* ZD102	VU170900	Zener Diode	UDZ 2.0BTE-17 2.0V		
* ZD103	VU173000	Zener Diode	UDZ 15B TE-17 15V		
* ZD104	VU173000	Zener Diode	UDZ 15B TE-17 15V		
	--	Circuit Board	PN	(V587990)	
* V6220800		Spacer			8
* V6624600		LED Holder	LED3-1A		4
	--	Wire Assembly	C & #24 2P L60	(V654510)	4
* V6124500		Push Switch	ADS-003-A10		4
* C301	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
* -315	UX145100	Electrolytic Cap.(chip)	0.1000 25V Z		
CN301	VV068000	Connector Base Post	M2426XXR 6P SE		01
CN302	VV068300	Connector Base Post	M2426XXR 9P SE		01
* CN303	VV068500	Connector Base Post	M2426XXR 11P SE		
CN304	VV068600	Connector Base Post	M2426XXR 12P SE		01
CN305	VV068800	Connector Base Post	M2426XXR 14P SE		01
* CN306	VV067400	Connector Base Post	M2426XX 14P TE		
CN307	VV066200	Connector Base Post	M2426XX 2P TE		01
CN308	VV066200	Connector Base Post	M2426XX 2P TE		01
-310	VV066200	Connector Base Post	M2426XX 2P TE		01
D301	VT332900	Diode	1SS355 TE-17		01
-321	VT332900	Diode	1SS355 TE-17		01
* IC301	XZ102A00	IC	74HC374DT	D-FF	
* -307	XZ102A00	IC	74HC374DT	D-FF	
* IC308	XZ101A00	IC	74HC4052DT	MULTIPLEXER	
* IC309	XZ101A00	IC	74HC4052DT	MULTIPLEXER	
K301	VB966900	Style Pin	IMSA-6024		01
* LD301	V5801000	LED Display	LTC-5836E		
LD302	VV620800	LED Red	LT311G-41-C13		01
-304	VV620800	LED Red	LT311G-41-C13		01
LD306	VV620800	LED Red	LT311G-41-C13		01
L301	VS740100	Chip Inductance	BLM21B751S 2125		03
-312	VS740100	Chip Inductance	BLM21B751S 2125		03
* R301	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* -304	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R305	RG005560	Carbon Resistor (chip)	560 0.1 J		
* -321	RG005560	Carbon Resistor (chip)	560 0.1 J		
* R322	RG005820	Carbon Resistor (chip)	820 0.1 J		
* -345	RG005820	Carbon Resistor (chip)	820 0.1 J		
* R346	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* -360	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R361	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* -367	RG006100	Carbon Resistor (chip)	1.0K 0.1 J		
* R368	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R369	RG007100	Carbon Resistor (chip)	10K 0.1 J		
* R370	RG005560	Carbon Resistor (chip)	560 0.1 J		
* -374	RG005560	Carbon Resistor (chip)	560 0.1 J		
* R376	RG000000	Carbon Resistor (chip)	0 0.1 J		
SW301	VK701100	Push Switch	SKHQFN GREEN		02
-317	VK701100	Push Switch	SKHQFN GREEN		02
SW318	V3633800	Rotary Switch	SRBV18 1C-8S		07
* VR301	V5264800	Rotary Variable Resistor	RK09L1140 10KB		
* -313	V5264800	Rotary Variable Resistor	RK09L1140 10KB		
* VR314	V5265100	Rotary Variable Resistor	RK09L12D0 20KA X2		

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<ul style="list-style-type: none"> • UPC2M33T-E1 (XU965A00) REGULATOR +3.3V 	<ul style="list-style-type: none"> • NJM78M05DLA (XZ162A00) REGULATOR +5V 	<ul style="list-style-type: none"> • NJM7805FA (XJ607A00) REGULATOR +5V
<ul style="list-style-type: none"> • NJM7815FA (XD853A00) REGULATOR +15V 	<ul style="list-style-type: none"> • NJM7915FA (XD854A00) REGULATOR -15V 	

(τ) : Ceramic Capacitor
 Note : See parts list for details of circuit board component parts.

