ELECTRONIC PIANO

P-60/P-60S

SERVICE MANUAL

P-60

P-60S

• OPTION
L-60W KEYBOARD STAND

■ CONTENTS

PK 001698

YAMAHA
HAMAMATSU, JAPAN

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.

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.

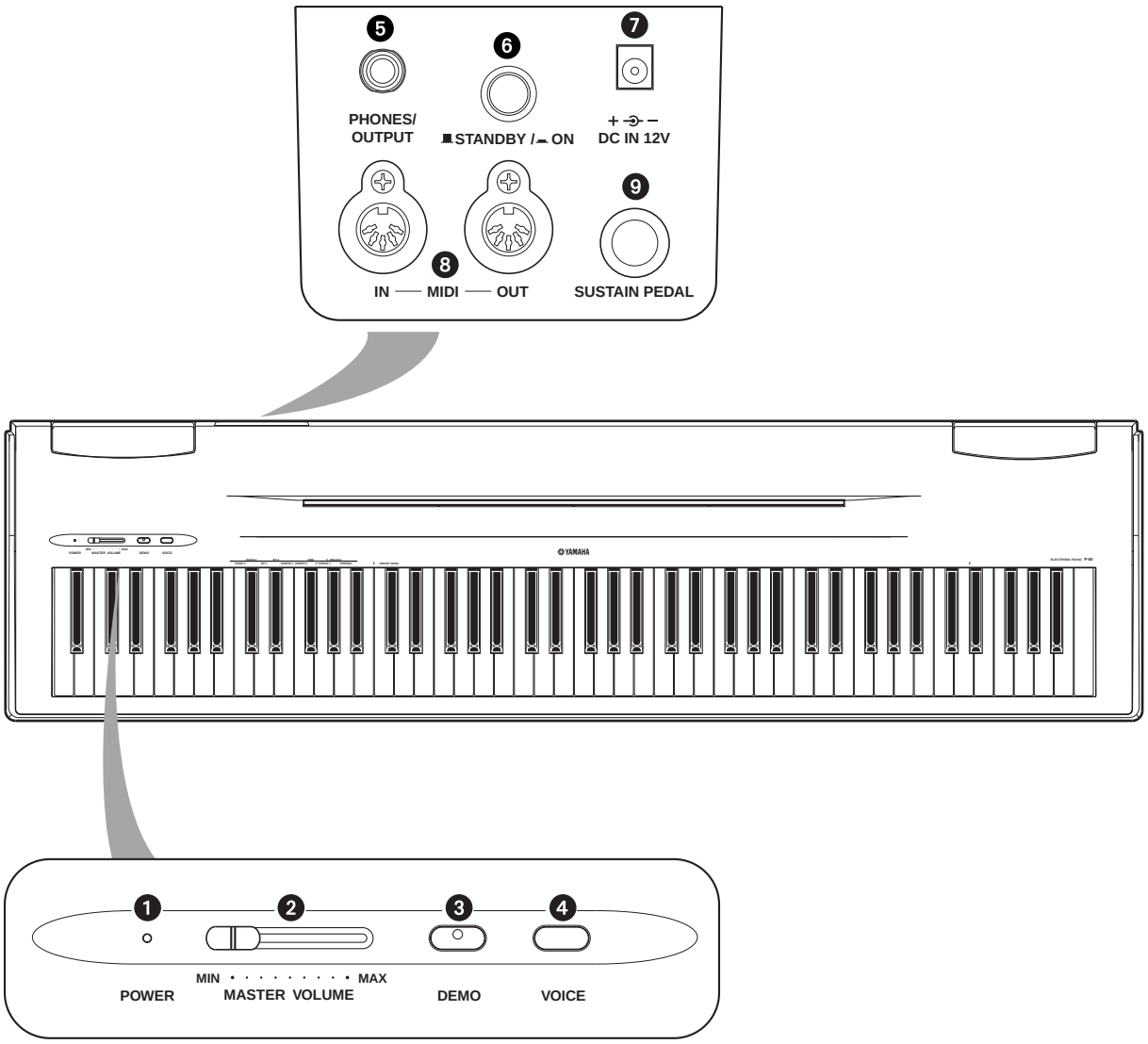
■ WARNING

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

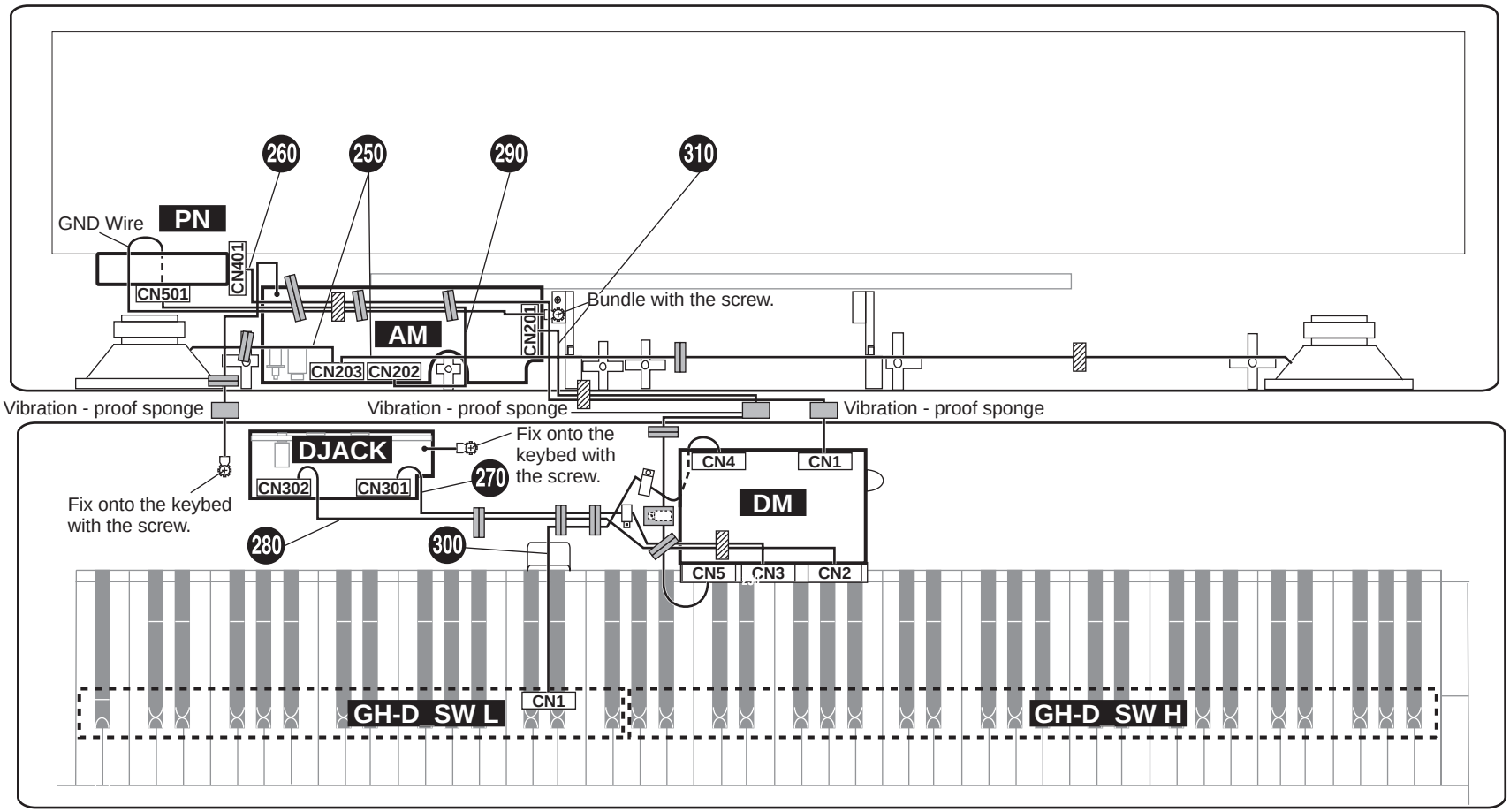
■ SPECIFICATIONS

Keyboard	88 keys (A-1 - C7)
Sound Source	AWM Dynamic Stereo Sampling
Polyphony	32 Notes Max.
Voice Selection	10
Effect	Reverb
Volume	Master Volume
Controls	Dual, Transpose
Pedal	Sustain
Demo Songs	10 voice Demo Songs, 50 preset Songs
Jacks/Connectors	PHONE/OUTPUT, DC IN 12V, MIDI (IN/OUT), SUSTAIN PEDAL
Main Amplifiers	8W x 2
Speakers	Oval (12cm x 6cm) x 2
Power Supply	Yamaha PA-5D power adaptor (or an equivalent recommended by Yamaha)
Dimensions (W x D x H)	1342mm x 354mm x 138mm [52-13/16" x 13-15/16" x 5-7/16"]
(with music rest)	(1342mm x 354mm x 329mm [52-13/16" x 13-15/16" x 12-15/16"])
Weight	16kg (36lbs., 4oz)
Accessories	Owner’s Manual, Quick Operation Guide, Sustain Pedal, Music Rest, Yamaha PA-5D power adaptor (included or optional depending on locale)

■ PANEL LAYOUT



❶ [POWER] lamp
❷ [MASTER VOLUME] knob
❸ [DEMO] button
❹ [VOICE] button
❺ [PHONES/OUTPUT] jack
❻ [STANDBY/ON] switch
❼ [DC IN 12 V] jack
❽ [MIDI IN, OUT] jack
❾ [SUSTAIN PEDAL] jack



: Filament Tape

: Cord Binder

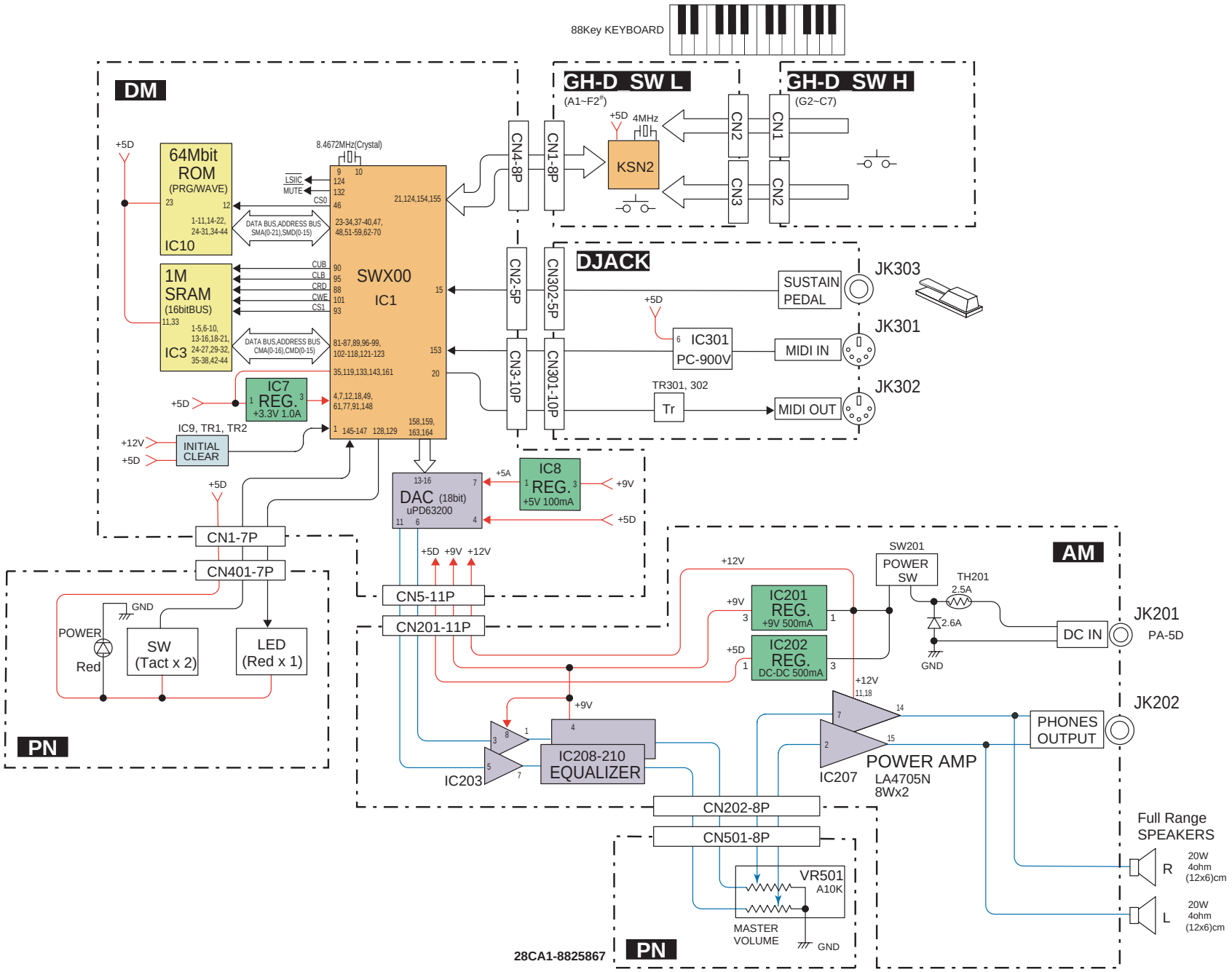
: Data Line Filter

: Wiring Direction

Location	Part Number	Part Name	Connection	
250	WA12310	Connector Assembly SP	AM-CN203	SP Lch White/Black SP Rch Red/Black
260	WA77900	Connector Assembly PN	PN-CN401	DM-CN001
270	WA77910	Connector Assembly DJACK	DJACK-CN301	DM-CN003
280	WB10470	Connector Assembly JACK2	DJACK-CN302	DM-CN002
290	V991670	Connector Assembly VOL	AM-CN202	PN-CN501
300	WA12360	Connector Assembly MKS	GHD_SW L-CN001	DM-CN004
310	WA12370	Connector Assembly AM	AM-CN201	DM-CN005

2NC-V9982900-2/2 ⚠4

■ BLOCK DIAGRAM



■ DISASSEMBLY PROCEDURE

* If you remove filament tapes for disassembling, be sure to apply them on the same condition as before at the time of reassembling.

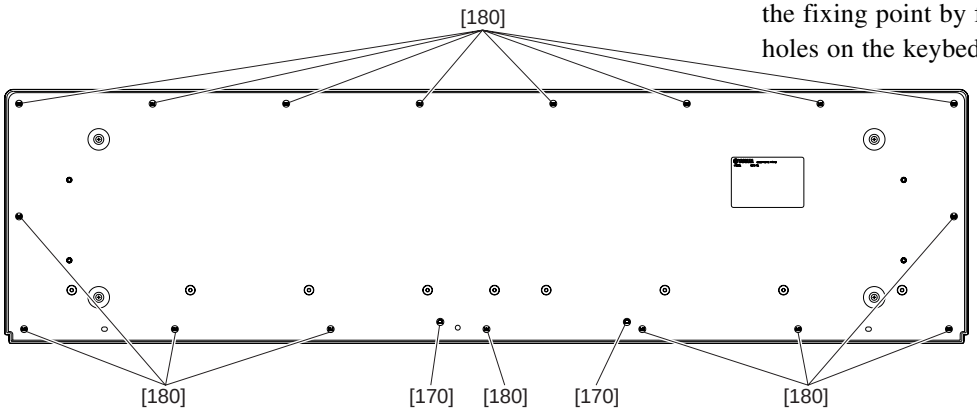
1. Upper Case Assembly (Time required: about 4 min)

1-1 Lay the unit upside down and remove the two (2) screws marked [170] and the seventeen (17) screws marked [180]. (Fig.1)

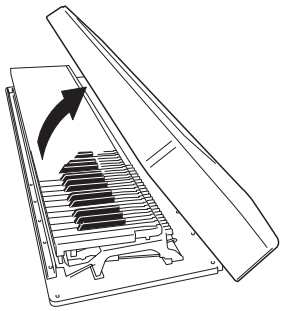
1-2 Lay the unit right side up and open the upper case assembly. (Fig.2)

1-3 Remove the screw marked [150a]. The upper case assembly can then be removed. (Fig.3)

* When reinstalling the upper case assembly, identify the fixing point by fitting the three dowels into holes on the keybed. (Fig.4)

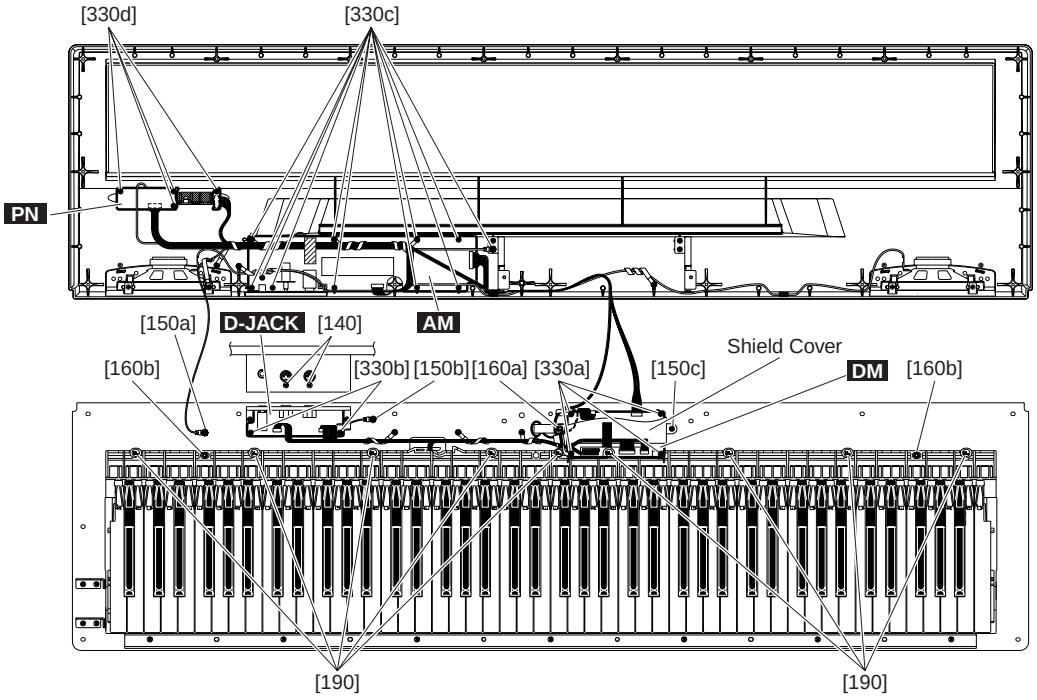


(Fig. 1)



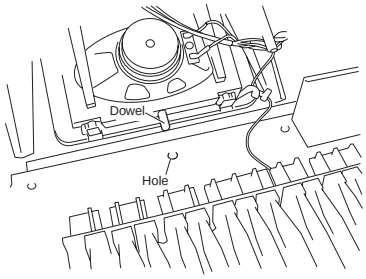
(Fig. 2)

[170]: Truss Head Screw 4.0X16 MFZN2BL (V6207400)
[180]: Truss Head Tapping Screw-B 4X25 MFZN2BL (VV685800)



(Fig. 3)

[140]: Bind Head Tapping Screw-B 3.0X8 MFZN2BL (EP600190)
[150]: Bind Head Tapping Screw-1 3.5X12 MFZN2Y (EP030240)
[160]: Bind Head Tapping Screw-1 4.0X14 MFZN2Y (EP040230)
[190]: Pan Head Screw 5.0X25 MFZN2YPW (VV040700)
[330]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)



(Fig. 4)

2. DM Circuit Board (Time required: about 5 min)

2-1 Remove the upper case assembly. (See procedure 1.)

2-2 Remove the four (4) screws marked [330a]. The shield cover and the DM circuit board can then be removed. (Fig.3)

3. D-JACK Circuit Board (Time required: about 5 min)

3-1 Remove the upper case assembly. (See procedure 1.)

3-2 Remove the two (2) screws marked [140], the screw marked [150b] and the two (2) screws marked [330b]. The D-JACK circuit board can then be removed. (Fig.3)

4. AM Circuit Board (Time required: about 5 min)

4-1 Remove the upper case assembly. (See procedure 1.)

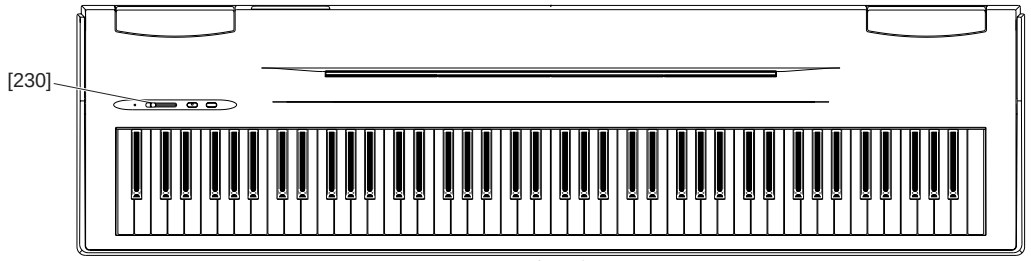
4-2 Remove the eleven (11) screws marked [330c]. The AM circuit board can then be removed. (Fig.3)

5. PN Circuit Board (Time required: about 5 min)

5-1 Remove the upper case assembly. (See procedure 1.)

5-2 Remove the four (4) screws marked [330d]. (Fig.3)

5-3 Remove the slide knob marked [230]. The PN circuit board can then be removed. (Fig.5)



(Fig. 5)

P-60 [230]: Slide Knob (V8085100)
P-60S [230]: Slide Knob (V8083100)

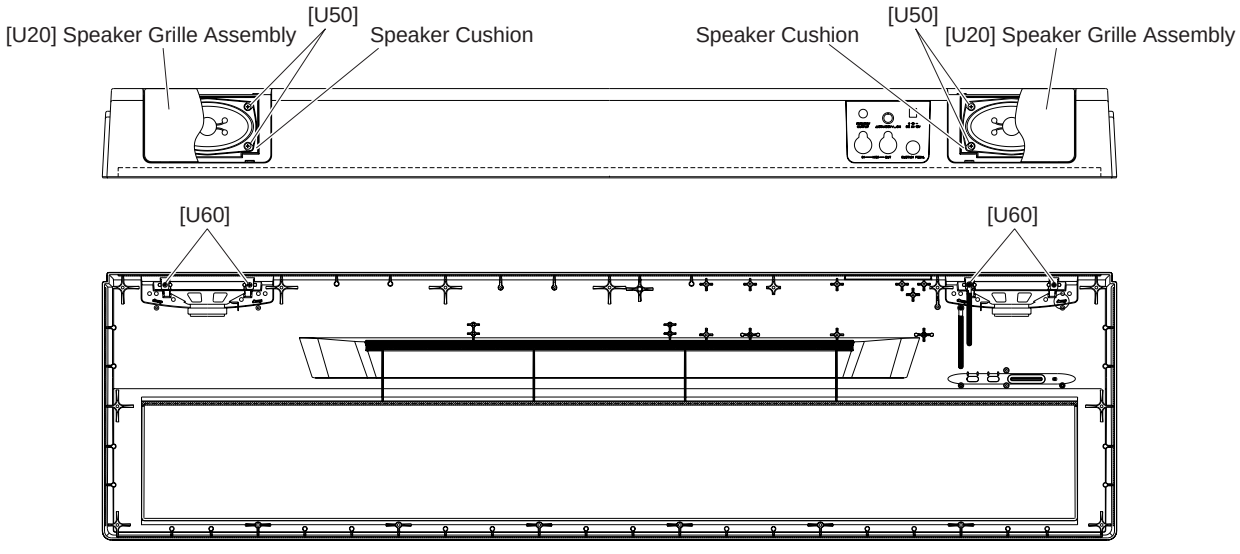
6. Speaker (Time required: about 6 min)

* Both speakers can be removed in the same procedure.

6-1 Remove the upper case assembly. (See procedure 1.)

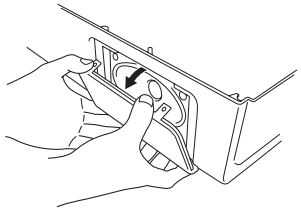
6-2 Remove the two (2) screws marked [U60] to remove the speaker grille assembly. (Fig.6, Fig.7)

6-3 Remove the four (4) screws marked [U50]. The

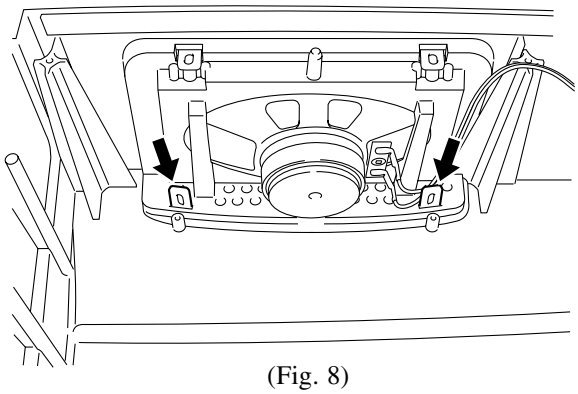


(Fig. 6)

P-60 [U20]: Speaker Grille Assembly (WA297500)
P-60S [U20]: Speaker Grille Assembly (WA297600)
[U50]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (EG340190)
[U60]: Bind Head Tapping Screw-B 3.0X8 MFZN2Y (EP600250)



(Fig. 7)



(Fig. 8)

speaker can then be removed. (Fig.6)

* After reinstalling the speaker grille assembly, twist the sections indicated by arrows to prevent it from being removed easily. (Fig.8)

* When removing the speakers, the speaker cushions are removed together with them.
Make sure to install the speaker cushions when reinstalling the speakers.

7. Keyboard Asssembly (Time required: about 7 min)

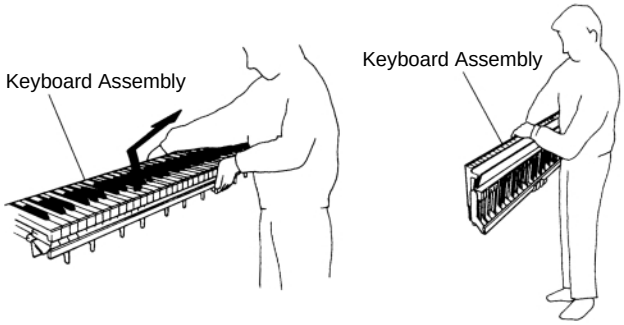
7-1 Remove the upper case assembly. (See procedure 1.)

7-2 Remove the screw marked [150c] and the screw marked [160a] to remove the DM holder assembly. (Fig.3)

7-3 Remove the nine (9) screws marked [190] and the two (2) screws marked [160b]. (Fig.3)

7-4 Slide the keyboard assembly backward, hold the central area of it and raise it upright to remove. (Fig.9)

* It may twist and damage the frame to hold both side ends of keyboard assembly or to carry it in a horizantal state.



(Fig. 9)

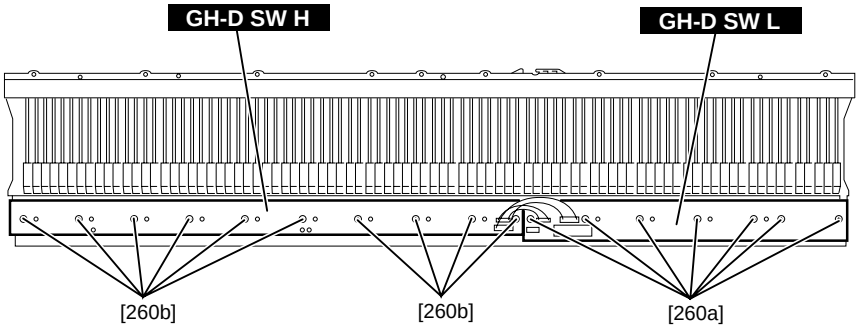
8. Disassembling the GHD Keyboard

* After inserting a round stick (Rod: TX000670) between the frame and keys, remove the circuit boards. (Fig.12)

8-1 Remove the keyboard assembly. (See Procedure 7)

8-2 GH-D_SW L circuit board.
Remove the seven (7) screws marked [260a]. The GH-D_SW L circuit board can then be removed. (Fig.10)

8-3 GH-D_SW H circuit board.
Remove the ten (10) screws marked [260b]. The GH-D_SW H circuit board can then be removed. (Fig.10)



(Fig. 10)

[260]: Bind Head Tapping Screw-P 3.0X10 MFZN2 (VT413400)

* Keys can be removed without removing the circuit boards.

8-4 White Key

Insert a thin plate between the white keys, near the triangle mark around the fulcrum of the key, and press down the stopper marked [A] to remove the key. (Fig.11, 12)

* Take care not to damage the key spring when removing a key.

* A black key can be removed after both adjacent white keys have been removed.

8-5 Hammer, White Key

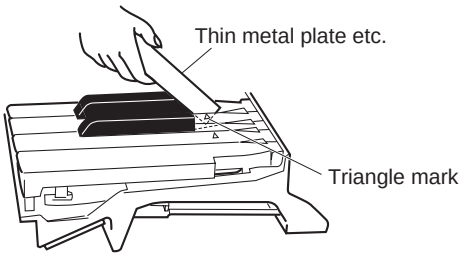
After a key has been removed, push the key spring down once to take it out of the hook. (Fig.13)

Place the GH keyboard assembly upside down and peel away the stopper L88W. The hammer of the white key can then be removed. (Fig.14)

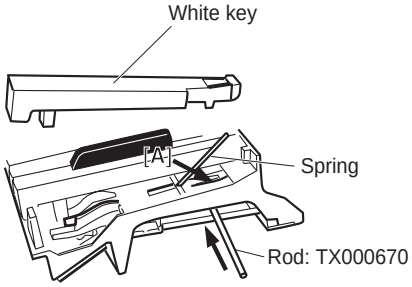
* The hammer of a black key can be removed in the same manner.

8-6 Rubber Contact

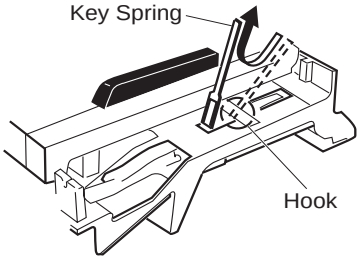
Remove the GH-D_SW L (or H) circuit board to remove the corresponding rubber contact. (photo1, 2)



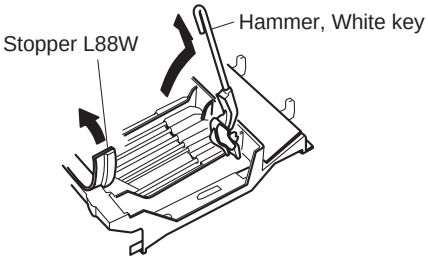
(Fig. 11)



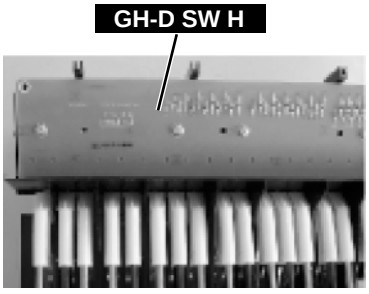
(Fig. 12)



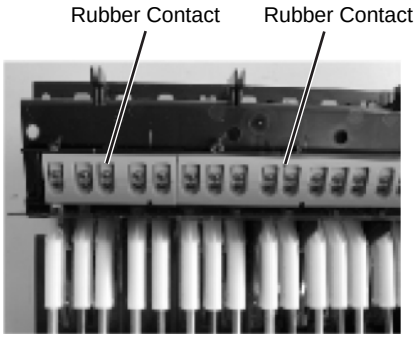
(Fig. 13)



(Fig. 14)



(photo 1)



(photo 2)

9. Assembling the GHD Keyboard

9-1 Hammer of White (Black) Key
Place the keyboard assembly upside down, insert a hammer assembly into the frame, and put the stopper L88W on. (Fig.15)

* There are four kinds of hammers that differ in weight.

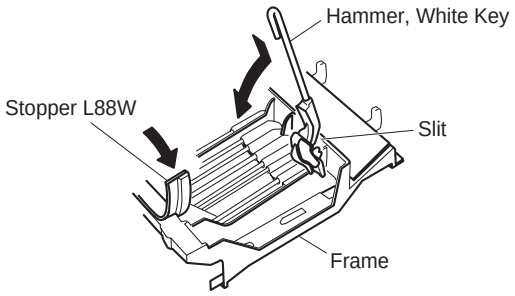
9-2 Key Spring
Place the keyboard assembly right side up, and fix a key spring to the frame by setting it at the slit and pushing it down once. (Fig.16)

* Be careful of the direction of the spring.

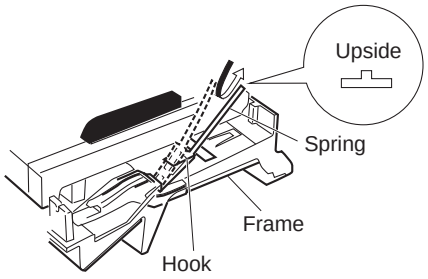
9-3 White (Black) Key
After a key has been fit to part [F] and the key guide, make sure that the spring is fixed to the key. Then press part [E] of the key down. (Fig.17)

9-4 GH-D_SW L circuit board.
Tighten the seven [7] screws marked [260a] to fix the GH-D_SW L circuit board. (Fig.10)

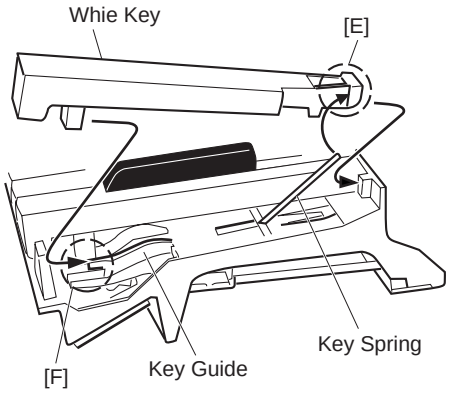
9-5 GH-D_SW H circuit board.
Tighten the ten [10] screws marked [260b] to fix the GH-D_SW H circuit board. Set the slits of the rubber contact at the marks on the frame. (Fig.10)



(Fig. 15)



(Fig. 16)



(Fig. 17)

■ LSI PIN DESCRIPTION

● HG73C205AFD (XU947C00) SWX00B TONE GENERATOR

DM : IC001

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	ICN	I	Initial clear	85	CMA3	O	Program address bus
2	RFCLKI	I	PLL Clock	86	CMA8	O	
3	TM2	I	PLL Control	87	CMA2	O	
4	AVDD_PLL		Power supply	88	CRD	O	read signal
5	AVSS_PLL		Ground	89	CMA1	O	Program address bus
6	MODE0	I	SWX dual mode	90	CUB	O	high byte effective signal
7	VCC7		Power supply	91	VCC91		Power supply
8	GND8		Ground	92	GHND92		Ground
9	XIN	I	crystal oscillator	93	CS1	O	CS signal
10	XOUT	O	crystal oscillator	94	CMA0	O	Program address bus
11	MODE1	I	SWX separate mode	95	CLB	O	low byte effective signal
12	TEST0	I	TEST pin	96	CMA12	O	Program address bus
13	TESTON	I	TEST pin	97	CMA11	O	
14	AN0-P40	I	A/D converter	98	CMA10	O	
15	AN1-P41	I		99	CMA9	O	
16	AN2-P42	I		100	GND100		Ground
17	AN3-P43	I		101	CWE	O	write signal
18	AVDD_AN		Power supply	102	CMA16	O	Program address bus
19	AVSS_AN		Ground	103	CMA15	O	
20	TXD0	O	for MIDI or TO-HOST	104	CMA14	O	
21	TXD1	O	for MIDI	105	CMA13	O	
22	EXCLK	I	Crystal oscillator	106	CMD8	I/O	Program memory Data bus
23	SMD11	I/O	Wave memory data bus	107	CMD7	I/O	
24	SMD4	I/O		108	CMD9	I/O	
25	SMD3	I/O		109	CMD6	I/O	
26	SMD12	I/O		110	CMD10	I/O	
27	SMD10	I/O		111	CMD5	I/O	
28	SMD5	I/O		112	CMD11	I/O	
29	SMD2	I/O		113	CMD4	I/O	
30	SMD13	I/O		114	CMD12	I/O	
31	SMD9	I/O		115	CMD3	I/O	
32	SMD6	I/O		116	CMD13	I/O	
33	SMD1	I/O		117	CMD2	I/O	
34	SMD14	I/O		118	CMD14	I/O	
35	VCC35		Power supply	119	VCC119		Power supply
36	GND36		Ground	120	GND115		Ground
37	SMD8	I/O	Wave memory data bus	121	CMD1	I/O	Program memory Data bus
38	SMD7	I/O		122	CMD15	I/O	
39	SMD0	I/O		123	CMD0	I/O	
40	SMD15	I/O		124	CMA21	O	Program address bus
41	SOE	O	read signal	125	PDT15	I/O	SWX access data bus
42	SWE	O	write signal	126	PDT14	I/O	
43	SRAS	O	RAS signal	127	PDT13	I/O	
44	SCAS	O	CAS signal	128	PDT12	I/O	
45	REFRESH	O	REFRESH signal	129	PDT11	I/O	
46	CS0	O	CS signal	130	PDT10	I/O	
47	SMA0	O	Memory address bus	131	PDT9	I/O	
48	SMA16	O		132	PDT8	I/O	
49	VCC49		Power supply	133	VCC133		Power supply
50	GND50		Ground	134	GND134		Ground
51	SMA1	O	Memory address bus	135	PDT7	I/O	SWX access data bus
52	SMA15	O		136	PDT6	I/O	
53	SMA2	O		137	PDT5	I/O	
54	SMA14	O		138	PDT4	I/O	
55	SMA3	O		139	PDT3	I/O	
56	SMA13	O		140	PDT2	I/O	
57	SMA4	O		141	PDT1	I/O	
58	SMA12	O		142	PDT0	I/O	
59	SMA5	O		143	VCA143		Power supply
60	GND60		Ground	144	GND144		Ground
61	VCC61		Power supply	145	PAD2	I	SWX access address bus
62	SMA11	O	Memory address bus	146	PAD1	I	
63	SMA6	O		147	PAD0	I	
64	SMA10	O		148	VCC148		Power supply
65	SMA7	O		149	GND149		Ground
66	SMA9	O		150	PCS	I	Chip select
67	SMA17	O		151	PWR	I	write enable
68	SMA8	O		152	PRD	I	read enable
69	SMA18	O		153	RXD0	I	for Midi or TO-HOST
70	SMA19	O		154	RXD1	I	for Midi or Key scan
71	SMA20	O		155	SCLKI	I	EXT Clock
72	SMA21	O		156	ADIN	I	A/D converter
73	SMA22	O		157	ADLR	O	A/D converter LR clock
74	SMA23	O		158	DO0	O	DAC
75	CMA20	O	Program address bus	159	DO1	O	
76	CMA19	O		160	SYSCLK	O	1/2 clock
77	VCC77		Power supply	161	VCC161		Power supply
78	GND78	O	Ground	162	GND162		Ground
79	CMA18	O	Program address bus	163	WCLK	O	for DAC LR clock
80	CMA17	O		164	QCLK	O	1/12 clock
81	CMA5	O		165	BCLK	O	IIS-DAC clock
82	CMA6	O		166	SYI	I	Synch signal
83	CMA4	O		167	IRQ0	I	Interrupt request
84	CMA7	O		168	NMI	I	

● μ**PD63200GS-E1** (XP867A00) **DAC** (Digital to Analog Converter) DM: IC004

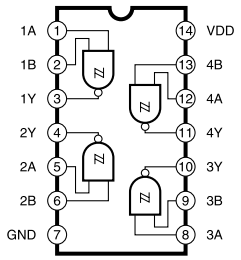
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	4/8F	I	4/8 Fs selection	9	R. REF		Channel R voltage reference
2	D. GND		Digital ground	10	L. REF		Channel L voltage reference
3	16 BIT	I	16 bit/18 bit selection	11	L. OUT	O	Channel L output
4	D. VDD		Digital power supply	12	A. GND		Analog ground
5	A. GND		Analog ground	13	WDCK	I	Word clock
6	R. OUT	O	Channel R output	14	RSI	I	Channel R series input
7	A. VDD		Analog power supply	15	SI/LSI	I	Series input/Channel L series input
8	A. VDD			16	CLK	I	Clock

● **YMZ702-D** (XR632A00) **KSN2** (Key Scanner) GH-D_SW L: KSN2

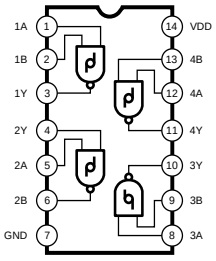
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	BK5	O	Key block (open drein)	21	GND		Ground
2	BK4	O		22	VDD		Power supply
3	BK3	O		23	SO	O	Serial data
4	BK2	O		24	ACK	I	Acknowledge/mode select
5	BK1	O		25	XCK	I	Clock for serial data
6	BK0	O		26	/IC	I	Initial clear
7	MK15	I	First make contact	27	TST1	I	Test mode
8	MK14	I		28	TST2	I	(L,L: normal mode, others: test)
9	MK13	I		29	XCKINH	I	Inhibit of serial clock
10	MK12	I		30	BK14	O	Key block (open drein)
11	MK11	I		31	BK13	O	
12	MK10	I		32	BK12	O	
13	MK05	I	Second make contact	33	BK11	O	
14	MK04	I		34	BK10	O	
15	MK03	I		35	BK9	O	
16	MK02	I		36	BK8	O	
17	MK01	I		37	BK7	O	
18	MK00	I		38	BK6	O	
19	XIN	O	Crystal osc. input (4 MHz)	39	GND		Ground
20	XOUT	I	Crystal osc. output (4 MHz)	40	VDD		Power supply

■ IC BLOCK DIAGRAM

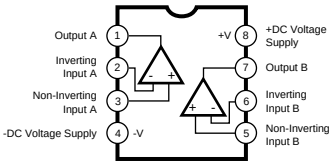
● **MM74HC132** (XY352A00)
Quad 2-Input NAND Schmitt trigger
DM: IC009



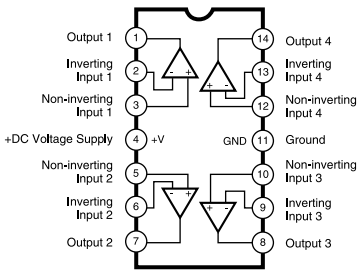
● **SN74HC132NSR** (XW792A00)
Quad 2 Input NAND
DM: IC009



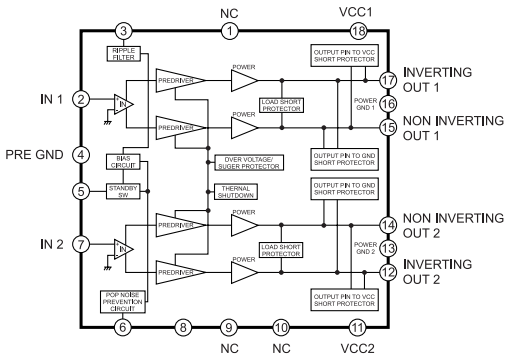
● μ**PC4570G2** (XF291A00)
Dual Operational Amplifier
AM: IC203



● μ **PC4574G2** (XE518A00)
Quad Operational Amplifier
AM: IC208, 209, 210



● **LA4705NA** (XQ619A00)
Power Amplifier AM: IC207

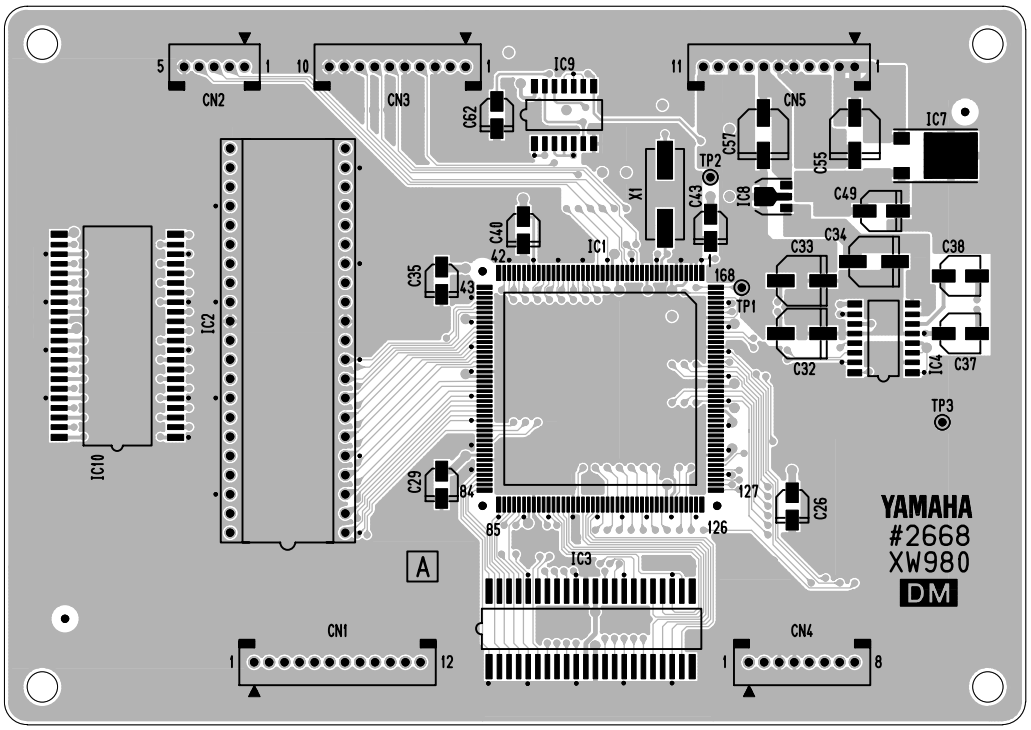


■ CIRCUIT BOARDS

CONTENTS

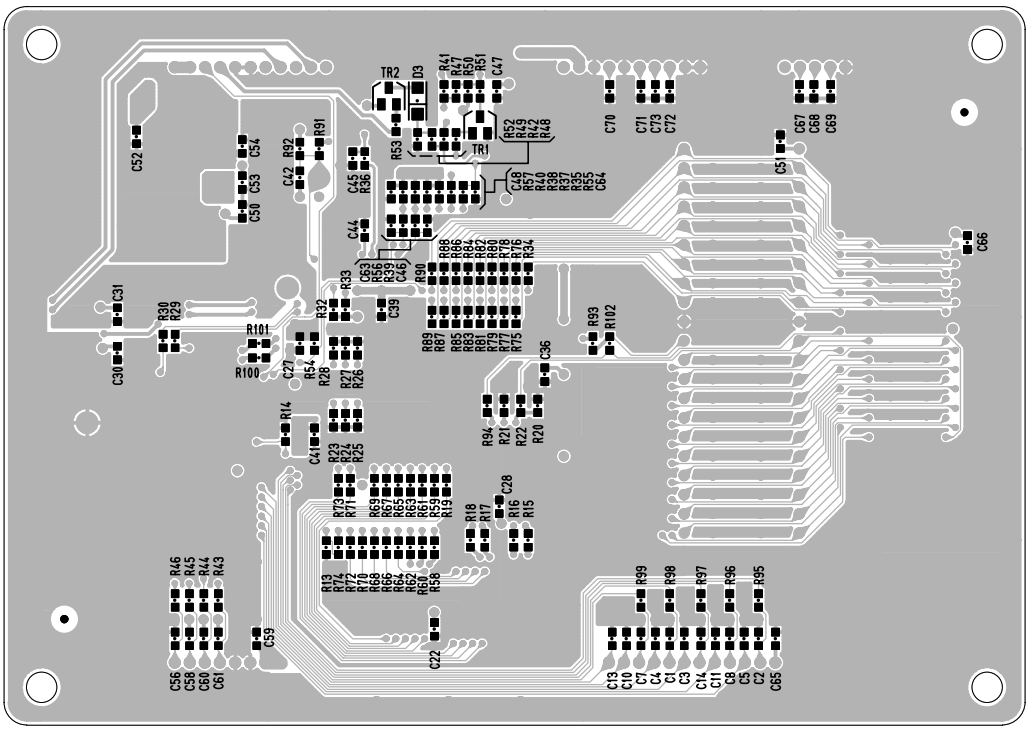
• DM Circuit Board

to DJACK CN302 to DJACK CN301 to AM CN201



to PN CN401 to GHD_SW L CN001

Component Side

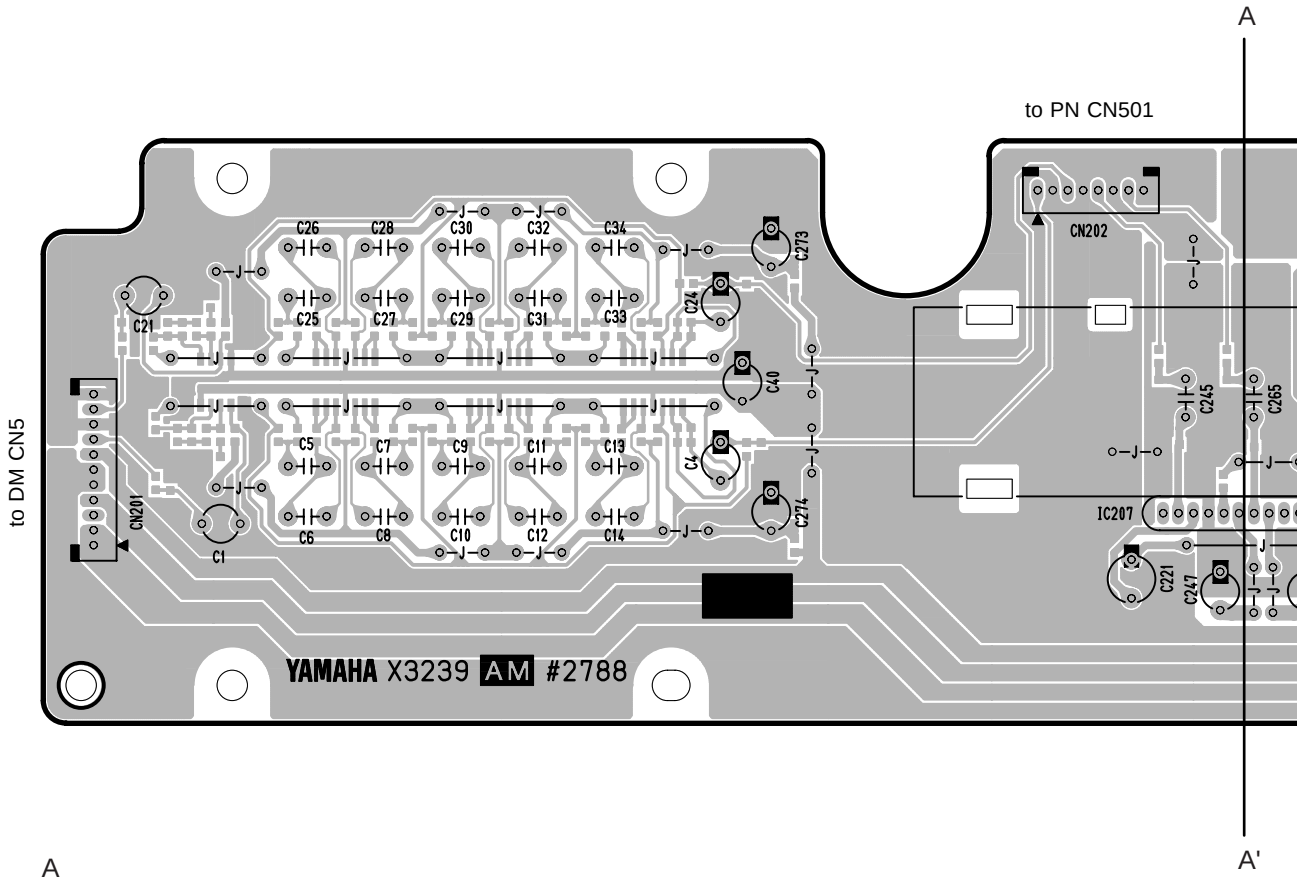


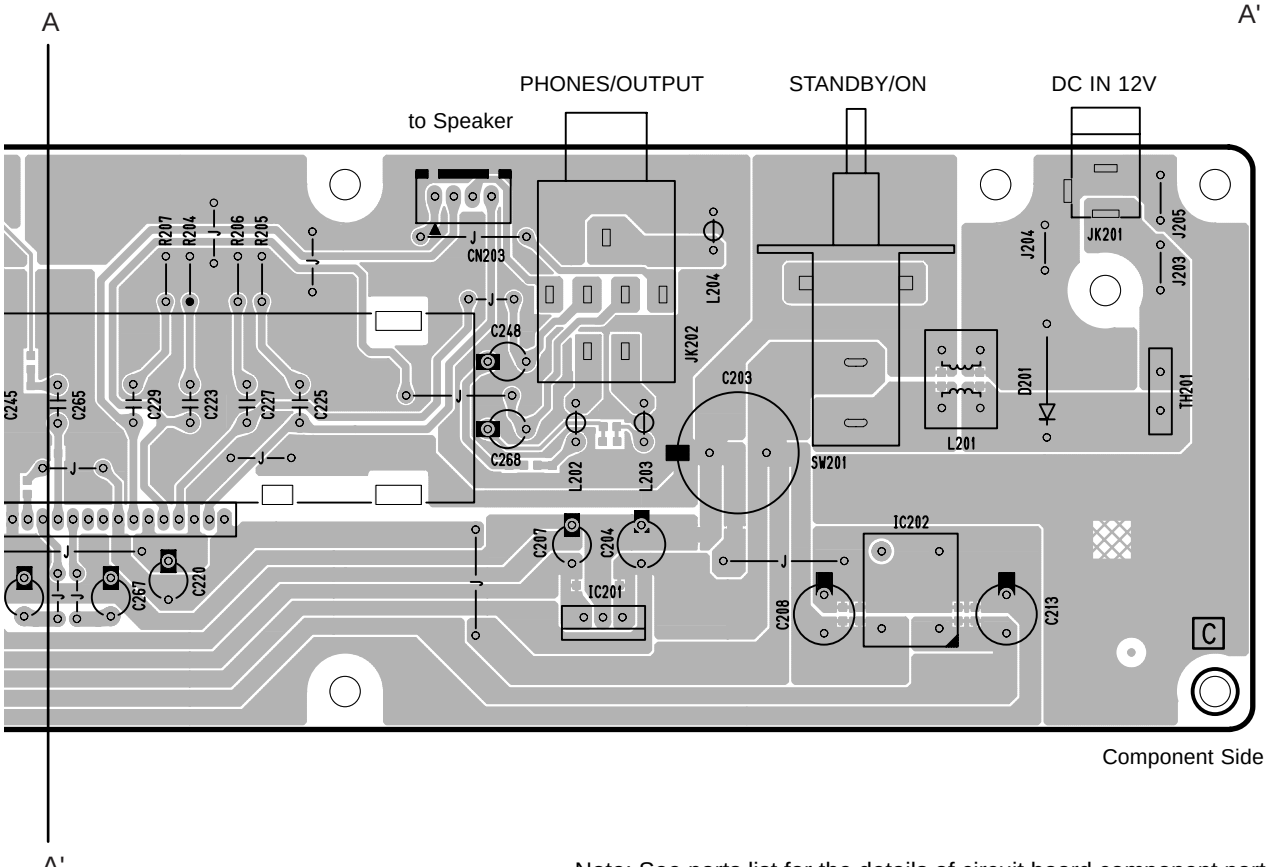
Pattern Side

Note: See parts list for the details of circuit board component parts.

2NA-V970330

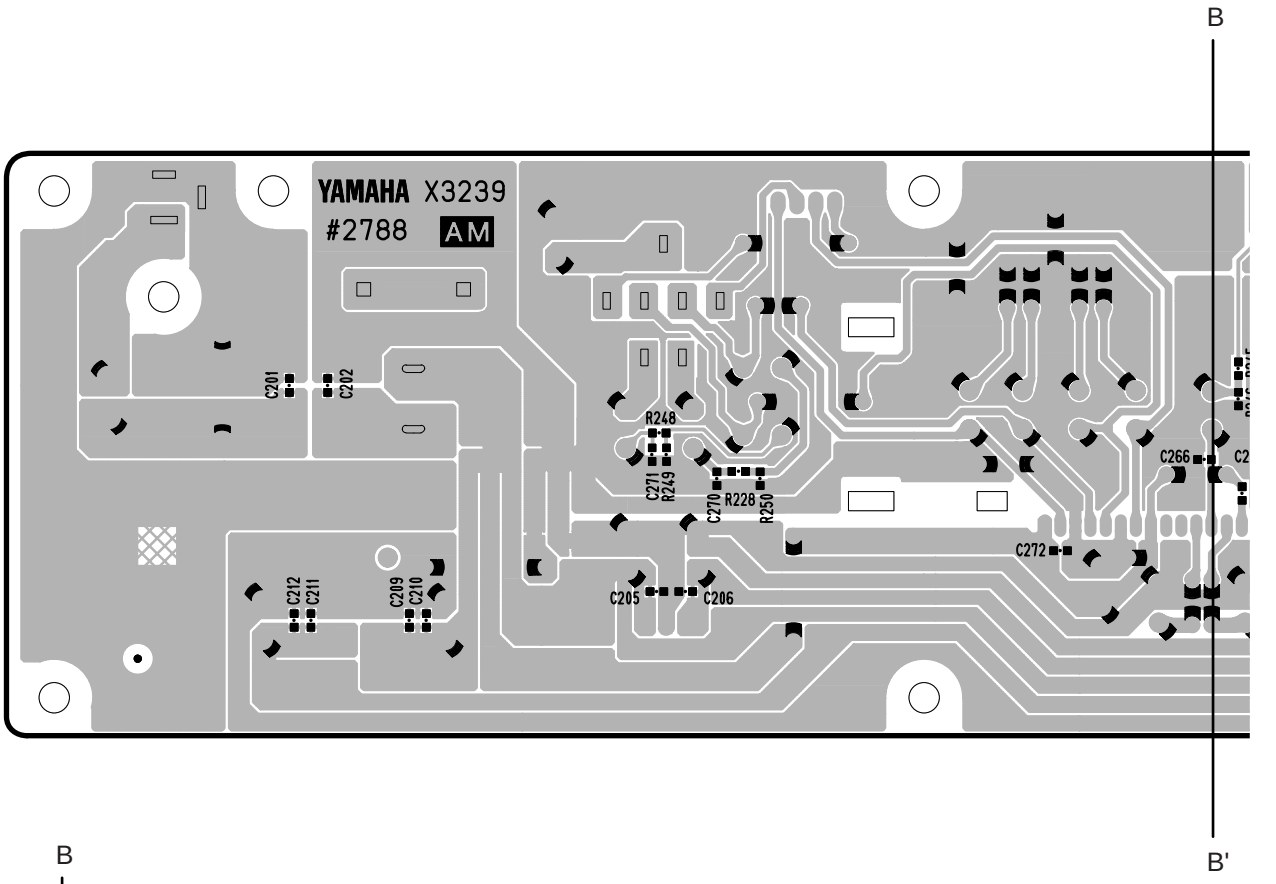
• AM Circuit Board

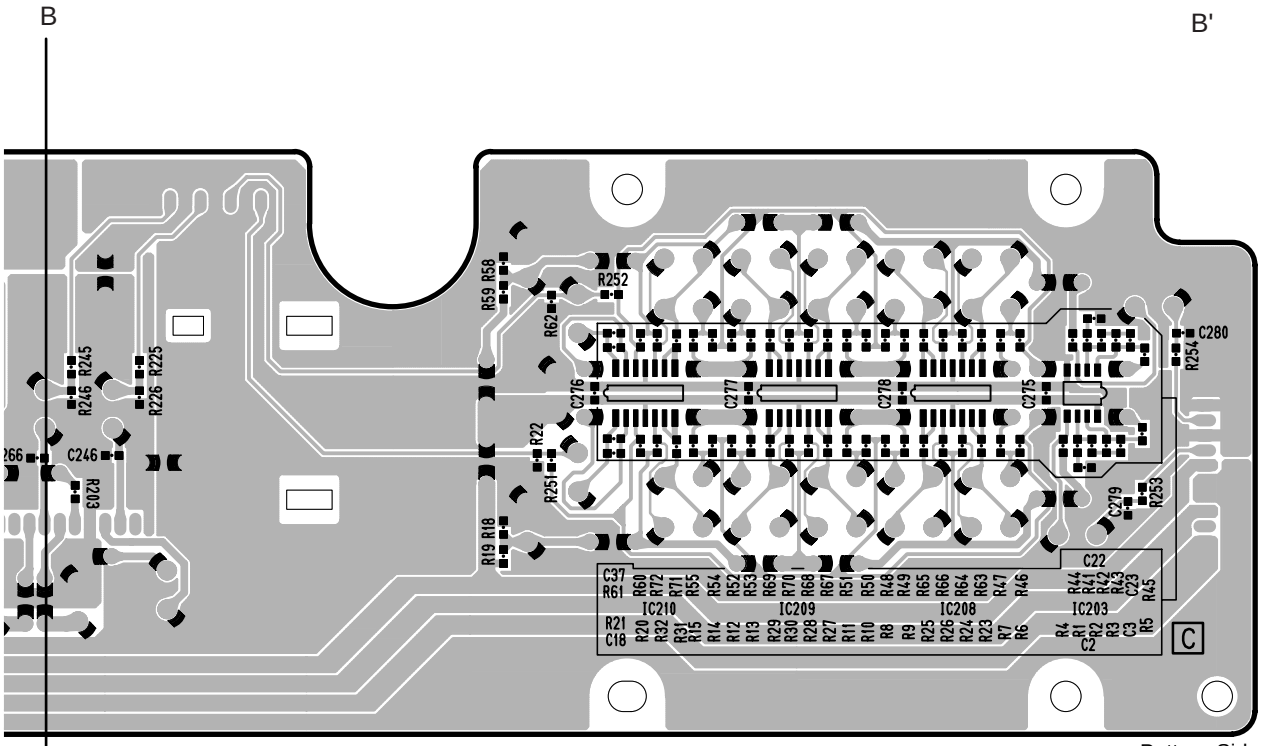




Note: See parts list for the details of circuit board component parts.

2NA-970310



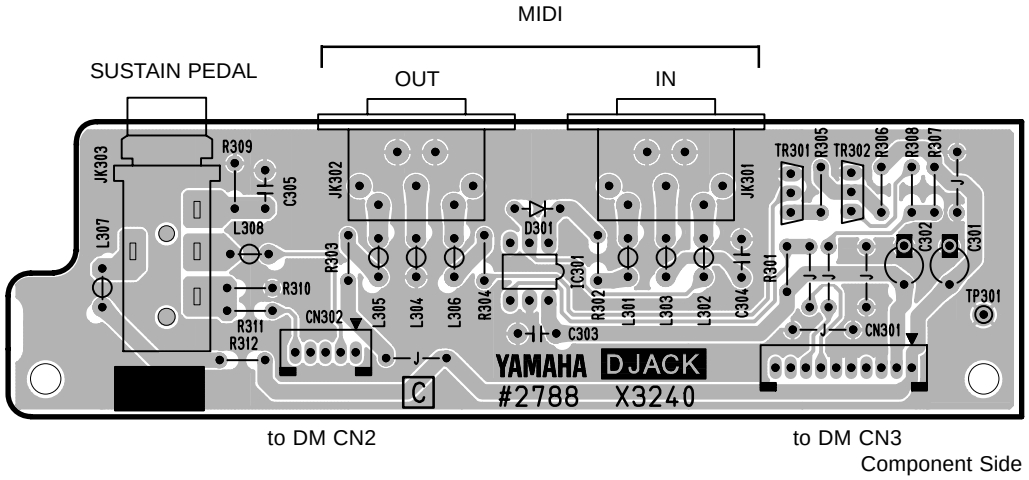


Pattern Side

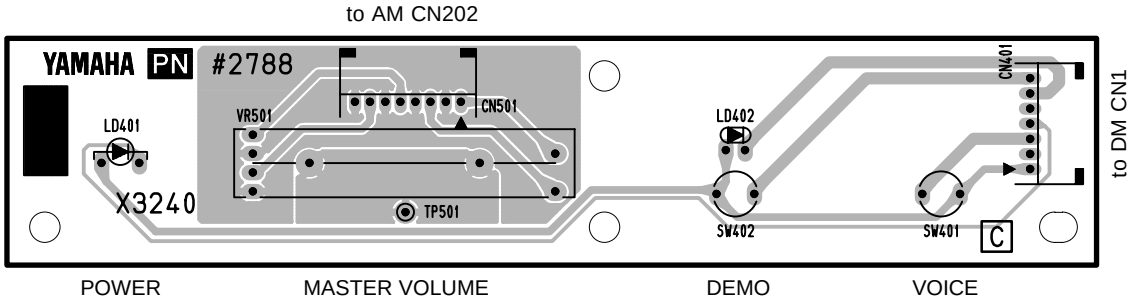
Note: See parts list for the details of circuit board component parts.

2NA-970310

• DJACK Circuit Board



• PN Circuit Board



Note: See parts list for the details of circuit board component parts.

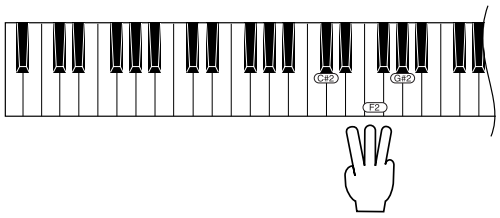
D-JACK: 2NA-970500
PN: 2NA-970510

■ TEST PROGRAM

1. Preparation

• To check the unit, the following instruments and jigs are required.

Instruments: Frequency Counter
Level Meter (with JIS-C filter)
Jigs: Foot Pedal (FC-5)
MIDI cable



(Fig. 1)

• Before executing the test program, set each control as follows.
Master Volume: Maximum

• Insert a plug with load of 33Ω into the [PHONES/OUTPUT] jack.

2. Entering the Test Program

Turn on the power with [C2#], [F2] and [G2#] keys pressed and held. (Fig.1)
When the test program starts to run, the sine wave of A3 sounds.
Press any key to stop the sound.

3. Test Procedure

See the Table 1 for each test item. Press the corresponding key to select and execute each test.

Table 1

No.	Test Item	Key	Test Function and Judgment Creteria
1	ROM Version	C1-A1, C2-A2	Displays the version of ROM. The sine wave of C4 sounds when the key corresponding to the version is pressed and the sine wave of C2 sounds when other keys are pressed. Where, the keys (C1-A1) correspond to integer portion (0-9) of the version and keys (C2-A2) to decimal portion (0-9). For example, when the version is 1.0, the sine wave of C4 sounds when the key C1# or C2 is pressed.
2	ROM Check 1	C3	When the result is OK, the sine wave of C4 sounds. When the result is NG, the sine wave of C2 sounds.
3	RAM Check 1	C3#	When the result is OK, the sine wave of C4 sounds. When the result is NG, the sine wave of C2 sounds.
11	Tone Generator 1	D3	The sine wave of F3 to C6 sounds in sequence. Confirm that no noise or abnomal sound is generated.
13	Pitch	D3#	Connect a frequency counter to the [PHONES/OUTPUT] jack and execute the test. Confirm that the sine wave of 440±0.2Hz sounds.
14	Output Level R	E3	The sine wave of 1kHz sounds. Confirm that each output level is as follows. (Unit: dBm) PHONES/OUTPUT R: -2.0±2 PHONES/OUTPUT L: at least 50dBm less than R ch
15	Output Level L	F3	The sine wave of 1kHz sounds. Confirm that each output level is as follows. (Unit: dBm) PHONES/OUTPUT L: -2.0±2 PHONES/OUTPUT R: at least 50dBm less than L ch
16	EQ Low	F3#	The sine wave of C1 sounds. Confirm that each output level is as follows. (Unit: dBm) PHONES/OUTPUT L, R: -1.0±2

17	EQ Mid	G3	The sine wave of C4 sounds. Confirm that each output level is as follows. (Unit: dBm) PHONES/OUTPUT L, R: -1.5±2
18	EQ High	G3#	The sine wave of C6 sounds. Confirm that each output level is as follows. (Unit: dBm) PHONES/OUTPUT L, R: -1.2±2
19	D/A noise	A3	Play any keys and confirm that no D/A noise is generated. Press the C7 key to exit the D/A noise test and proceed to the next test item.
20	SW, LED	A3#	1. Press the [DEMO] button. Confirm that the sine wave of C3 sounds and the LED lights up. 2. Press the [VOICE] button. Confirm that the sine wave of C3 sounds.
33	Damper	C4#	Connect a foot pedal to the [DAMPER PEDAL] jack and execute the test. Confirm that the sine wave of C3 sounds when the foot pedal is pressed. Confirm that the sine wave of C4 sounds when the foot pedal is released.
37	MIDI	D4	Connect the [MIDI IN] jack and the [MIDI OUT] jack via a MIDI cable and execute the test. When the result is OK, the sine wave of C4 sounds. When the result is NG, the sine wave of C2 sounds.
41	ROM Check 2	D4#	When the result is OK, the sine wave of C4 sounds. When the result is NG, the sine wave of C2 sounds. It takes about 45 seconds until this test is finished.
42	RAM Check 2	E4	When the result is OK, the sine wave of C4 sounds. When the result is NG, the sine wave of C2 sounds.
48	TEST MODE Exit	C7	Exit the test program and return to the normal mode.

■ MIDI IMPLEMENTATION CHART

YAMAHA [Electronic Piano] Date: 8 August, 2002
Model: P-60 MIDI Implementation Char Version: 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default	1	1	
	Changed	1 - 16	1 - 16	
Mode	Default	3	1 *1	Poly Mode only
	Messages	X	X	
	Altered	**********	X	
Note Number	: True voice	9 - 120	0 - 127	
		**********	0 - 127	
Velocity	Note ON	O 9nH, v=1 - 127	O 9nH, v=1 - 127	
	Note OFF	O 9nH, v=0	O 9nH, v=0 or 8nH	
After Touch	Key's	X	X	
	Ch's	X	X	
Pitch Bender		X	X	
Control Change	0, 32	O	O	Bank Select
	7	O	O	Volume
	11	X	O	Expression
	64	O	O	Damper
	66	X	O	Sostenuto
	67	X	O	Soft pedal
	91	O	O	Reverb Depth
	94	X	O	Effect Depth
Program Change	: True #	O	O	
		**********		
System Exclusive		O	O	
Common	: Song Position	X	X	
	: Song Select	X	X	
	: Tune	X	X	
System Real Time	: Clock	O	O	
	: Commands	O	O	
Aux Messages	: All sounds off	O	O (120, 126, 127)	
	: Reset All Controllers	O	O (121)	
	: Local ON/OFF	X	O (122)	
	: All Notes OFF	O	O (123 - 125)	
	: Active Sense	O	O	
	: Reset	X	X	
Notes : *1 = Recieve Mode is always multi timbre and Poly mode.				

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO O : Yes
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO X : No

■ MIDI DATA FORMAT

If you re already very familiar with MIDI, or are using a computer to control your music hardware with computer-gener-ated MIDI messages, the data provided in this sectioncan help you to control the P-60.

1. NOTE ON/OFF

Data format: [9nH] -> [kk] -> [vv]

9nH = Note ON/OFF event (n = channel number)
kk = Note number (Transmit: 09H ~ 78H = A-2 ~ C8 / Receive: 00H ~ 7FH = C-2 ~ G8)*
vv = Velocity (Key ON = 01H ~ 7FH, Key OFF = 00H)

Data format: [8nH] -> [kk] -> [vv] (reception only)

8nH = Note OFF event (n = channel number)
kk = Note number: 00H ~ 7FH = C-2 ~ G8
vv = Velocity

* If received value exceeds the supported range for the selected voice, the note is adjusted by the necessary number of octaves.

2. CONTROL CHANGE

Data format: [BnH] -> [cc] -> [vv]

BnH = Control change (n = channel number)
cc = Control number
vv = Data Range

(1) Bank Select

ccH	Parameter	Data Range (vvH)
00H	Bank Select MSB	00H:Normal
20H	Bank Select LSB	00H...7FH

Bank selection processing does not occur until receipt of next Program Change message.

(2) Main Volume (reception only)

ccH	Parameter	Data Range (vvH)
07H	Volume MSB	00H...7FH

(3) Expression (reception only)

ccH	Parameter	Data Range (vvH)
0BH	Expression MSB	00H...7FH

(4) Damper

ccH	Parameter	Data Range (vvH)
40H	Damper MSB	00H...7FH

(5) Sostenuto (reception only)

ccH	Parameter	Data Range (vvH)
42H	Sostenuto	00H-3FH:off, 40H-7FH:on

(6) Soft Pedal (reception only)

ccH	Parameter	Data Range (vvH)
43H	Soft Pedal	00H-3FH:off, 40H-7FH:on

(7) Effect1 Depth (Reverb Send Level)

ccH	Parameter	Data Range (vvH)
5BH	Effect1 Depth	00H...7FH

Adjusts the reverb send level.

(8) Effect4 Depth (Variation Effect Send Level) (reception only)

ccH	Parameter	Data Range (vvH)
5EH	Effect4 Depth	00H...7FH

3. MODE MESSAGES

Data format: [BnH] -> [cc] -> [vv]

BnH = Control event (n = channel number)
cc = Control number
vv = Data Range

(1) All Sound Off

ccH	Parameter	Data Range (vvH)
78H	All Sound Off	00H

Switches off all sound from the channel. Does not reset Note On and Hold On conditions established by Channel Messages.

(2) Reset All Controllers

ccH	Parameter	Data Range (vvH)
79H	Reset All Controllers	00H

Resets controllers as follows.

Controller	Value
Expression	127 (max)
Damper Pedal	0 (off)
Sostenuto	0 (off)
Soft Pedal	0 (off)

(3) Local Control (reception only)

ccH	Parameter	Data Range (vvH)
7AH	Local Control	00H (off), 7FH (on)

(4) All Notes Off

ccH	Parameter	Data Range (vvH)
7BH	All Notes Off	00H

Switches OFF all the notes that are currently ON on the spec-i ed channel. Any notes being held by the damper or sostenuto pedal will continue to sound until the pedal is released.

(5) Omni Off (reception only)

ccH	Parameter	Data Range (vvH)
7CH	Omni Off	00H

Same processing as for All Notes Off.

(6) Omni On (reception only)

ccH	Parameter	Data Range (vvH)
7DH	Omni On	00H

Same processing as for All Notes Off.

(7) Mono (reception only)

ccH	Parameter	Data Range (vvH)
7EH	Mono	00H

Same processing as for All Sound Off.

(8) Poly (reception only)

ccH	Parameter	Data Range (vvH)
7FH	Poly	00H

Same processing as for All Sound Off.

¥ When control change reception is turned OFF, control change data will not be transmitted or received except for Bank Select and Mode messages.
¥ Local on/off, OMNI on/off are not transmitted. (The appropriate note off number is supplied with All Note Off transmission).
¥ When a voice bank MSB/LSB is received, the number is stored in the internal buffer regardless of the received order, then the stored value is used to select the appropriate voice when a program change message is received.
¥ The Multi-timbre and Poly modes are always active. No change occurs when OMNI ON, OMNI OFF, MONO, or POLY mode messages are received.

4. PROGRAM CHANGE

Data format: [CnH] -> [ppH]

CnH = Program event (n = channel number)
ppH = Program change number
P.C.#=Program Change number

P-60	MSB	LSB	P.C.#
Grand Piano 1	0	122	0
Grand Piano 2	0	112	0
E.Piano 1	0	122	5
E.Piano 2	0	122	4
Harpsichord 1	0	122	6
Harpsichord 2	0	123	6
Vibraphone	0	122	11
Church Organ 1	0	123	19
Church Organ 2	0	122	19
Strings	0	122	48

¥ When program change reception is turned OFF, no program change data is transmitted or received. Also, Bank MSB/LSB is not transmitted or received.

5. SYSTEM REALTIME MESSAGES

[rrH]
FEH: Active sensing

Data	Transmission	Reception
FEH	Transmitted every 200 milliseconds	If a signal is not received via MIDI for more than 400 milliseconds, the same processing will take place for All Sound Off, All Notes Off and Reset All Controllers as when those signals are received.

¥ Caution: If an error occurs during MIDI reception, the Damper, Sostenuto, and Soft effects for all channels are turned off and an All Note Off occurs.

6. SYSTEM EXCLUSIVE MESSAGES (Universal System Exclusive)

(1) Universal Realtime Message

Data format: [F0H] -> [7FH] -> [XnH] -> [04H] -> [01H] -> [llH] -> [mmH] -> [F7H]

MIDI Master Volume

¥ Simultaneously changes the volume of all channels.
¥ When a MIDI master volume message is received, the volume only has affect on the MIDI receive channel, not the panel master volume.

F0H = Exclusive status
7FH = Universal Realtime
7FH = ID of target device
04H = Sub-ID #1=Device Control Message
01H = Sub-ID #2=Master Volume
llH = Volume LSB
mmH = Volume MSB
F7H = End of Exclusive

or

F0H = Exclusive status
7FH = Universal Realtime
XnH = When n is received n=0~F, whichever is received.
X = don t care
04H = Sub-ID #1=Device Control Message
01H = Sub-ID #2=Master Volume
llH = Volume LSB
mmH = Volume MSB
F7H = End of Exclusive

(2) Universal Non-Realtime Message (GM On)

General MIDI Mode On

Data format: [F0H] -> [7EH] -> [XnH] -> [09H] -> [01H] -> [F7H]

F0H = Exclusive status
7EH = Universal Non-Realtime
7FH = ID of target device
09H = Sub-ID #1=General MIDI Message
01H = Sub-ID #2=General MIDI On
F7H = End of Exclusive

or

F0H = Exclusive status
7EH = Universal Non-Realtime
XnH = When received, n=0~F.
X = don t care
09H = Sub-ID #1=General MIDI Message
01H = Sub-ID #2=General MIDI On
F7H = End of Exclusive

When the General MIDI mode ON message is received, the MIDI system will be reset to its default settings.
This message requires approximately 50ms to execute, so suf cient time should be allo wed before the next message is sent.

7. SYSTEM EXCLUSIVE MESSAGES (XG Standard)

(1) XG Native Parameter Change

Data format: [F0H] -> [43H] -> [1nH] -> [4CH] -> [hhH] -> [mmH] -> [*ll*H] -> [ddH] -> [F7H]

F0H = Exclusive status
43H = YAMAHA ID
1nH = When received, n=0~F.
When transmitted, n=0.
4CH = Model ID of XG
hhH = Address High
mmH = Address Mid
*ll*H = Address Low
ddH = Data
|
F7H = End of Exclusive

Data size must match parameter size (2 or 4 bytes).
When the XG System On message is received, the MIDI system will be reset to its default settings.
The message requires approximately 50ms to execute, so suf cient time should be allo wed before the next message is sent.

(2) XG Native Bulk Data (reception only)

Data format: [F0H] -> [43H] -> [0nH] -> [4CH] -> [aaH] -> [bbH] -> [hhH] -> [mmH] -> [*ll*H] ->[ddH] ->...-> [ccH] -> [F7H]

F0H = Exclusive status
43H = YAMAHA ID
0nH = When received, n=0~F.
When transmitted, n=0.
4CH = Model ID of XG
aaH = ByteCount
bbH = ByteCount
hhH = Address High
mmH = Address Mid
*ll*H = Address Low
ddH = Data
| |
| |
ccH = Check sum
F7H = End of Exclusive

¥ Receipt of the XG SYSTEM ON message causes reinitialization of relevant parameters and Control Change values. Allow suf cient time f or processing to execute (about 50 msec) before sending the P-60 another message.
¥ XG Native Parameter Change message may contain two or four bytes of parameter data (depending on the parameter size).
¥ For information about the Address and Byte Count values, refer to Table 1 below. Note that the table s Total Size value gives the size of a bulk block. Only the top address of the block (00H, 00H, 00H) is valid as a bulk data address.

8. SYSTEM EXCLUSIVE MESSAGES (Electronic Piano MIDI Format)

Data format: [F0H] -> [43H] -> [73H] -> [xxH] -> [nnH] -> [F7H]

F0H = Exclusive status
43H = Yamaha ID
73H = Electronic Piano ID
01H = Product ID (electronic piano common)
or
7F= Extended Product ID
2FH = Product ID
nnH = Substatus
nn Control
02H Internal MIDI clock
03H External MIDI clock
06H Bulk Data (the bulk data follows 06H)
F7H = End of Exclusive
* When nn=02H or 03H, Electronic common ID (01H) is rec-ognized as well as 75H.

9. SYSTEM EXCLUSIVE MESSAGES (Special Control)

Data format: [F0H] -> [43H] -> [73H] -> [66H] -> [11H] -> [0nH] -> [ccH] -> [vvH] -> [F7H]

F0H = Exclusive status
43H = Yamaha ID
73H = Electronic Piano ID
7FH = Extended Product ID
2FH = Product ID
11H = Special control
0nH = Control MIDI change (n=channel number)
cc = Control number
vv = Value
F7H = End of Exclusive

Control	Channel	ccH	vvH
Channel Detune	ch: 00H-0FH	43H	(Sets the Detune value for each channel) 00H-7FH
Voice Reserve	ch: 00H-0FH	45H	00H : Reserve off 7FH : on*

* When Volume, Expression is received for Reserve On, they will be effective from the next Key On. Reserve Off is normal.

10. SYSTEM EXCLUSIVE MESSAGES (Others)

Data format: [F0H] -> [43H] -> [1nH] -> [27H] -> [30H] -> [00H] -> [00H] -> [mmH] -> [*ll*H] -> [ccH] -> [F7H]

Master Tuning (XG and last message priority) simultaneously changes the pitch of all channels.
F0H = Exclusive Status
43H = Yamaha ID
1nH = When received, n=0~F.
When transmitted, n=0.
27H = Model ID of TG100
30H = Sub ID
00H =
00H =
mmH = Master Tune MSB
*ll*H = Master Tune LSB
ccH = don t care (under 7FH)
F7H = End of Exclusive

<Table 1>

MIDI Parameter Change table (SYSTEM)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
00 00 00	4	020C - 05F4(*1)	MASTER TUNE	-50 - +50[cent]	00 04 00 00
01				1st bit 3 - 0 bit 15 - 12	400
02				2nd bit 3 - 0 bit 11 - 8	
03				3rd bit 3 - 0 bit 7 - 4	
				4th bit 3 - 0 bit 3 - 0	
04	1	00 - 7F	MASTER VOLUME	0 - 127	7F
05	1				
06	1	34 - 4C(*2)	TRANSPOSE	-12 - +12[semitones]	40
7E		00	XG SYSTEM ON	00=XG sytem ON	
7F		00	RESET ALL PARAMETERS	00=ON (receive only)	

TOTAL SIZE 07

*1: Values lower than 020CH select -50 cents. Values higher than 05F4H select +50 cents.

*2: Values from 28H through 33H are interpreted as -12 through -1. Values from 4DH through 58H are interpreted as +1 through +12.

<Table 2>

MIDI Parameter Change table (EFFECT 1)

Refer to the Effect MIDI Map for a complete list of Reverb, Chorus and Variation type numbers.

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
02 01 00	2	00-7F	REVERB TYPE MSB	Refer to Effect MIDI Map	01(=HALL1)
		00-7F	REVERB TYPE LSB	00 : basic type	00
02 01 40	2	00-7F	VARIATION TYPE MSB	Refer to Effect MIDI Map	00(=Effect off)
		00-7F	VARIATION TYPE LSB	00 : basic type	00

¥ VARIATION refers to the EFFECT on the panel.

<Table 3>

MIDI Parameter Change table (MULTI PART)

Address (H)	Size (H)	Data (H)	Parameter	Description	Default value (H)
08 nn 11	1	00 - 7F	DRY LEVEL	0 - 127	7F

nn = Part Number

• Effect MIDI Map

REVERB

	MSB	LSB
ROOM	02H	10H
HALL 1	01H	10H
HALL 2	01H	11H
STAGE	03H	10H

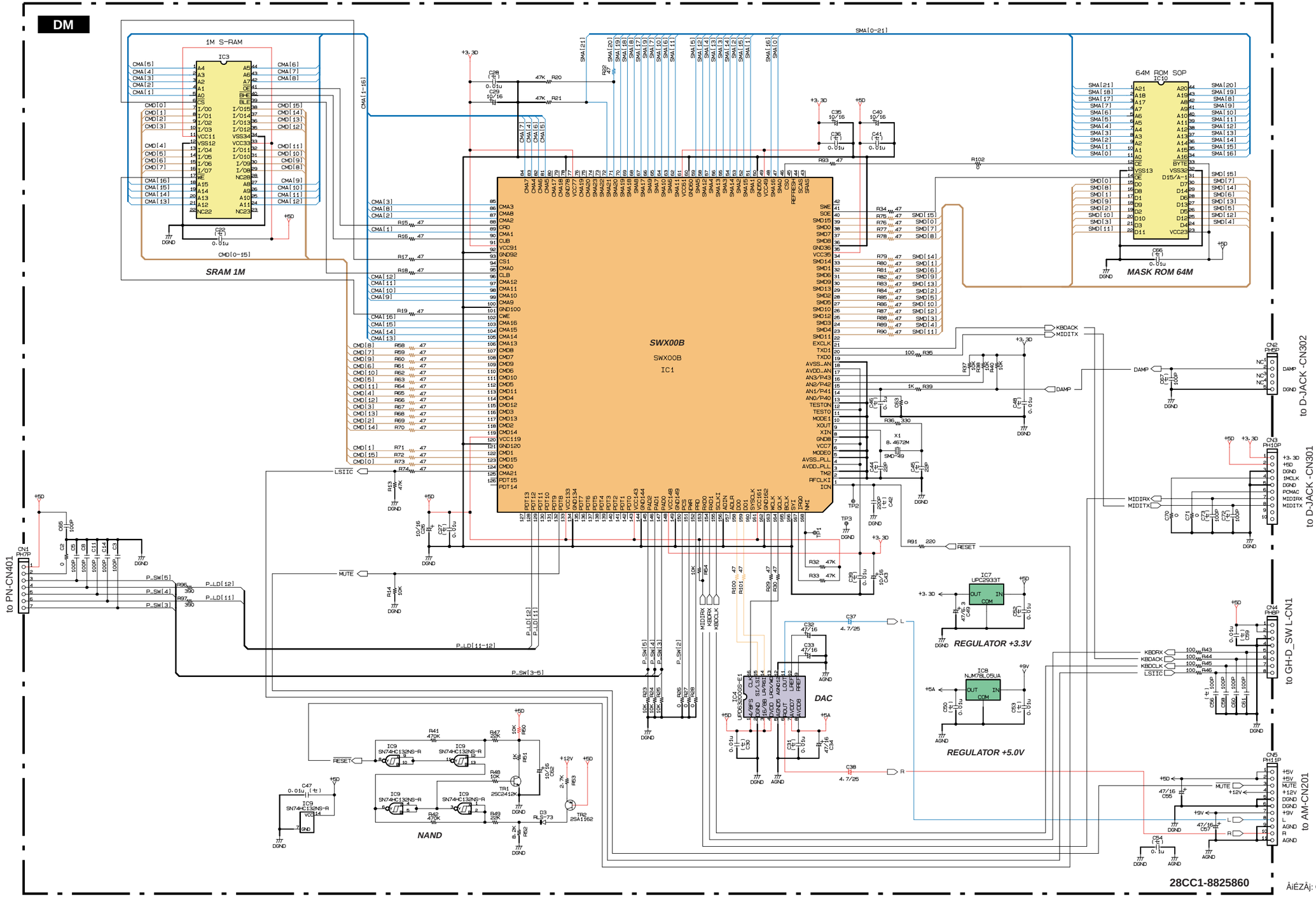
EFFECT

	MSB	LSB
CHORUS	42H	10H
PHASER	48H	10H
TREMOLO	46H	10H
DELAY	05H	10H

<P.1>

P-60/P-60S OVERALL CIRCUIT DIAGRAM (DM)

DM



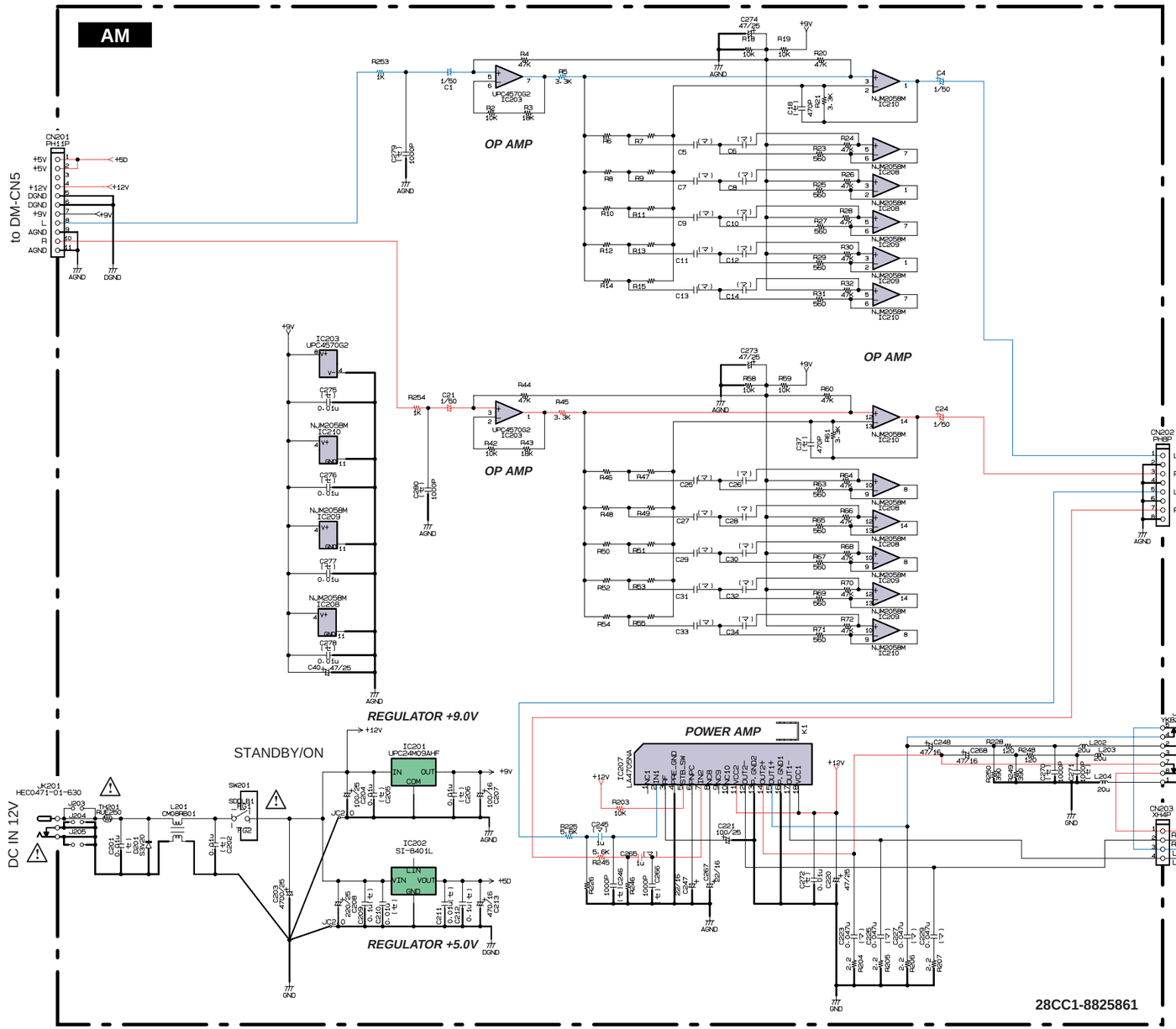
- **µPC2933T**(XS516A00) REGULATOR +3.3V
  DM:IC007
  1: V in
  2: GND
  3: V out
- **NJM78L05UA**(XJ598A00) REGULATOR +5V
  DM:IC008
  1: OUTPUT
  2: COMMON
  3: INPUT
- **RLS-73 TE-11** (VV925900) DIODE
  DM:D0003
  1: ANODE
  2: CATHODE

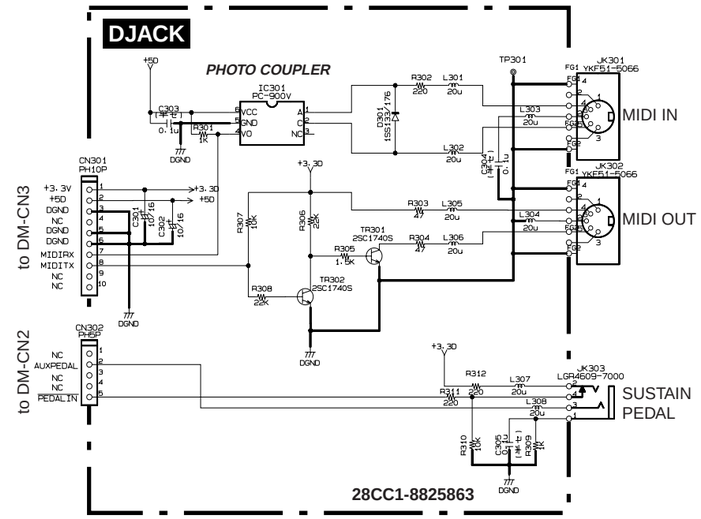
ÅiÉZÅj: Ceramic Capacitor

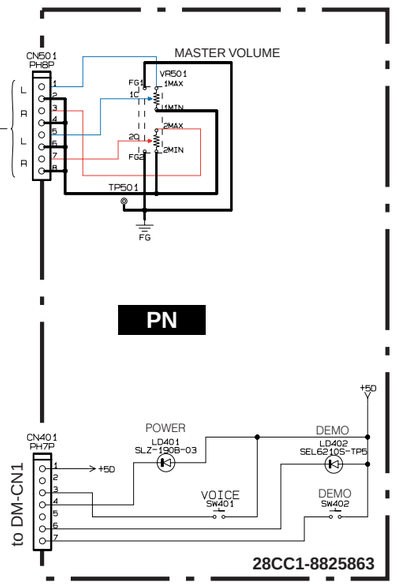
Note: See parts list for the details of circuit board component parts.

P-60/P-60S

■ P-60/P-60S OVERALL CIRCUIT DIAGRAM (AM, DJACK, PN)







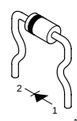
- **SI-8401L** (XR925A00)
  REGULATOR +5V
  AM: IC202

1: VOUT
2: GND
3: LIN
4: VIN

- **μPC24M09AHF** (XM968B00)
  REGULATOR +9V
  AM: IC201

1: INPUT
2: COMMON
3: OUTPUT

- **S3V20** (VR313500)
  DIODE
  AM: D0201

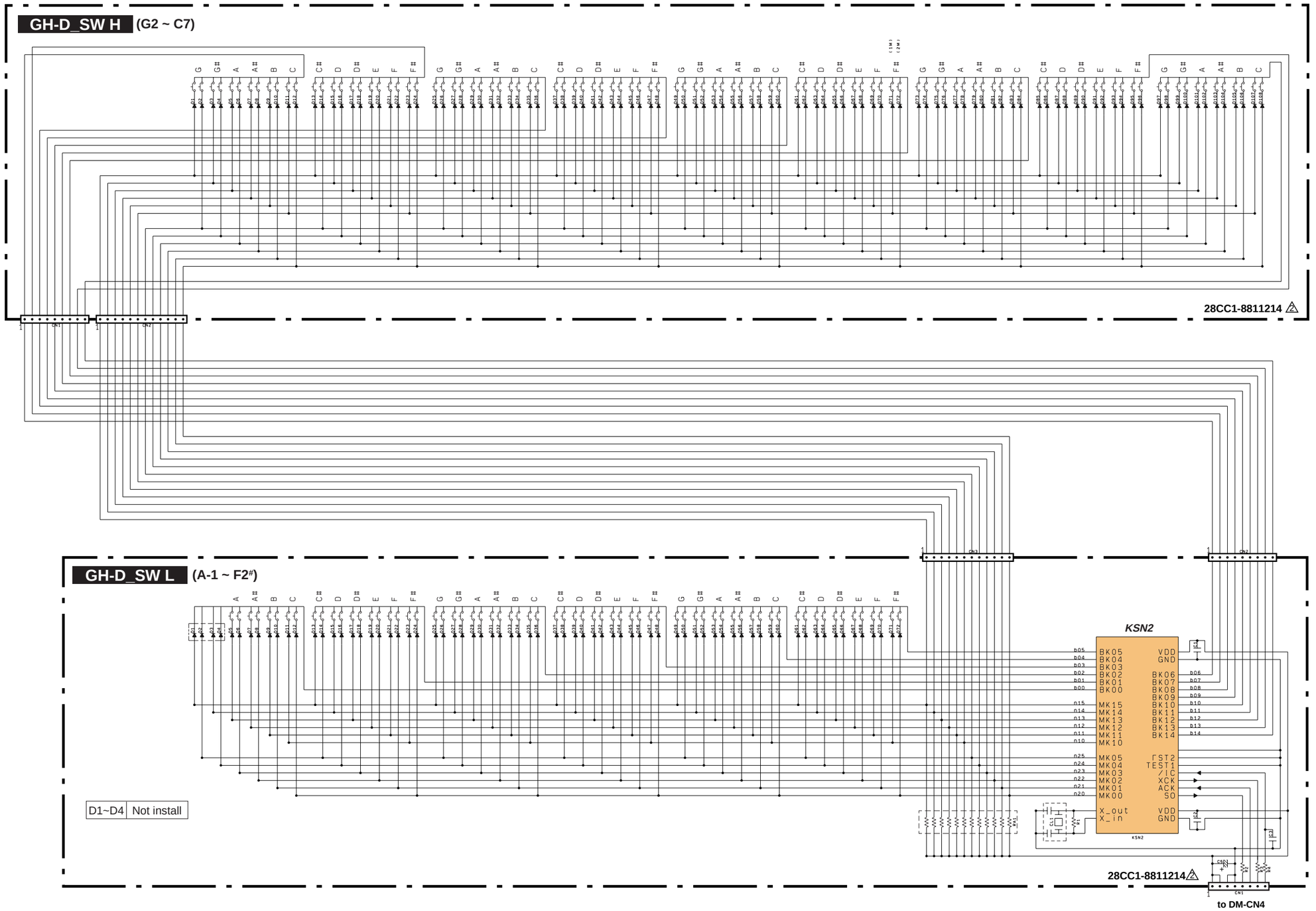


1: ANODE
2: CATHODE

（セ）： Ceramic Capacitor
（マ）： Myler Capacitor
（半セ）: Semiconductive Ceramic Capacitor

Note: See parts list for the details of circuit board component parts.

■ P-60/P-60S OVERALL CIRCUIT DIAGRAM (GH-D_SW H, GH-D_SW L)



Note: See parts list for the details of circuit board component parts.

ELECTRONIC PIANO
P-60/P-60S
KEYBOARD STAND
L-60W
PARTS LIST

■ **CONTENTS**

Note) DESTINATION ABBREVIATIONS

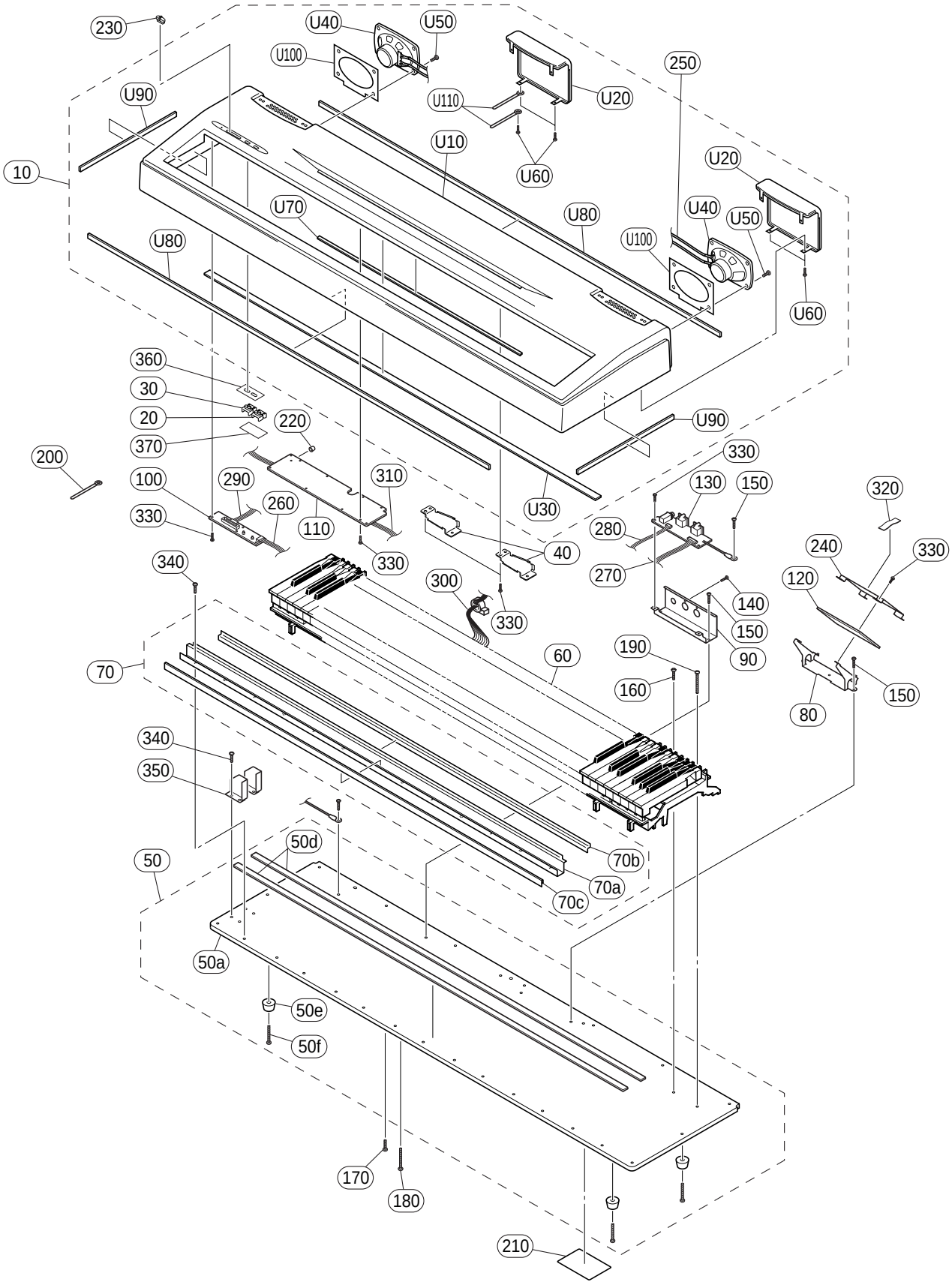
A:	Australian model	M:	South African model
B:	British model	O:	Chinese model
C:	Canadian model	Q:	South-east Asia model
D:	German model	T:	Taiwan model
E:	European model	U:	U.S.A. model
F:	French model	V:	General export model (110V)
H:	North European model	W:	General export model (220V)
I:	Indonesian 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 specifications equal to those originally installed.

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

■ OVERALL ASSEMBLY



	REF NO.	PART NO.	DESCRIPTION			REMARKS		QTY	RANK
			OVERALL ASSEMBLY			P-60/P-60S			
		--	Overall Assembly			P-60	(V982900)		
		--	Overall Assembly			P-60S	(V983760)		
	10	--	Upper Case Assembly			P-60	(V982960)		
	10	--	Upper Case Assembly			P-60S	(V983780)		
	20	V8065100	Button			P-60 VOICE			04
	20	V8065200	Button			P-60S VOICE			04
	30	V8065500	Button			P-60 DEMO			05
	30	V8065700	Button			P-60S DEMO			05
*	40	WA040800	Angle Bracket Assembly					2	
*	50	V9829700	Keybed Assembly						
	50a	--	Keybed				(WA15840)		
	50b	ET200030	Nut	B 5.0X12 MFZN2Y				13	01
	50c	ET200070	Nut	B 4.0X9.5 MFZN2Y				9	01
	50d	V8040100	Cushion Rubber	BL				2	06
	50e	VR707800	Foot	K3019				4	02
	50f	EP040070	Bind Head Tapping Screw-1	4.0X20 MFZN2BL				4	01
	60	VZ705400	Keyboard Assembly	A88 K6					63
*	70	V9839900	Keyboard Holder Assembly						
	70a	--	Keyboard Holder				(V983890)		
	70b	VZ300900	Cushion B, Keyboard	1170X20X1.5JIS2					04
	70c	--	Dust Proof Cloth	1180X30X0.5			(WA15000)	2	
*	80	WA126600	DM Holder Assembly						
*	90	V9839000	D-JACK Holder						
*	100	V9705100	Circuit Board	PN			(V970520)		
*	110	V9703100	Circuit Board	AM			(V970340)		
*	120	V9703300	Circuit Board	DM					
*	130	V9705000	Circuit Board	DJACK			(V970520)		
	140	EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL				2	01
	150	EP030240	Bind Head Tapping Screw-1	3.5X12 MFZN2Y				10	01
	160	EP040230	Bind Head Tapping Screw-1	4.0X14 MFZN2Y				3	01
	170	V6207400	Truss Head Screw	4.0X16 MFZN2BL				2	01
	180	VV685800	Truss Head Tapping Screw-B	4X25 MFZN2BL				17	01
	190	VV040700	Pan Head Screw	5.0X25 MFZN2YPW				9	01
	200	CB817510	Cord Binder	S-14B				10	03
	210	--	Name Plate			P-60	(WA04040)		
	210	--	Name Plate			P-60S	(WA04050)		
	220	VQ218800	Knob	PSR-310		STANDBY/ON			03
	230	V8085100	Slide Knob			P-60 MASTER VOLUME			01
	230	V8083100	Slide Knob			P-60S MASTER VOLUME			01
*	240	WA119600	Shield Cover						
*	250	WA123100	Connector Assembly	SP					
*	260	WA779000	Connector Assembly	PN 7P					
*	270	WA779100	Connector Assembly	DJACK					
*	280	WB104700	Connector Assembly	JACK2					
*	290	V9916700	Connector Assembly	VOL L=500					
*	300	WA123600	Connector Assembly	MKS					
*	310	WA123700	Connector Assembly	AM					
	320	VP834600	Adhesive Tape	12X50				5	02
	330	EP600250	Bind Head Tapping Screw-B	3.0X8 MFZN2Y				25	01
	340	EG340030	Bind Head Screw	4.0X12 MFZN2Y				9	01
*	350	WA806100	Keyboard Side Holder Ass'y					2	
	360	--	Cloth 1				(WA82730)		
	370	--	Cloth 2				(WA82750)		
			UPPER CASE ASSEMBLY			P-60/P-60S			
		--	Upper Case Assembly			P-60	(V982960)		
		--	Upper Case Assembly			P-60S	(V983780)		
*	U10	V9840500	Upper Case			P-60			
*	U10	V9840600	Upper Case			P-60S			
*	U20	WA297500	Speaker Grille Assembly			P-60		2	
*	U20	WA297600	Speaker Grille Assembly			P-60S		2	
	U30	VU638700	Felt	MK					05
*	U40	X3590A00	Speaker	13.0cm 4ohm 10W				2	
	U50	EG340190	Bind Head Tapping Screw-B	4.0X8 MFZN2BL				8	01
	U60	EP600250	Bind Head Tapping Screw-B	3.0X8 MFZN2Y				5	01
*	U70	WA003600	Felt						
	U80	--	Cushion	1300X12XT1			(WA11910)	2	
	U90	--	Cushion	315X12XT2			(WA11920)	2	
*	U100	WA119300	Speaker Cushion					2	
	U110	CB817510	Cord Binder	S-14B				2	03
			ACCESSORIES						
*		WA449100	Music Rest			P-60			
*		WA023300	Music Rest			P-60S			

*: New Parts

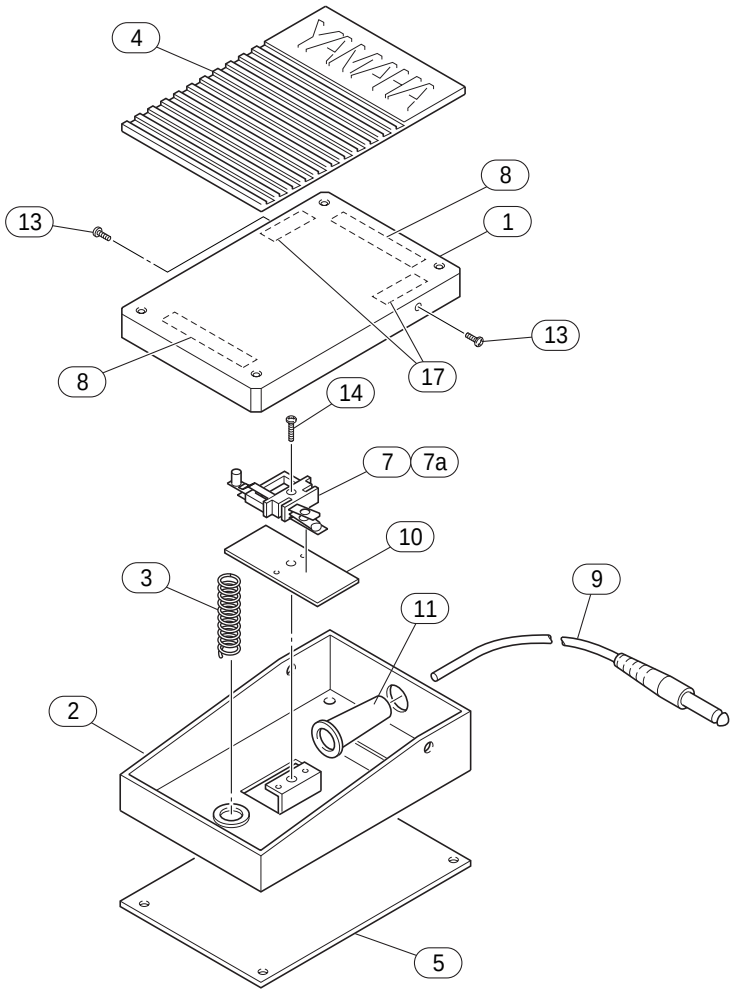
RANK: Japan only

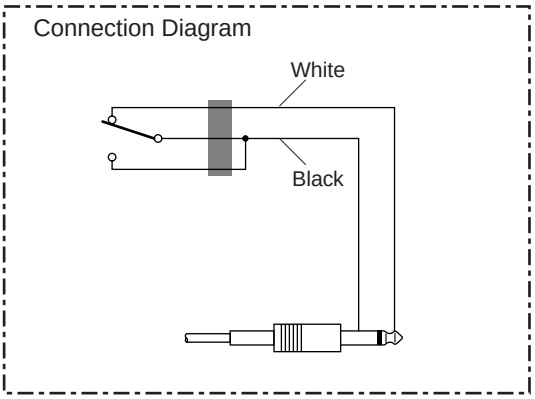
REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
	--	Foot Pedal	FC-5		(VJ07000)		
⚠	V8029000	AC Adapter	PA-5D J		J		99
⚠	V8029100	AC Adapter	PA-5D U		U		
⚠	V8029200	AC Adapter	PA-5D E		E		
⚠	V8029300	AC Adapter	PA-5D GBR		B		
		JIGS					
	TX000760	Rod					99

*: New Parts

RANK: Japan only

■ FOOT PEDAL



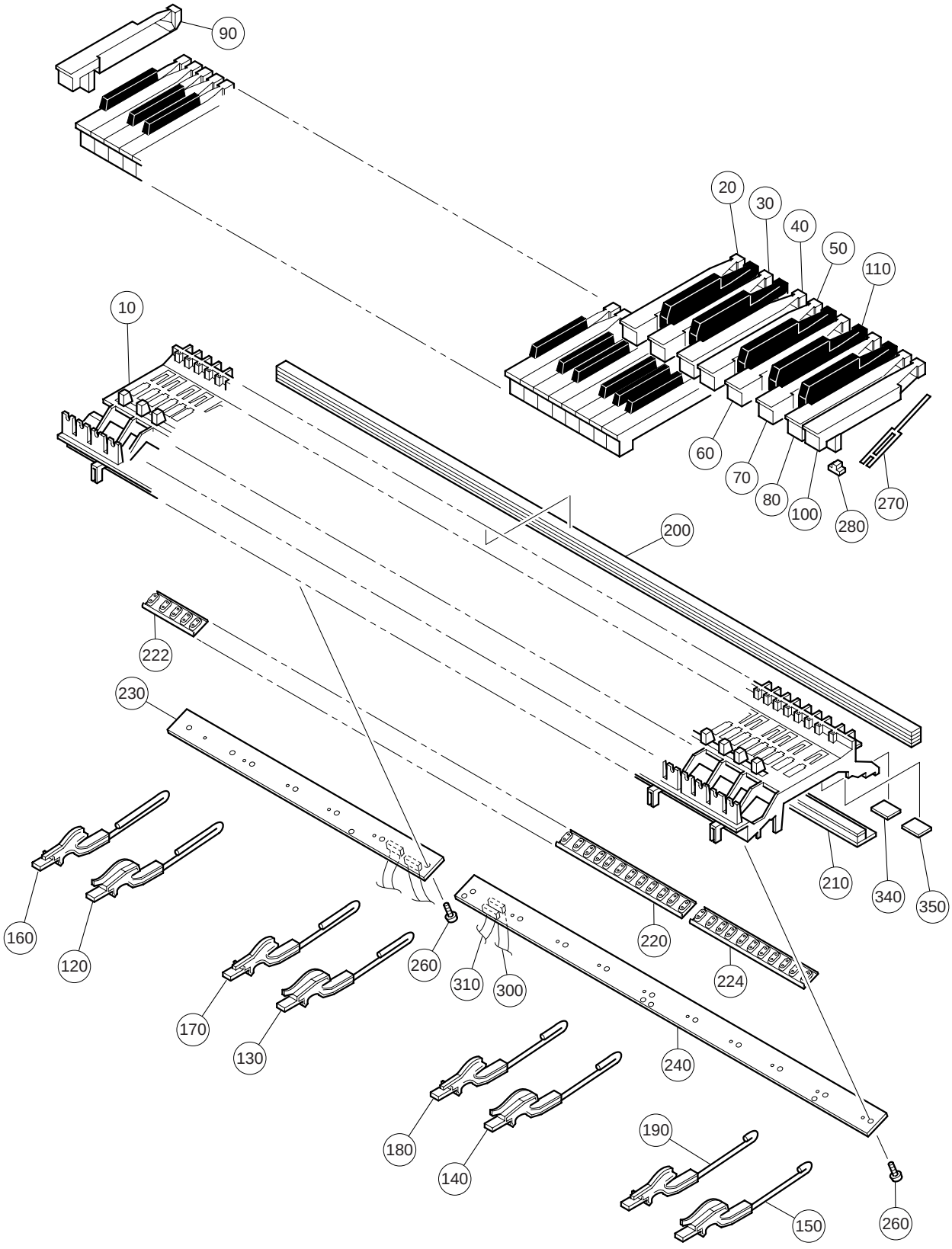


REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
		FOOT PEDAL			P-60/P-60S		
	--	Foot Pedal	FC-5		(VJ07000)		
1	AA812880	Pedal Top Cover					05
2	AA812890	Pedal Bottom Cover					03
3	AA812900	Pedal Spring					03
4	CB815140	Top Cover Mat					03
5	CB815150	Bottom Cover Mat					05
7	NB037130	Switch Assembly					05
7a	--	Actuator			(CB01285)		
8	--	Felt	50X10X1.5		(CC01476)	2	
9	MI801120	Cable	1.9m 2P 6.3				05
10	CA800450	Fiber Washer					01
11	--	Tube	AWG#4 5.2		(CH00219)		
13	EZ000400	Screw	#00352			2	01
14	EE630060	Pan Head Screw	3.0X12 MFZN2Y				01
17	--	Felt	20X10X1.5 BL		(CC01479)	2	

*: New Parts

RANK: Japan only

■ KEYBOARD ASSEMBLY



REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
		KEYBOARD ASSEMBLY			P-60/P-60S		
	VZ705400	Keyboard Assembly	A88 K6				63
10	**--**	MK Frame			(VU42210)		
20	**VU101000**	White Key	WH			7	05
30	**VU101100**	White Key	WH			7	05
40	**VU101200**	White Key	WH			7	05
50	**VU101300**	White Key	WH			7	05
60	**VU101400**	White Key	WH			7	05
70	**VU101500**	White Key	WH			7	05
80	**VU101600**	White Key	WH			8	05
90	**VU101700**	White Key	WH				05
100	**VU101800**	White Key	WH				05
110	**VU102100**	Black Key	BL			36	05
120	**VY828500**	Hammer Assembly, White Key				13	05
130	**VY828600**	Hammer Assembly, White Key				13	05
140	**VY828700**	Hammer Assembly, White Key				13	05
150	**VY828800**	Hammer Assembly, White Key				13	05
160	**VY828900**	Hammer Assembly, Black Key				9	05
170	**VY829000**	Hammer Assembly, Black Key				9	05
180	**VY829100**	Hammer Assembly, Black Key				9	05
190	**VY829200**	Hammer Assembly, Black Key				9	05
200	**VU342100**	Stopper	1229X12X14.8T				09
210	**V7640100**	Stopper Felt	1239.5X28X10.1T				07
220	**VY846700**	Rubber Contact	GH 2M OCT		D0-C1#,D1-C2#,D2-C3#, D3-C4#,D4-C5#,D5-C6#	6	08
222	**VY846800**	Rubber Contact	GH 2M OCT		A-1-C0#		08
224	**VY846900**	Rubber Contact	GH 2M OCT		D6-C7		08
230	**VZ705200**	Circuit Board	GH-D_SW L				12
240	**VZ705300**	Circuit Board	GH-D_SW H				13
260	**EP600270**	Bind Head Tapping Screw-P	3.0X10 MFZN2Y			17	01
260	**VT413400**	Bind Head Tapping Screw-P	3.0X10 MFZN2			17	01
270	**V2798500**	Spring R	GH WH,BL			88	
270	**VZ417900**	Spring R	GH WH,BL			88	03
280	**VU237500**	Rubber				88	03
280	**V2211300**	Rubber 2	GH,GHD,HE			88	03
300	**VU341800**	Connector Assembly	9P				06
310	**VU341900**	Connector Assembly	12P				07
340	**VV467900**	Stopper Support A	35.5 20 *			7	03
350	**VV468100**	Stopper Support B	24 20 -			12	03

*: New Parts

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■ ELECTRICAL PARTS

	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
			ELECTRICAL PARTS					
*		**V9703300**	Circuit Board	DM		(XW980A0)		
*		**V9703100**	Circuit Board	AM		(V970340)(X3239C0)		
*		**V9705000**	Circuit Board	DJACK		(V970520)(X3240C0)		
		VZ705300	Circuit Board	GH-D_SW H		(XT241A0)		13
		VZ705200	Circuit Board	GH-D_SW L		(XT240A0)		12
*		**V9705100**	Circuit Board	PN		(V970520)(X3240C0)		
*		**V9703300**	Circuit Board	DM		(XW980A0)		
	C0002	**RD350000**	Carbon Resistor (chip)	0 63M J				01
	C0003	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0005	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0008	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0011	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0014	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0022	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0026	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0027	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0028	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0029	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0030	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0031	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0032	**UF037470**	Electrolytic Cap. (chip)	47 16V				01
	-0034	**UF037470**	Electrolytic Cap. (chip)	47 16V				01
	C0035	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0036	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0037	**UF246470**	Electrolytic Cap.-BP (chip	4.7 25V				01
	C0038	**UF246470**	Electrolytic Cap.-BP (chip	4.7 25V				01
	C0039	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0040	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0041	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0042	**US062220**	Ceramic Capacitor-SL(chip)	220P 50V J				01
	C0043	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0044	**US061220**	Ceramic Capacitor-CH(chip)	22P 50V J				01
	C0045	**US061220**	Ceramic Capacitor-CH(chip)	22P 50V J				01
	C0046	**US135100**	Ceramic Capacitor-F (chip)	0.1000 16V Z				01
	C0047	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0048	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0049	**UF017470**	Electrolytic Cap. (chip)	47 6.3V				01
	C0050	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0052	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0053	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0054	**US135100**	Ceramic Capacitor-F (chip)	0.1000 16V Z				01
	C0055	**UF037470**	Electrolytic Cap. (chip)	47 16V				01
	C0056	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0057	**UF037470**	Electrolytic Cap. (chip)	47 16V				01
	C0058	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0059	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0060	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0061	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0062	**UF037100**	Electrolytic Cap. (chip)	10 16V				01
	C0063	**RD350000**	Carbon Resistor (chip)	0 63M J				01
	C0065	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0066	**US064100**	Ceramic Capacitor-B (chip)	0.0100 50V K				01
	C0067	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0070	**RD350000**	Carbon Resistor (chip)	0 63M J				01
	C0071	**RD350000**	Carbon Resistor (chip)	0 63M J				01
	C0072	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	C0073	**US062100**	Ceramic Capacitor-SL(chip)	100P 50V J				01
	CN001	**VB390300**	Connector Base Post	PH- 7P TE				01
	CN002	**VB390100**	Connector Base Post	PH- 5P TE				01
	CN003	**VB390600**	Connector Base Post	PH-10P TE				01
	CN004	**VB390400**	Connector Base Post	PH- 8P TE				01
	CN005	**VB390700**	Connector Base Post	PH-11P TE				01
	D0003	**VV925900**	Diode	RLS-73 TE-11				01
	IC001	**XU947C00**	IC	HG73C205AFD		TONE GENERATOR SWX00B		09
	IC003	**X0087A00**	IC	CY7C1021-12VCT		SRAM 1M		
	IC003	**X0088B00**	IC	K6R1016C1D-JC12T00		SRAM 1M		
	IC003	**XZ635A00**	IC	IS61C6416-15K		SRAM 1M		07
	IC004	**XP867A00**	IC	UPD63200GS-E1		D/A CONVERTER		07

*: New Parts

RANK: Japan only

	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
	IC007	XS516A00	IC	UPC2933T-E1		REGULATOR +3.3V		03
	IC008	XJ598A00	IC	NJM78L05UA		REGULATOR +5V		02
	IC009	XW792A00	IC	SN74HC132NSR		NAND		02
	IC009	XY352A00	IC	MM74HC132SJX		NAND		02
*	IC010	X3776100	IC	PROG/WAVE		MASK ROM 64M		
	R0013	RD357470	Carbon Resistor (chip)	47.0K 63M J				01
	R0014	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0015	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	-0019	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0020	RD357470	Carbon Resistor (chip)	47.0K 63M J				01
	R0021	RD357470	Carbon Resistor (chip)	47.0K 63M J				01
	R0022	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0023	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	-0025	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0026	RD350000	Carbon Resistor (chip)	0 63M J				01
	-0028	RD350000	Carbon Resistor (chip)	0 63M J				01
	R0029	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0030	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0032	RD357470	Carbon Resistor (chip)	47.0K 63M J				01
	R0033	RD357470	Carbon Resistor (chip)	47.0K 63M J				01
	R0034	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0035	RD355100	Carbon Resistor (chip)	100.0 63M J				01
	R0036	RD355330	Carbon Resistor (chip)	330.0 63M J				01
	R0037	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0038	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0039	RD356100	Carbon Resistor (chip)	1.0K 63M J				01
	R0040	RD358470	Carbon Resistor (chip)	470.0K 63M J				01
	-0042	RD358470	Carbon Resistor (chip)	470.0K 63M J				01
	R0043	RD355100	Carbon Resistor (chip)	100.0 63M J				01
	-0046	RD355100	Carbon Resistor (chip)	100.0 63M J				01
	R0047	RD357220	Carbon Resistor (chip)	22.0K 63M J				01
	R0048	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0049	RD357220	Carbon Resistor (chip)	22.0K 63M J				01
	R0050	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0051	RD356100	Carbon Resistor (chip)	1.0K 63M J				01
	R0052	RD356820	Carbon Resistor (chip)	8.2K 63M J				01
	R0053	RD356270	Carbon Resistor (chip)	2.7K 63M J				01
	R0054	RD357100	Carbon Resistor (chip)	10.0K 63M J				01
	R0058	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	-0090	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0091	RD355220	Carbon Resistor (chip)	220.0 63M J				01
	R0093	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0096	RD355390	Carbon Resistor (chip)	390.0 63M J				01
	R0097	RD355390	Carbon Resistor (chip)	390.0 63M J				01
	R0100	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0101	RD354470	Carbon Resistor (chip)	47.0 63M J				01
	R0102	RD350000	Carbon Resistor (chip)	0 63M J				01
	TR001	V4767500	Transistor	2SD601A-(TX) Q,R,S				01
	TR001	VV556400	Transistor	2SC2412K Q,R,S				01
	TR002	IB070900	Transistor	2SB709A P,Q,R,S				01
	TR002	VJ927200	Transistor	2SA1162 O,Y				01
	TR002	VV556500	Transistor	2SA1037AK Q,R,S				01
	X0001	VZ703600	Quartz Crystal Unit	8.4672M SMD-49				03
*		V9703100	Circuit Board	AM		(V970340)(X3239C0)		
		EP600190	Bind Head Tapping Screw-B	3.0X8 MFZN2BL				01
		--	Jumper Wire	0.55		(VA07890)		
		--	GND Wire			(WA58680)		
		--	Wire			(WA85510)		
	C0001	--	Jumper Wire	0.55		(VA07890)		
	C0004	UR866100	Electrolytic Cap.	1.00 50.0V				01
	C0005	VE326800	Monolithic Mylar Capacitor	0.4700 50V J				01
	C0006	VE326300	Monolithic Mylar Capacitor	0.18 50V J				01
	C0007	VE326100	Monolithic Mylar Capacitor	0.12 50V J				01
	C0008	UA654820	Mylar Capacitor	0.0820 50V J				01
	C0009	UA654820	Mylar Capacitor	0.0820 50V J				01
	C0010	UA654120	Mylar Capacitor	0.0120 50V J				01
	C0011	UA654560	Mylar Capacitor	0.0560 50V J				
	C0012	UA654100	Mylar Capacitor	0.0100 50V J				01
	C0013	UA653560	Mylar Capacitor	5600P 50V J				01

*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
C0014	UA653180	Mylar Capacitor	1800P 50V J				01
C0018	US062470	Ceramic Capacitor-SL(chip)	470P 50V J				01
C0021	--	Jumper Wire	0.55		(VA07890)		
C0024	UR866100	Electrolytic Cap.	1.00 50.0V				01
C0025	VE326800	Monolithic Mylar Capacitor	0.4700 50V J				01
C0026	VE326300	Monolithic Mylar Capacitor	0.18 50V J				01
C0027	VE326100	Monolithic Mylar Capacitor	0.12 50V J				01
C0028	UA654820	Mylar Capacitor	0.0820 50V J				01
C0029	UA654820	Mylar Capacitor	0.0820 50V J				01
C0030	UA654120	Mylar Capacitor	0.0120 50V J				01
C0031	UA654560	Mylar Capacitor	0.0560 50V J				
C0032	UA654100	Mylar Capacitor	0.0100 50V J				01
C0033	UA653560	Mylar Capacitor	5600P 50V J				01
C0034	UA653180	Mylar Capacitor	1800P 50V J				01
C0037	US062470	Ceramic Capacitor-SL(chip)	470P 50V J				01
C0040	UR847470	Electrolytic Cap.	47.00 25.0V				01
C0201	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0202	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0203	UR749470	Electrolytic Cap.	4700 25.0V				05
C0204	UR848100	Electrolytic Cap.	100.00 25.0V				01
C0205	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0206	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0207	UR838100	Electrolytic Cap.	100.00 16.0V				01
C0208	UR848220	Electrolytic Cap.	220.00 25.0V				01
C0209	US135100	Ceramic Capacitor-F (chip)	0.1000 16V Z				01
C0210	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0211	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0212	US135100	Ceramic Capacitor-F (chip)	0.1000 16V Z				01
C0213	UR838470	Electrolytic Cap.	470.00 16.0V				01
C0220	UR847470	Electrolytic Cap.	47.00 25.0V				01
C0221	UR848100	Electrolytic Cap.	100.00 25.0V				01
C0223	UA354470	Mylar Capacitor	0.0470 50V J				
C0225	UA354470	Mylar Capacitor	0.0470 50V J				
C0227	UA354470	Mylar Capacitor	0.0470 50V J				
C0229	UA354470	Mylar Capacitor	0.0470 50V J				
C0245	VU838100	Monolithic Mylar Capacitor	1.0000 50V J				
C0246	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
C0247	UR837220	Electrolytic Cap.	22.00 16.0V				01
C0248	UR837470	Electrolytic Cap.	47.00 16.0V				01
C0265	VU838100	Monolithic Mylar Capacitor	1.0000 50V J				
C0266	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
C0267	UR837220	Electrolytic Cap.	22.00 16.0V				01
C0268	UR837470	Electrolytic Cap.	47.00 16.0V				01
C0270	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
C0271	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
C0272	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0273	UR847470	Electrolytic Cap.	47.00 25.0V				01
C0274	UR847470	Electrolytic Cap.	47.00 25.0V				01
C0275	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
-0278	US064100	Ceramic Capacitor-B (chip)	0.0100 50V K				01
C0279	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
C0280	US063100	Ceramic Capacitor-B (chip)	1000P 50V K				01
CN201	VB390700	Connector Base Post	PH-11P TE				01
CN202	VB390400	Connector Base Post	PH- 8P TE				01
CN203	LB918040	Base Post Connector	XH 4P TE				01
D0201	VR313500	Diode	S3V20				01
HS001	--	Heat Sink			(WA77920)		
IC201	XM968B00	IC	UPC24M09AHF		REGULATOR +9V		03
IC202	XR925A00	IC	SI-8401L		REGULATOR +5V 0.5A		05
IC203	XF291A00	IC	UPC4570G2		OP AMP		03
IC207	XQ619A00	IC	LA4705NA		POWER AMP 17W BTL		05
IC208	XE518A00	IC	UPC4574G2		OP AMP		03
-210	XE518A00	IC	UPC4574G2		OP AMP		03
J0203	--	Jumper Wire	0.55		(VA07890)		
-0205	--	Jumper Wire	0.55		(VA07890)		
⚠ JK201	LB302260	Connector	HEC0470-01-630		DC IN 12V		02
JK202	LB101870	Phone Jack	YKB21-5006		PHONES/OUTPUT		03
L0201	VQ884000	Line Filter	CM08RB01				03
L0202	VB835000	Coil	FL5R200QNT				01
-0204	VB835000	Coil	FL5R200QNT				01

*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
R0002	**RD350000**	Carbon Resistor (chip)	0 63M J				01
R0003	**RD350000**	Carbon Resistor (chip)	0 63M J				01
R0004	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0005	**RD356330**	Carbon Resistor (chip)	3.3K 63M J				01
R0006	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0007	**RD356150**	Carbon Resistor (chip)	1.5K 63M J				01
R0008	**RD356150**	Carbon Resistor (chip)	1.5K 63M J				01
R0009	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0010	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0011	**RD356100**	Carbon Resistor (chip)	1.0K 63M J				01
R0012	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0013	**RD356390**	Carbon Resistor (chip)	3.9K 63M J				01
R0014	**RD356470**	Carbon Resistor (chip)	4.7K 63M J				01
R0015	**RD355820**	Carbon Resistor (chip)	820.0 63M J				01
R0018	**RD357100**	Carbon Resistor (chip)	10.0K 63M J				01
R0019	**RD357100**	Carbon Resistor (chip)	10.0K 63M J				01
R0020	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0021	**RD356330**	Carbon Resistor (chip)	3.3K 63M J				01
R0023	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0024	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0025	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0026	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0027	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0028	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0029	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0030	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0031	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0032	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0042	**RD350000**	Carbon Resistor (chip)	0 63M J				01
R0043	**RD350000**	Carbon Resistor (chip)	0 63M J				01
R0044	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0045	**RD356330**	Carbon Resistor (chip)	3.3K 63M J				01
R0046	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0047	**RD356150**	Carbon Resistor (chip)	1.5K 63M J				01
R0048	**RD356150**	Carbon Resistor (chip)	1.5K 63M J				01
R0049	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0050	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0051	**RD356100**	Carbon Resistor (chip)	1.0K 63M J				01
R0052	**RD357150**	Carbon Resistor (chip)	15.0K 63M J				01
R0053	**RD356390**	Carbon Resistor (chip)	3.9K 63M J				01
R0054	**RD356470**	Carbon Resistor (chip)	4.7K 63M J				01
R0055	**RD355820**	Carbon Resistor (chip)	820.0 63M J				01
R0058	**RD357100**	Carbon Resistor (chip)	10.0K 63M J				01
R0059	**RD357100**	Carbon Resistor (chip)	10.0K 63M J				01
R0060	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0061	**RD356330**	Carbon Resistor (chip)	3.3K 63M J				01
R0063	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0064	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0065	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0066	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0067	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0068	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0069	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0070	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0071	**RD355560**	Carbon Resistor (chip)	560.0 63M J				01
R0072	**RD357470**	Carbon Resistor (chip)	47.0K 63M J				01
R0203	**RD357100**	Carbon Resistor (chip)	10.0K 63M J				01
R0204	**HF753220**	Carbon Resistor	2.2 1/4 J				01
-0207	**HF753220**	Carbon Resistor	2.2 1/4 J				01
R0225	**RD356560**	Carbon Resistor (chip)	5.6K 63M J				01
R0226	**RD356220**	Carbon Resistor (chip)	2.2K 63M J				01
R0228	**RD355120**	Carbon Resistor (chip)	120.0 63M J				01
R0245	**RD356560**	Carbon Resistor (chip)	5.6K 63M J				01
R0246	**RD356220**	Carbon Resistor (chip)	2.2K 63M J				01
R0248	**RD355120**	Carbon Resistor (chip)	120.0 63M J				01
R0249	**RD355390**	Carbon Resistor (chip)	390.0 63M J				01
R0250	**RD355390**	Carbon Resistor (chip)	390.0 63M J				01
R0253	**RD356100**	Carbon Resistor (chip)	1.0K 63M J				01
R0254	**RD356100**	Carbon Resistor (chip)	1.0K 63M J				01

*: New Parts

RANK: Japan only

	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
⚠	SW201	V9661700	Push Switch	SY16-32-4(U99S2)/T		STANDBY/ON		03
⚠	SW201	VY980400	Push Switch	SDDLB1 J,UC,CEE		STANDBY/ON		03
⚠	TH201	V8132900	Fuse	MF-R250-AP-10				03
⚠	TH201	VV458000	Poly Switch	RUE250 2.50A 30V				03
*		V9705000	Circuit Board	DJACK		(V970520)(X3240C0)		
*		V9705100	Circuit Board	PN		(V970520)(X3240C0)		
		--	Jumper Wire	0.55		(VA07890)		
	C0301	UR837100	Electrolytic Cap.	10.00 16.0V				01
	C0302	UR837100	Electrolytic Cap.	10.00 16.0V				01
	C0303	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z				01
	-0305	VC694800	Semiconductive Cera. Cap.	0.1000 25V Z				01
	CN301	VB390600	Connector Base Post	PH-10P TE				01
	CN302	VB390100	Connector Base Post	PH- 5P TE				01
	CN401	VB858600	Connector Base Post	PH- 7P SE				01
	CN501	VB858700	Connector Base Post	PH- 8P SE				01
	D0301	VB941200	Diode	1SS133,1SS176				01
	IC301	VG181900	Photo Coupler	PC-900V				03
	JK301	VT202500	DIN Connector	5P YKF51-50		MIDI IN		01
	JK302	VT202500	DIN Connector	5P YKF51-50		MIDI OUT		01
	JK303	VS115400	Phone Jack	LGR4609-7000 BL		SUSTAIN PEDAL		01
	L0301	VB835000	Coil	FL5R200QNT				01
	-0308	VB835000	Coil	FL5R200QNT				01
	LD401	VD180000	LED	SLZ-190B-03 RE		POWER		01
	LD402	VU067800	LED	SEL6210S-TP5 RE		DEMO		01
	R0301	HF756100	Carbon Resistor	1.0K 1/4 J				01
	R0302	HF755220	Carbon Resistor	220.0 1/4 J				01
	R0303	HF754470	Carbon Resistor	47.0 1/4 J				01
	R0304	HF754470	Carbon Resistor	47.0 1/4 J				01
	R0305	HF756150	Carbon Resistor	1.5K 1/4 J				01
	R0306	HF757220	Carbon Resistor	22.0K 1/4 J				01
	R0307	HF757100	Carbon Resistor	10.0K 1/4 J				01
	R0308	HF757220	Carbon Resistor	22.0K 1/4 J				01
	R0309	HF755100	Carbon Resistor	100.0 1/4 J				01
	R0312	HF754220	Carbon Resistor	22.0 1/4 J				01
	SW401	V8889300	Push Switch	EVQ 11Y 07K		VOICE		01
	SW401	VV439800	Tact Switch	SKQNAJ		VOICE		01
	SW402	V8889300	Push Switch	EVQ 11Y 07K		DEMO		01
	SW402	VV439800	Tact Switch	SKQNAJ		DEMO		01
	TP301	--	GND Wire			(WA12550)		
	TP501	--	GND Wire			(WA12560)		
	TR301	IC174070	Transistor	2SC1740S R,S				01
	TR302	IC174070	Transistor	2SC1740S R,S				01
	VR501	V4007500	Slide Variable Resistor	1B 10K RS30112A902		MASTER VOLUME		03
		VZ705300	Circuit Board	GH-D_SW H		(XT241A0)		13
		--	Dust Proof Cloth			(VU45980)		
	CN1	VB390500	Connector Base Post	PH- 9P TE				03
	CN2	VB390800	Connector Base Post	PH-12P TE				01
	D1	VB941200	Diode	1SS133,1SS176				01
	-108	VB941200	Diode	1SS133,1SS176				01
		VZ705200	Circuit Board	GH-D_SW L		(XT240A0)		12
		--	Dust Proof Cloth			(VU45960)		
	C1	FG644100	Electrolytic Cap.	0.0100 50V Z				01
	-3	FG644100	Electrolytic Cap.	0.0100 50V Z				01
	C5	VF760000	Electrolytic Cap.-KS	100.00 10.0V				01
	CL1	VI653000	Ceramic Resonator	CSTLA4M00G58Y02-B0				01
	CN1	VB390400	Connector Base Post	PH- 8P TE				01
	CN2	VB390500	Connector Base Post	PH- 9P TE				03
	CN3	VB390800	Connector Base Post	PH-12P TE				01
	D5	VB941200	Diode	1SS133,1SS176				01
	-72	VB941200	Diode	1SS133,1SS176				01
	J1	--	Jumper Wire	0.55		(VD04170)		
	J2	--	Jumper Wire	0.55		(VD04170)		
	KSN2	XR632A00	IC	YMZ702-D		KEY SCANNER		09
	R1	HF759100	Carbon Resistor	1.0M 1/4 J				01
	R2	HF755100	Carbon Resistor	100.0 1/4 J				01
	R3	HF755100	Carbon Resistor	100.0 1/4 J				01
	R4	HF756100	Carbon Resistor	1.0K 1/4 J				01
	RA1	VU483500	Resistor Array	RGLD12X103J				01
*		X3590A00	Speaker	13.0cm 40hm 10w			2	

*: New Parts

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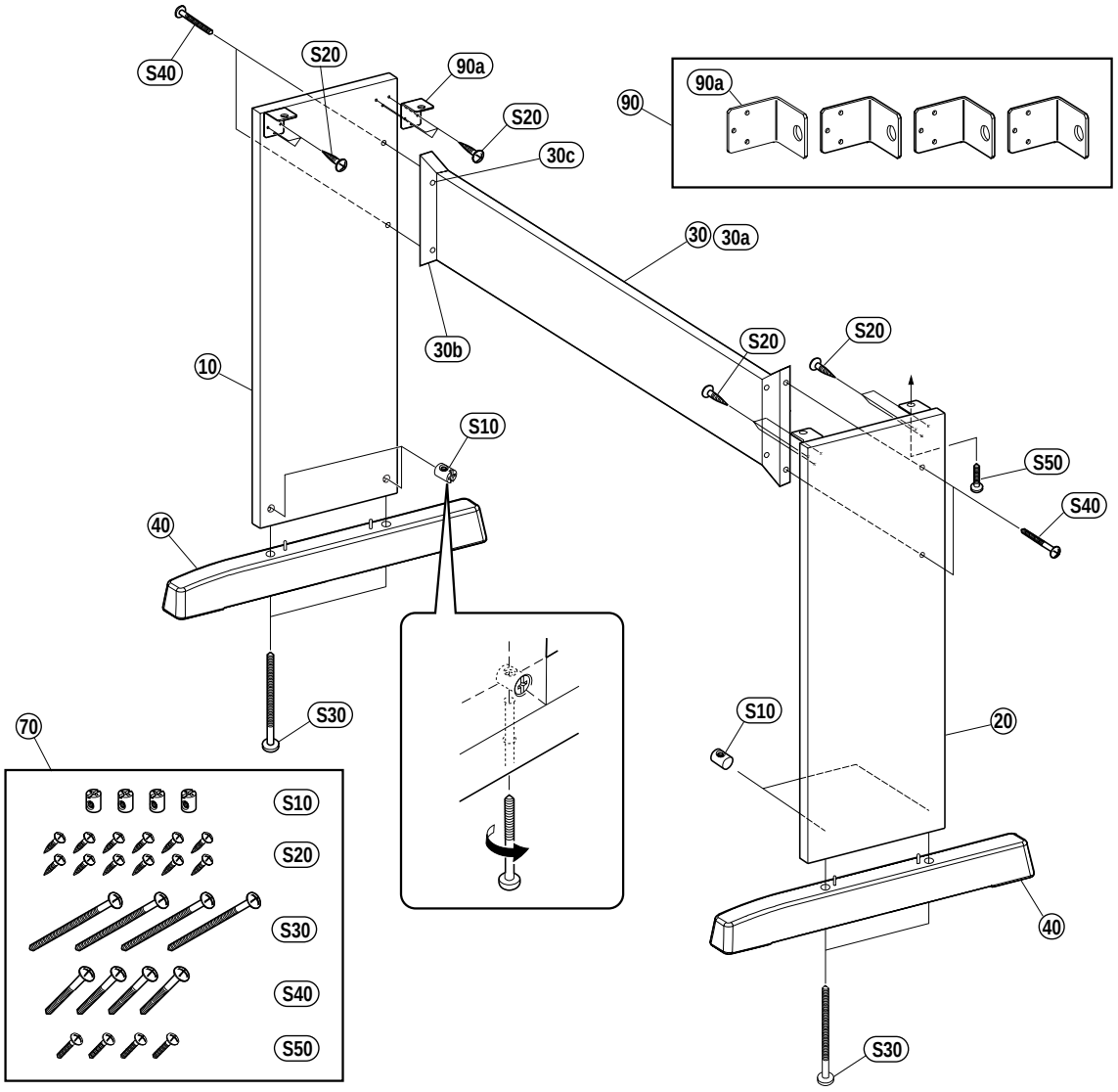
■ L-60W KEYBOARD STAND



	REF NO.	PART NO.	DESCRIPTION			REMARKS	QTY	RANK
			KEYBOARD STAND			L-60W		
*	10	**WA275900**	Side Board	LEFT				
*	20	**WA276200**	Side Board	RIGHT				
	30	**--**	Back Board Assembly			(WA27640)		
*	30a	**WA277500**	Back top Board					
	30b	**V8390000**	Angle Bracket				2	
	30c	**V8524000**	Bind Head Tapping Screw-1	3.5X16 MFZN2			8	
*	40	**WA276700**	Stand Base				2	
	70	**V8386500**	Screw Set					06
	90	**--**	Stay Set			(V838660)		
	90a	**V8390100**	Angle Bracket, ST	2.0 L MFZN2B			4	02
		V8386500	Screw Set					06
*	S10	**V9258800**	Joint Connector	6.0X13MFZN2B			4	
	S20	**V8507400**	Bind Head Tapping Screw-1	3.5X16 MFZN2B			12	01
	S30	**V4160900**	Truss Head Screw	6.0X70 MFZN2BL			4	01
	S40	**V8507500**	Truss Head Screw	6.0X30 MFZN2B			4	01
	S50	**V8507600**	Truss Head Screw	5.0X16 MFZN2B			4	

*: New Parts

RANK: Japan only