

POWERED MIXER

# EMX660

## SERVICE MANUAL



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### 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 WHATSOEVER 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

### ● General specifications

<b>Maximum output power</b>	300 W + 300 W/4ohms @0.5% THD at 1 kHz (POWER AMP OUT 1, 2) 215 W + 215 W/8ohms @0.5% THD at 1 kHz (POWER AMP OUT 1, 2) 600 W/8ohms @0.5% THD at 1 kHz (BRIDGE)	
<b>Frequency response</b>	20 Hz~20 kHz +1 dB, -3 dB @1 W output into 8ohms (POWER AMP OUT) 20 Hz~20 kHz +1 dB, -3 dB @+4 dB output into 10 kohms (MAIN OUT, MONITOR OUT, EFFECT SEND)	
<b>Total harmonic distortion</b>	Less than 0.5% @20 Hz~20 kHz, 150 W output into 4ohms (POWER AMP OUT 1, 2) Less than 0.3% @20 Hz~20 kHz, +14 dB output into 10 kohms (MAIN OUT, MONITOR OUT, EFFECT OUT)	
<b>Hum &amp; noise</b> (Average, Rs=150Ω) (with 20 Hz~20 kHz BPF)	-124 dB equivalent input noise, -65 dB residual output noise (POWER AMP OUT)	
	-88 dB residual output noise (MAIN OUT, MONITOR OUT, EFFECT SEND)	
	-79 dB (83 dB S/N) MAIN OUT, MONITOR OUT	Master level control at nominal level and all channel level controls at minimum.
	-69 dB (73 dB S/N) MAIN OUT, MONITOR OUT	Master level control at nominal level and 1 channel level control at nominal level.
	-75 dB (79 dB S/N) EFFECT SEND	Master level control at nominal level and all channel level controls at minimum.
	-69 dB (73 dB S/N) EFFECT SEND	Master level control at nominal level and 1 channel level control at nominal level.
<b>Maximum voltage gain</b> (PAD: OFF)	88 dB CH IN (Lo-Z) to POWER AMP OUT (CH1~4) 66 dB CH IN (Lo-Z) to MAIN OUT, MONITOR OUT (CH1~4) 72 dB CH IN (Lo-Z) to EFFECT OUT (CH1~4) 48 dB CH IN (Lo-Z) to REC OUT (CH1~4) 56 dB CH IN (Hi-Z) to MAIN OUT, MONITOR OUT (CH1~4) 26 dB AUX IN to MAIN OUT 24 dB TAPE IN to MAIN OUT 66 dB MIC IN to MAIN OUT, MONITOR OUT (CH5*6) 26 dB LINE IN to MAIN OUT, MONITOR OUT (CH5) 46 dB INST IN to MAIN OUT, MONITOR OUT (CH6)	
<b>Crosstalk at 1 kHz</b>	65 dB adjacent input, 65 dB input to output	
<b>Input channel equalization</b>	±15 dB Maximum HIGH 12 kHz shelving* MID 2.5 kHz peaking LOW 80 Hz shelving* * Turn over/roll-off frequency of shelving: 3 dB below maximum variable level.	
<b>Meters</b>	5 POINTS LED METER (-10, -5, 0, +3, +6 dB) (MAIN OUT, MONITOR OUT)	
<b>Graphic equalizer</b>	7 bands (125, 250, 500, 1 k, 2 k, 4 k, 8 kHz), ±12 dB Maximum (MAIN OUT, MONITOR OUT)	
<b>Internal digital effect</b>	8 types (VO.ECHO 1, VO.ECHO 2, VO.REV. 1, VO.REV. 2, HALL 1, HALL 2, ROOM, PLATE)	
<b>Phantom power</b>	+15 V is supplied to electrically balanced inputs for powering condenser microphones via 2.4 kohms current limiting/isolation resistors.	
<b>Limiter</b>	Comp. : THD≥0.5% (POWER AMP OUT)	
<b>LIMIT indicators</b>	Turns on. : THD≥0.5% (POWER AMP OUT)	
<b>Protection Circuit (Power Amp.)</b>	POWER Switch on/off Mute, DC Detection, Temp (Heatsink Temp≥90°C)	
<b>Foot switch (FC-5)</b>	DIGITAL EFFECT MUTE : on/off	
<b>Power requirement</b>	USA and Canada	120 V AC 60 Hz
	Europe	230 V AC 50 Hz
	Other	240 V AC 50 Hz
<b>Power consumption</b>	250 W	
<b>Dimensions (WxHxD)</b>	497×275×275 mm	
<b>Weight</b>	17 kg	

• 0 dB=0.775 Vrms

## ● Input specifications

Input connectors	PAD	Actual load impedance	Nominal impedance	Input level			Connector type
				Sensitivity <sup>1</sup>	Nominal level	Max. before clipping	
CH INPUT (Lo-Z) (CH1~4)	OFF	3 kohms	50~600ohms Mics	-62 dB (0.616 mV)	-50 dB (2.45 mV)	-20 dB (77.5 mV)	XLR-3-31 type <sup>2</sup>
	ON		600ohms Lines	-32 dB (19.5 mV)	-20 dB (77.5 mV)	+10 dB (2.45 V)	
CH INPUT (Hi-Z) (CH1~4)	OFF	10 kohms	50~600ohms Mics	-52 dB (1.95 mV)	-40 dB (7.75 mV)	-10 dB (245 mV)	Phone jack (TRS) <sup>2</sup>
	ON		600ohms Lines	-22 dB (61.6 mV)	-10 dB (245 mV)	+20 dB (7.75 V)	
MIC INPUT (CH5•6)		3 kohms	50~600ohms Mics	-62 dB (0.616 mV)	-50 dB (2.45 mV)	-20 dB (77.5 mV)	XLR-3-31 type <sup>2</sup>
LINE INPUT (CH5) (1, 2)		10 kohms	600ohms Lines	-22 dB (61.6 mV)	-10 dB (245 mV)	+20 dB (7.75 V)	Phone jack <sup>3</sup>
INST INPUT (CH6) (1, 2)		470 kohms	1 kohms	-42 dB (6.16 mV)	-30 dB (24.5 mV)	0 dB (0.775 V)	Phone jack <sup>3</sup>
AUX IN		10 kohms	600ohms Lines	-22 dB (61.6 mV)	-10 dB (245 mV)	+20 dB (7.75 V)	Phone jack <sup>3</sup>
TAPE IN (1, 2)		10 kohms	600ohms Lines	-22 dBV (79.4 mV)	-10 dBV (316 mV)	+17.8 dBV (7.76 V)	RCA phono jack <sup>3</sup>

- Sensitivity is the lowest level that can produce an output of +4 dB (1.23 V) or the nominal output level when the unit is set at maximum gain.  
(All level controls are at maximum position.)
- Balanced (T=Hot, R=Cold, S=Gnd)
- Unbalanced
  - 0 dB=0.775 Vrms, 0 dBV=1 Vrms.

## ● Output specifications

Output connectors	Actual source impedance	Nominal impedance	Output level		Connector type
			Nominal	Max. before clipping	
POWER AMP OUT (1•2) (A, B)	0.1 ohms	4/8ohms Speaker	60 W/4ohms	(300 W/4ohms)	Phone jack
BRIDGE OUT	0.1 ohms	8ohms Speaker	120 W/8ohms	(600 W/8ohms)	Phone jack
MAIN OUT	600ohms	10 kohms Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
MONITOR OUT	600ohms	10 kohms Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
EFFECT OUT	600ohms	10 kohms Lines	+4 dB (1.23 V)	+20 dB (7.75 V)	Phone jack
REC OUT (1, 2)	600ohms	10 kohms Lines	-10 dBV (316 mV)	+10 dBV (3.16 V)	RCA phono jack

- All output jacks are unbalanced.
- 0 dB=0.775 Vrms, 0 dBV=1 Vrms.

For European Model

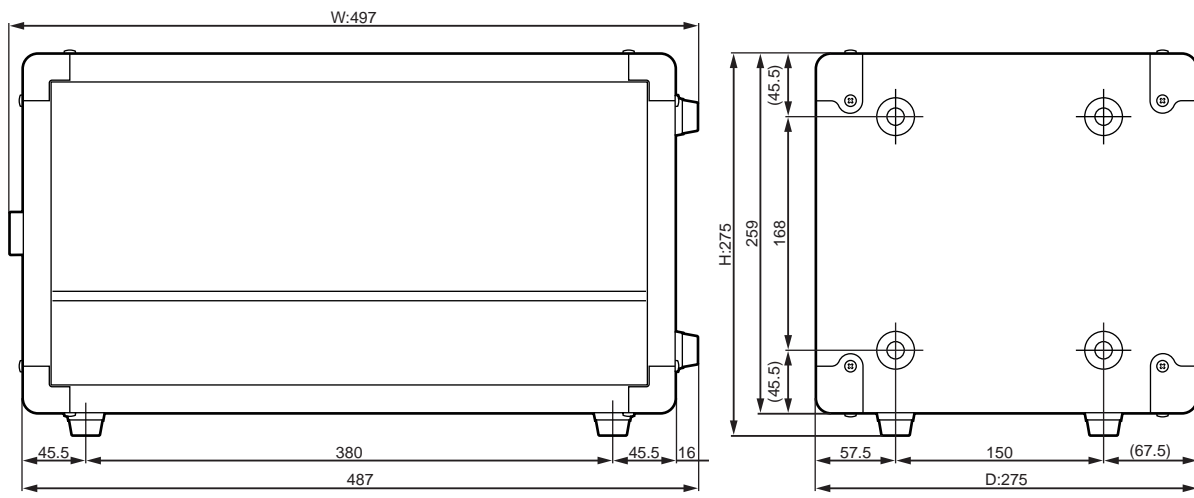
Purchaser/User Information specified in EN55103-1 and EN55103-2.

Inrush Current: 56A

Conformed Environment: E1, E2, E3 and E4



## ■ DIMENSIONS

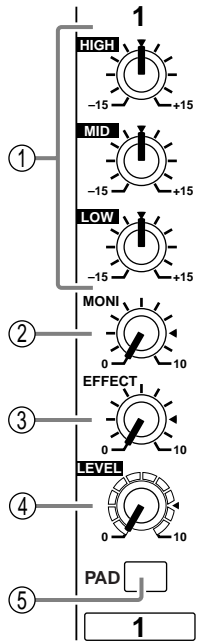


Units: mm

# PANEL LAYOUT

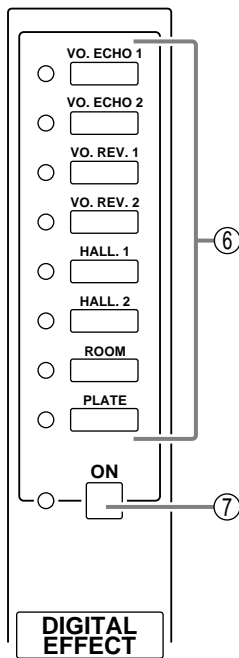
• Control panel

## Channel section



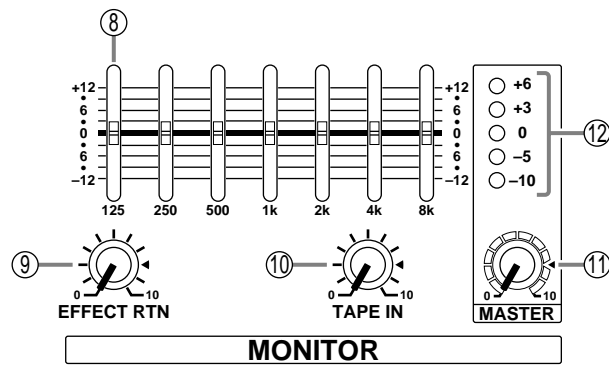
- ① Equalizer controls (HIGH, MID, LOW)
- ② Monitor controls (MONI)
- ③ Effect control (EFFECT)
- ④ Level control (LEVEL)
- ⑤ Pad switch (PAD) (Channel 1-4 only)

## DIGITAL EFFECT section



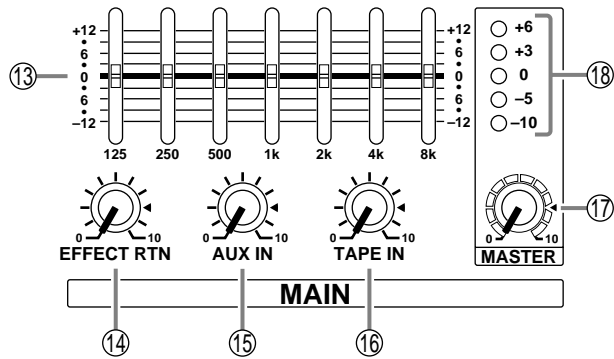
- ⑥ Effect select switch and indicator
- ⑦ DIGITAL EFFECT ON switch and indicator

## MONITOR section



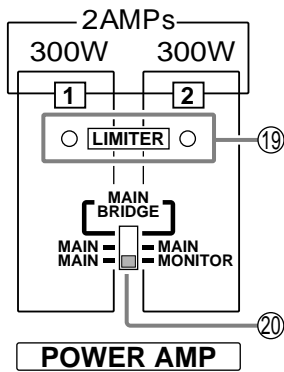
- ⑧ Graphic equalizer
- ⑨ EFFECT RTN control
- ⑩ TAPE IN control
- ⑪ MASTER control
- ⑫ Peak level indicator

**MAIN section**



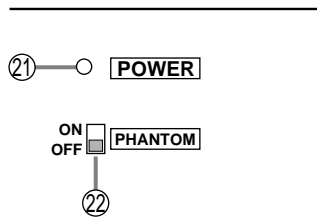
- ⑬ Graphic equalizer
- ⑭ EFFECT RTN control
- ⑮ AUX IN control
- ⑯ TAPE IN
- ⑰ MASTER control
- ⑱ Peak level indicator

**POWER AMP section**



- ⑲ LIMITER indicator
- ⑳ Power amp select switch

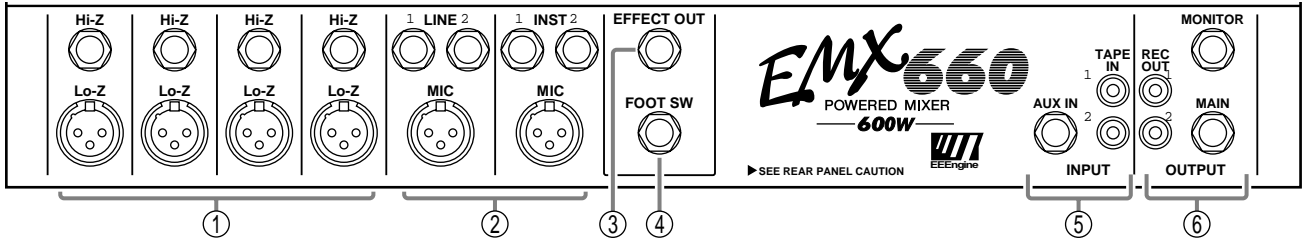
**POWER indicator & PHANTOM section**



- ㉑ POWER indicator
- ㉒ PHANTOM switch

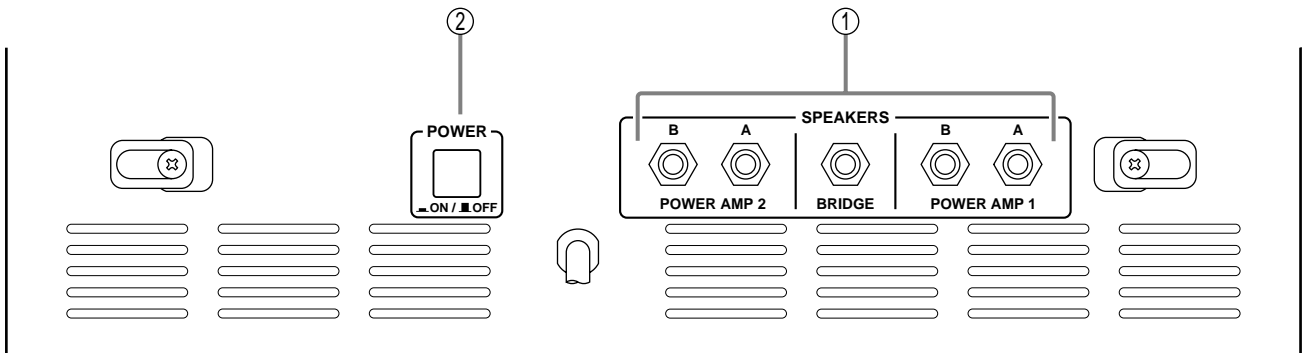


Input/Output panel



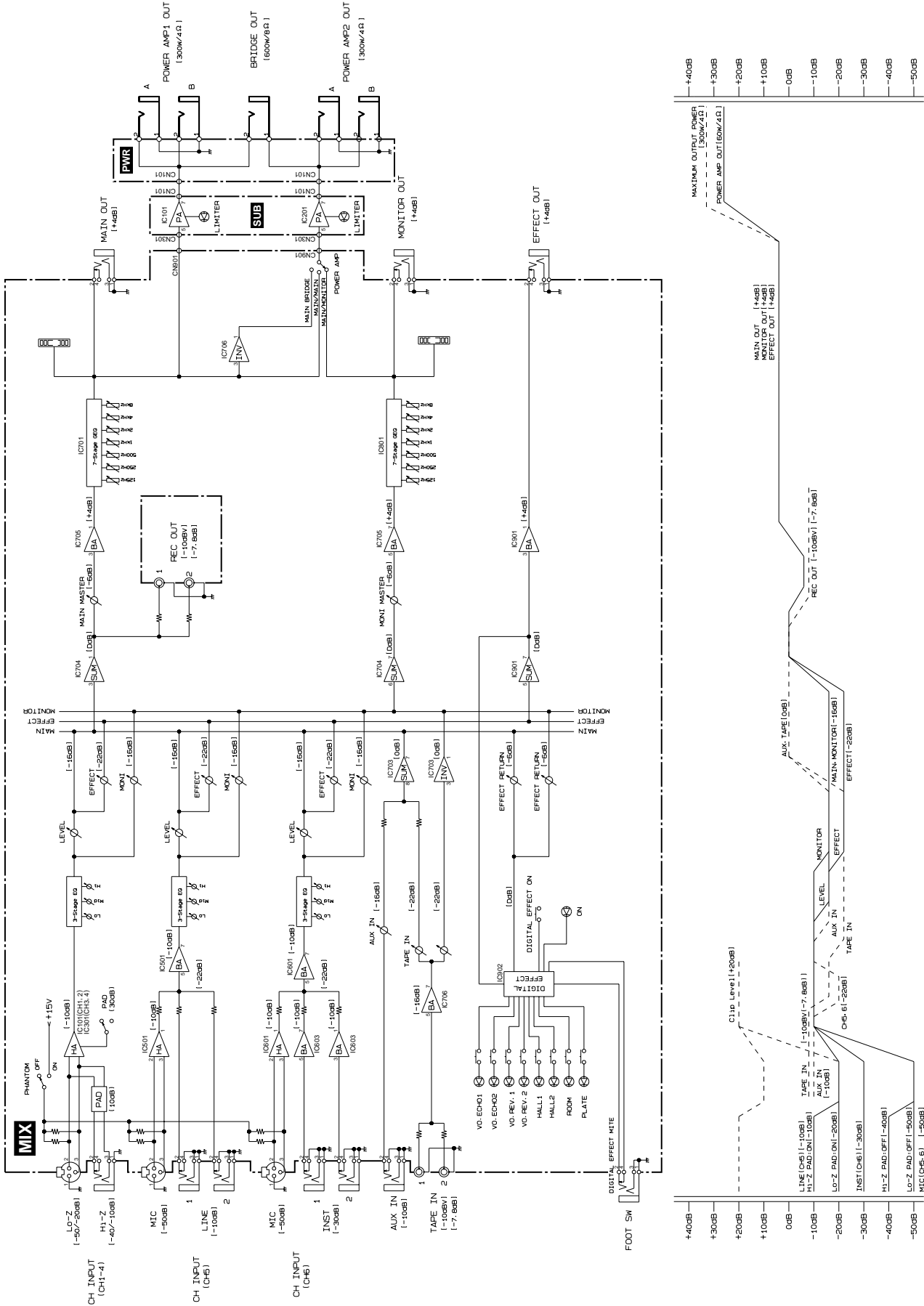
- ① Hi-Z, Lo-Z input jacks
- ② MIC, LINE, INST input jacks
- ③ Effect output jack (EFFECT OUT)
- ④ Foot switch jack (FOOT SW)
- ⑤ External input jacks (AUX IN/TAPE IN)
- ⑥ External output jacks (REC OUT/MONI-TOR/MAIN)

• Rear panel



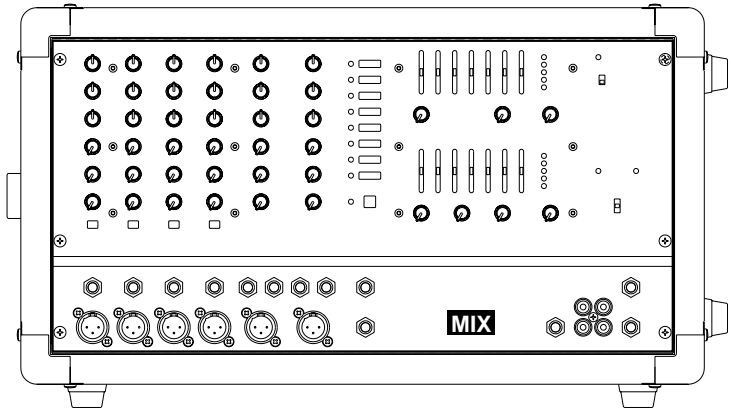
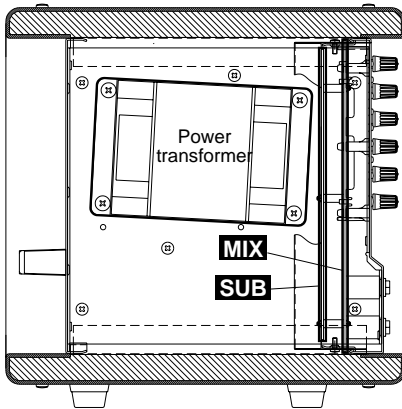
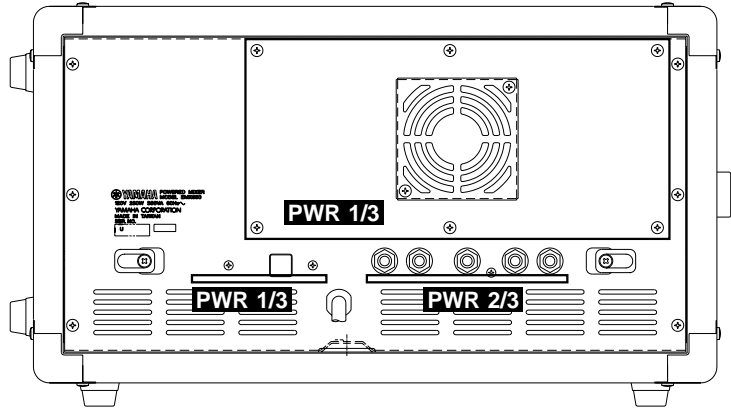
- ① Speaker output jacks (POWER AMP 1 A/B, POWER AMP 2 A/B, BRIDGE)
- ② Power switch

# BLOCK & LEVEL DIAGRAM



KEC-92542

# ■ CIRCUIT BOARD LAYOUT



## ■ DISASSEMBLY PROCEDURE

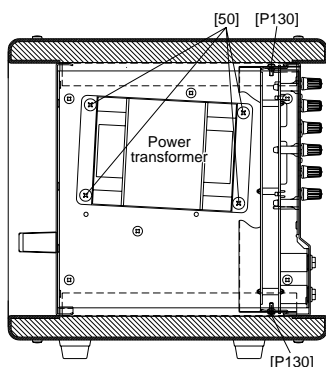
### 1 MIX circuit board

- 1-1 Remove the six (6) screws marked [30]. The panel assembly can then be removed. (Fig. 1)
- 1-2 Remove the four (4) screws marked [P130]. The shield case can then be removed. (Fig. 1)
- 1-3 Remove the forty-three (43) knobs, the thirteen (13) special hexagonal nuts and the thirteen (13) screws marked [P90]. (Fig. 1)
- 1-4 Remove the twelve (12) screws marked [P40]. The MIX circuit board can then be removed. (Fig. 1)

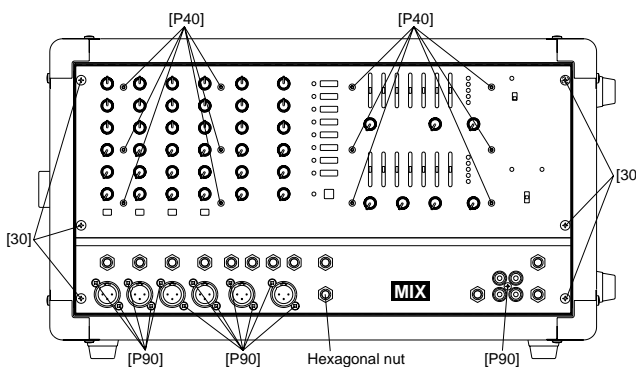
### 2 SUB circuit board

- 2-1 Remove the panel assembly. (See Procedure 1.)
- 2-2 Remove the shield case. (See Procedure 1.)
- 2-3 Remove the SUB circuit board from the seven(7) spacer supports marked [P110]. (Fig. 1)

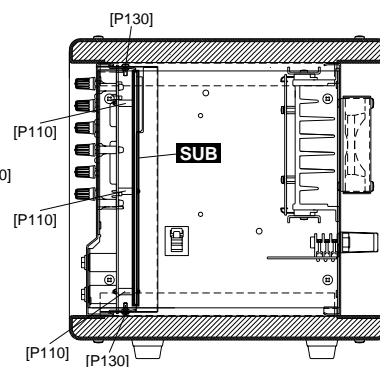
#### • Right side view



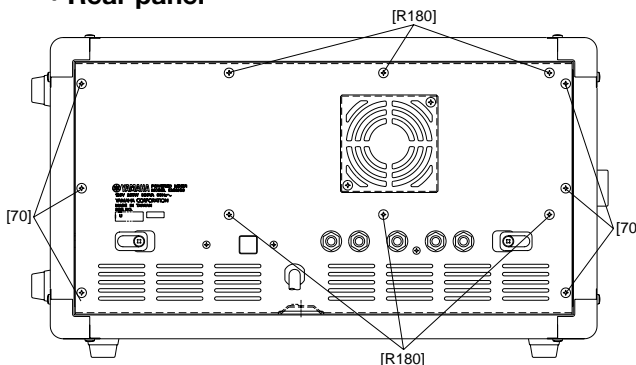
#### • Front panel



#### • Left side view



#### • Rear panel



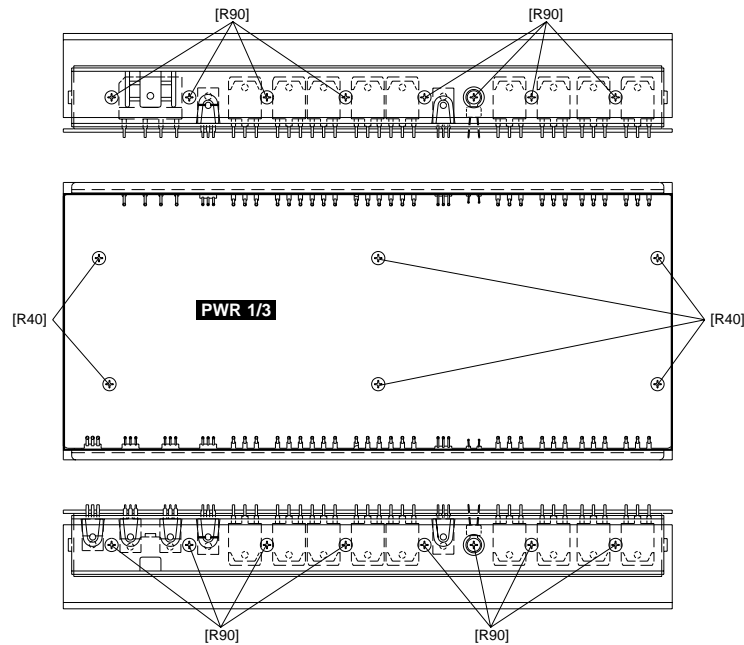
- [30]: Bind Head Screw 4.0X8 MFZN2BL (EG340360)
- [50]: Bind Head Screw SP 5.0X10 MFZN2BL (VU688100)
- [70]: Bind Head Screw 4.0X8 MFZN2BL (EG340360)
- [P40]: Hexagonal Button Screw-P 3X25 MFZNBL (V3289800)
- [P90]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)
- [P130]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)
- [R180]: Bind Head Tapping Screw-B 4.0X8 MFZN2BL (EG340190)

Fig.1

### 3 PWR 1/3 circuit board

- 3-1 Remove the panel assembly. (See Procedure 1.)
- 3-2 Remove the two (2) connectors from the power transformer and the six (6) screws marked [70]. The rear assembly can then be removed. (Fig. 1)
- 3-3 Remove the six (6) screws marked [R180]. The power unit can then be removed. (Fig. 1)
- 3-4 Remove the sixteen (16) screws marked [R90]. TR support angle A/B can then be removed. (Fig. 2)
- 3-5 Remove the six (6) screws marked [R40]. The PWR circuit board 1/3 can then be removed. (Fig. 2)

#### • Power unit



[R40]: Bind Head Screw SP 3.0X8 MFZN2Y (EG330290)

[R90]: Bind Head Tapping Screw-B 3.0X12 MFZN2BL (VQ074600)

Fig.2

### 4 PWR 2/3 circuit board

- 4-1 Remove the panel assembly. (See Procedure 1.)
- 4-2 Remove the rear assembly. (See Procedure 3.)
- 4-3 Remove the screw marked [R210] and the five (5) "special screws b". The PWR 2/3 circuit board can then be removed. (Fig. 3)

### 5 PWR 3/3 circuit board

- 5-1 Remove the panel assembly. (See Procedure 1.)
- 5-2 Remove the rear assembly. (See Procedure 3.)
- 5-3 Remove the two (2) screws marked [R150] and then remove the PWR 3/3 circuit board with the switch bracket. (Fig. 3)
- 5-4 Remove the two (2) screws marked [R140] and the screw marked [R150a] from the switch bracket. The PWR 3/3 circuit board can then be removed. (Fig. 3)

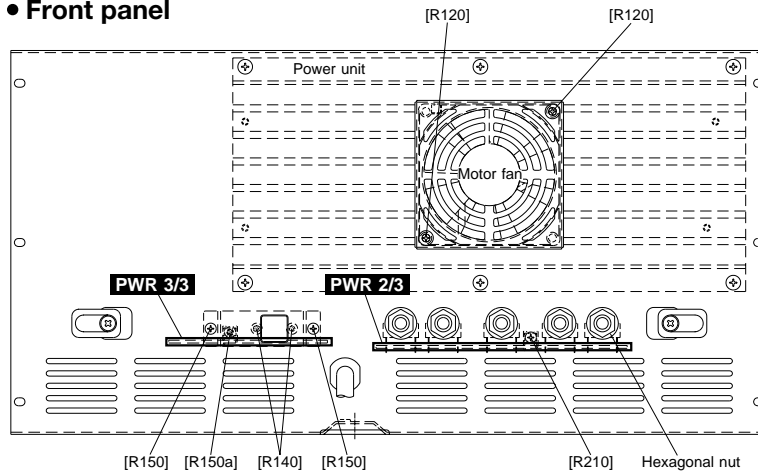
**6 Motor fan**

- 6-1 Remove the panel assembly. (See Procedure 1.)
- 6-2 Remove the rear assembly. (See Procedure 3.)
- 6-3 Remove the power unit. (See Procedure 3.)
- 6-4 Remove the two (2) screws marked [R120]. The motor fan can then be removed. (Fig. 3)

**7 Power transformer**

- 7-1 Remove the panel assembly. (See Procedure 1.)
- 7-2 Remove the rear assembly. (See Procedure 3.)
- 7-3 Remove the four (4) screws marked [50]. The power transformer can then be removed. (Fig. 1)

• **Front panel**



- [R120]: Bind Head Screw 3.0X30 ZMC2BL (VT520200)
- [R140]: Bind Head Screw 3.0X8 MFZN2BL (VB659000)
- [R150a]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)
- [R150]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)
- [R210]: Bonding Tapping Screw-B 3.0X8 MFZN2BL (VN413300)

Fig.3

# LSI PIN DESCRIPTION

## ● ZFX-2 (XY297A00) DSP

SUB: IC306

PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION															
1	ED2	I/O	External Memory and I/O Data Bus	51	HX/SDA	I/O/Z	Host Interface Data Output/I2C Bus Data															
2	ED3	I/O		52	/EMPTY	O/Z	CMEM Update Buffer and HR Resistor Empty Flag Output															
3	ED4	I/O		53	AXLR2	I	Audio Data Transmitt Unit 2/3 Left and Right Channel Frame Frequency Signal															
4	ED5	I/O		54	AR1	I	Audio Data Receive Unit 1 Data Input															
5	ED6	I/O		55	AR2	I	Audio Data Receive Unit 2 Data Input															
6	ED7	I/O		56	HRBCK/SA0	I	Host Interface Receive Clock / I2C Bus Address 0															
7	VSS	-		57	HR/SA1	I	Host Interface Data Input/ I2C Bus Address 1															
8	VDD	-		58	HRS/SA2	I	Host Interface Receive Data Frame Frequency Signal/I2C Bus Address 2															
9	CLKM0	I		Clock Mode	59	VSS	-	Ground														
			<table border="1"> <thead> <tr> <th></th> <th>1 min.</th> <th>3fold</th> <th>5fold</th> <th>PLL BYPASS</th> </tr> </thead> <tbody> <tr> <td>CLKM0</td> <td>0</td> <td>1</td> <td>0</td> <td>1</td> </tr> <tr> <td>CLKM1</td> <td>0</td> <td>0</td> <td>1</td> <td>1</td> </tr> </tbody> </table>		1 min.	3fold	5fold	PLL BYPASS	CLKM0	0	1	0	1	CLKM1	0	0	1	1	60	VDD	-	Power Supply
	1 min.	3fold	5fold	PLL BYPASS																		
CLKM0	0	1	0	1																		
CLKM1	0	0	1	1																		
10	CLKM1	I	TAP(Test Access Port) Mode Select	61	HXBCK/SCL	I	Host Interface Transmitt Clock/ I2C Bus Clock															
11	TMS	I	TAP Data Input	62	HXS/SA3	I	Host Interface Transmitt Data Frame Frequency Signal/ I2C Bus Address 3															
12	TDI	I	TAP Clock	63	/CS/SA4	I	Host Interface Chip Select/ I2C Bus Address 4															
13	TCK	I	Master Clock	64	HBCKS/SA5	I	HRBCK/HXBCK Active Edge Select/ I2C Bus Address 5															
14	CLKIN	I	Ground	65	ICSEL	I	Host Interface Mode Select															
15	VSS	-	Power Supply	66	VSS	-	Ground															
16	VDD	-	Machine Clock Output	67	VDD	-	Power Supply															
17	CLKO	O	External SRAM and ROM Address Bus/ External DRAM and I/O Data Bus	68	AXBC1	I	Audio Data Transmitt Unit 1 bit Clock															
18	EA12/ED8	I/O		69	AXBC2	I	Audio Data Transmitt Unit 2/3 bit Click															
19	EA13/ED9	I/O		70	AXLR1	I	Audio Data Transmitt Unit 1 Left and Right Channel Frame Frequency Signal															
20	EA14/ED10	I/O		71	DIV8	O	Machine Clock Output then 8 min.															
21	EA15/ED11	I/O		72	/LAV	O	Ruch ALU Overflow Frag Output															
22	VSS	-		73	/LMV	O	Ruch MAC Overflow Frag Output															
23	VDD	-		74	/DRDY	O/Z	Host Interface Transmitt Data Ready Frag Output															
24	EA16/ED12	I/O		75	EMU0	I/O/Z	Emurator Interrupt 0															
25	EA17/ED13	I/O		76	EMU1	I/O/Z	Emurator Interrupt 1															
26	EA18/ED14	I/O	External Memory Address Bus/ External I/O Data Bus	77	TDO	O/Z	TAP(Test Access Port) Data Output															
27	EA19/ED15	I/O		78	DIV512	O	Machine Clock then 512 min.															
28	EA4/ED16	I/O		79	ARL1	I	Audio Data Receive Unit 1 Left and Right Channel Frame Frequency Signal															
29	EA5/ED17	I/O		80	ARL2	I	Audio Data Receive Unit 2 Left and Right Channel Frame Frequency Signal															
30	EA6/ED18	I/O		81	HDIR/SA6	I	Host Interface Data Format Select/ I2C Bus Address 6															
31	EA7/ED19	I/O		82	SEL5V3V	I	Input Level Control															
32	VSS	-		83	/MUTE	I	Mute Control															
33	VDD	-		84	/TRST	I	TAP(Test Access Port) Reset															
34	EA8/ED20	I/O		85	/RS	I	Hardware Reset															
35	EA9/ED21	I/O	Test Mode Control	86	VSS	-	Ground															
36	EA10/ED22	I/O		87	VDD	-	Power Supply															
37	EA11/ED23	I/O		88	/IOE	O	External I/O Enable															
38	TEST0	I		89	/RAS/SRCS	O	External DRAM Low Address Strobe/External SRAM Chip Select															
39	TEST1	I		90	/CAS/SROE	O	External DRAM Column Address Strobe/External SRAM Output Enable															
40	TEST2	I		91	/ROME	O	External ROM Enable															
41	TEST3	I		92	/WE	O	External Memory and I/O Wright Enable															
42	/BIO	I		93	EA0	O	External Memory and I/O Address Bus															
43	/INT1	I		94	EA1	O																
44	ARBC1	I	95	EA2	O																	
45	ARBC2	I	Separate Control Input	96	EA3	O	Ground															
46	AX1	O		97	VSS	-																
47	AX2	O		98	VDD	-		Power Supply														
48	AX3	O		99	ED0	I/O		External Memory and I/O Data Bus														
49	VSS	-		100	ED1	I/O																
50	VDD	-		Power Supply																		

Z: High impedance

## ● PCM3001E (XY282A00) ADA

SUB: IC305

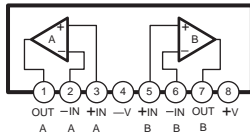
PIN NO.	NAME	I/O	FUNCTION	PIN NO.	NAME	I/O	FUNCTION
1	VINL	I	ADC Analog input, L ch	15	VOUTL	O	DAC Analog Output, L ch
2	Vcc1	-	ADC Analog Power Supply	16	LRCIN	I	Sampling Clock Input (fs)
3	AGND1	-	ADC Analog Ground	17	BCKIN	I	Bit Clock Input
4	VREFL	-	ADC Reference decuple, L ch	18	DIN	I	Audio Data Input
5	VREFR	-	ADC Reference Decuple, R ch	19	DOUT	O	Audio Data Output
6	VINR	I	ADC Analog input, R ch	20	XTI	I	Crystal Oscillator Input, External System Clock Input
7	CINPR	-	ADC Unch areasing Filter Capacitor (+), R ch	21	XTO	O	Crystal Oscillator Output
8	CINNR	-	ADC Unch areasing Filter Capacitor (-), R ch	22	CLKIO	I/O	Crystal Oscillator Buffer Output, Externak System Clock Input
9	CINNL	-	ADC Unch areasing Filter Capacitor (-), L ch	23	VDD	-	Digital Power Supply
10	CINPL	-	ADC Unch areasing Filter Capacitor (+), L ch	24	DGND	-	Digital Ground
11	VCOM	-	DAC Center Power Supply Decuple	25	FMT2	I	Audio Data Format 2 (1)
12	VOUTR	O	DAC Analog Output, R ch	26	FMT1	I	Audio Data Format 1 (1)
13	AGND2	-	DAC Analog Ground	27	FMT0	I	Audio Data Format 0 (1)
14	VCC2	-	DAC Analog Power Supply	28	RSTB	I	Reset Input, Active "L"



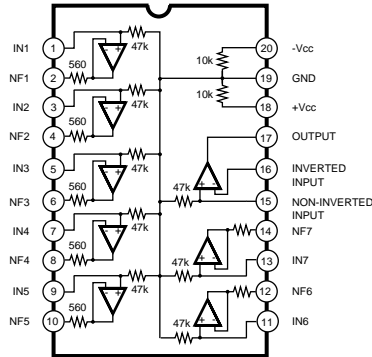
# IC BLOCK DIAGRAM

- **NJM2068L-D**(XM356A00)
- **NJM4558L-D**(XQ212A00)
- **N5238AP**(XM085A00)

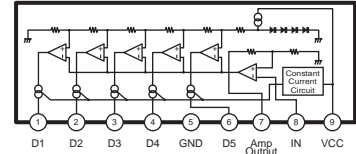
MIX: IC101, IC102, IC301, IC302, IC501, IC502, IC601, IC603, IC703, IC704, IC705, IC706, IC901  
 SUB: IC101, IC201, IC304  
 OP AMP



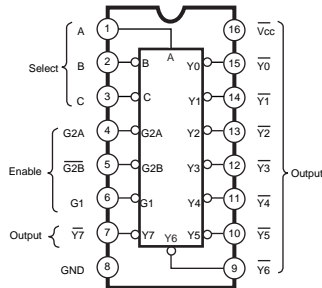
- **M5229P**(XG203A00)
- MIX: IC701, IC801  
 7Seg Grafic



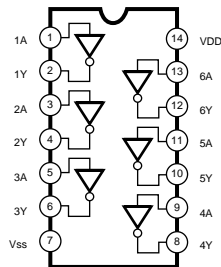
- **BA6137**(XA534A00)
- MIX: IC702, IC802  
 LED Driver



- **TC74HC138AP**(IR013800)
- MIX: IC902  
 DECO-8



- **TC74HCU04AP**(IG142200)
- SUB: IC302  
 Inverter



## ■ INSPECTIONS

### 1. Measuring Instruments

Low Frequency Oscillator:	Balance Output, Output Impedance = 150 ohms
Oscilloscope:	Input Impedance $\geq$ 100 kohms
Level Meter:	Input Impedance $\geq$ 100 kohms

Note: Use a balance input measuring instrument  
: Signal level 0 dBs = 0.775V

### 2. Mixer Part

#### 2-1 Setting Conditions

Setting conditions are as follows unless otherwise specified.

#### 2-2 Input and Output Load

Input Signal:	1 kHz, sine wave (Rs = 150 ohms)
Load:	All output terminals have a 10 k ohms load

#### 2-3 Control Panel Setting

Channel Input (CH1-CH4) Section

EQ (HIGH, MID, LOW) level controls:	Center
MONITOR level control:	Maximum
EFFECT level control:	Maximum
LEVEL:	Maximum
PAD:	OFF

Channel Input (CH5-CH6) Section

EQ (HIGH, MID, LOW) level controls:	Center
MONITOR level control:	Maximum
EFFECT level control:	Maximum
LEVEL:	Maximum

EFFECT Section

DIGITAL EFFECT ON switch	OFF
--------------------------	-----

MAIN Section

GRAPHIC EQUALIZER (7 band) Fader:	Center
EFFECT RTN level control:	Maximum
AUX IN:	Maximum
TAPE IN:	Maximum
MASTER (MAIN):	Maximum

MONITOR Section

GRAPHIC EQUALIZER (7 band) Fader:	Center
EFFECT RTN level control:	Maximum
TAPE IN Level control:	Maximum
MASTER (MAIN) level control:	Maximum

Others

PHANTOM ON/OFF switch	OFF
POWER AMP switch	MAIN/MONITOR

## 2-4 Gain

Each output gain should be as shown in the table below.

Table 1

[Units: dBs]

Input Terminal	Input Level	MAIN OUT	MONITOR OUT	EFFECT OUT	REC OUT
Lo-z	-32	+4± 2	+4± 2	+4± 2	+13.8± 2
MIC	-32(PAD ON)				
Hi-Z	-52	+4± 2	-	-	-
LINE	-22	+4± 2	-	-	-
INST	-42	+4± 2	-	-	-
AUX	-22	+4± 2	-	-	-
TAPE	-22	+4± 2	-	-	-

## 2-5 Frequency Response

When the input signal frequency is set to 20 Hz and 20 kHz in Tables 1, each output terminal level should fall within the range of +1 and -3 dB, using 1 kHz as the reference.

## 2-6 Equalizer Characteristics

When LOW, MID, HIGH GAIN VR's of CH1-6 are moved, the output level in each frequency obtained at MAIN OUT and MONITOR OUT should be in the range shown in the table below, using the output level at the center click position as reference. If the output level is not within the range as shown in the table, vary the specified frequency of the input signal within ±20% range and check that the output level as shown in the table below can be obtained.

Table 2

[Units: dBs]

EQ Controls	GAIN	Frequency	Response
LOW	Maximum	80 Hz	+12 ± 2
	Minimum		+12 ± 2
MID	Maximum	2.5 kHz	+14 ± 2
	Minimum		- 14 ± 2
HIGH	Maximum	12 kHz	+12 ± 2
	Minimum		+12 ± 2

## 2-7 Graphic Equalizer Characteristics

When setting of the fader of the graphic equalizer is varied to the maximum and minimum positions, the output response for each frequency obtained at MAIN OUT and MONITOR OUT should be in the range shown in the table below using the output level at the center click position as a standard.

If the output level is not within the range as shown in the table, vary the specified frequency of the input signal within ±20% range and check that the output level as shown in the table below can be obtained.

Table 3

[Units: dBs]

		Input signal frequency and Fader name						
		125 Hz	250 Hz	500 Hz	1 kHz	2 kHz	4 kHz	8 kHz
Response	Maximum	+12 ± 2						
	Minimum	-12 ± 2						

## 2-8 Meter LED

When the MAIN OUT and MONITOR OUT output levels are as shown in the table below, each corresponding METER LED light should light up.

Table 4

[Units: dBs]

LED Name	Lighting Level
+6	+10 ± 2
+3	+7 ± 2
0	+4±2
-5	-1 ± 2
-10	-6 ± 2.5

## 2-9 Distortion

Set each volume control of the INPUT section and MASTER section to Nominal in Tables 1. When each output except the REC OUT level reaches +14 dBs, the distortion ratio should be less than 0.3 %.

## 2-10 Maximum Output Level

In the states of 2-9, the maximum output levels of MAIN OUT, MONITOR OUT and EFFECT OUT should be +20 dBs with a distortion of less than 1%.

## 2-11 Equivalent Input Noise

With the level volume of the channel being measured only set to the maximum position and those of other channels set to the minimum position and the input terminals of Lo-z and MIC shorted with 150ohms, check that the noise level at MAIN OUT is -58dBs or less (but -56dBs or less for CH6). If the noise level exceeds the specified value, check the converted input noise level at each channel. The acceptable level is -124dBs or less for CH1 to CH5 and -122 dBs or less for CH6. (Use DIN AUDIO FILTER.)

## 2-12 Residual Noise

Set all the input level controls at minimum in the states of 2-3. When the MASTER and EFFECT OUT level controls in the MAIN and MONITOR section are changed to maximum or minimum, the residual noise should be as shown in the table below.

Table 5

[Unit: dBs]

MASTER VOLUME	MAIN OUTPUT	MONITOR OUT	EFFECT OUT
Maximum	-71	-71	-73
Minimum	-88	-88	-

## 2-13 Phantom Power

Connect a load resistance of 2.7 K ohm (more than 1W) between pins 1 and 2 of both the Lo-z IN and the MIC IN input terminals, then short between pins 2 and 3 of the Lo-z IN and the MIC IN input terminal.

When the PHANTOM switch is turned on,  $+10 \pm 1.5$  V should be obtained between both ends of the load resistance.

## 2-14 Digital Effect

Turn on the power while pressing VO.ECHO1 and ON switches simultaneously and check that the ON LED light flashes. Input a -42dBs/1KHz signal to the CH6 INST, set the EFFECT level control and LEVEL control to the maximum position, and also set MASTER and EFFECT volumes of the MONITOR to the maximum position. Then check the signal level at the MONITOR OUT by selecting the PGM switch as described in Table 6 below.

Table 6

[Unit: dBs]

PGM Switch	Operation	Check for: (at MONITOR OUT)
VO. ECHO1	Press ON SW.	No output (-53dBs or less) [DIN AUDIO]
VO. ECHO2	Set LEVEL control to min. position.	-53dBs or less [DINdBsDIO]
VO.REV.1	-	Output obtained
VO.REV.2	-	Output not obtained (-53dBs or less) [DIN AUDIO]
HALL1	Depress FOOT SW.	-30dBs or less [DIN AUDIO] and full output are repeated every time FOOT SW is depressed.
HALL2	-	Output not obtained (-53dBs or less) [DIN AUDIO]
ROOM	-	4.2 $\pm$ 1dB attenuated from full output
PLATE	-	+10 $\pm$ 3dBs of full output

Check that the LED light lights up when each PGM switch is selected.

Also, check that the EFFECT is applied when the music source (vocal, etc.) is input.

## 2-15 Stability

When a capacitor of 10  $\mu$ F to 0.1  $\mu$ F is connected in parallel to the loading resistor at each SPEAKER OUT terminal, or when all VR and EQ control volumes are set to MAX, there should be no abnormality; for example, there should be no oscillation. Especially, check that no oscillation occurs even if the EQ HIGH is at maximum.

### 3. Power Amplifier Part

#### 3-1 Setting Conditions

Setting conditions are as follows unless otherwise specified.

Input terminal:	INPUT CH5 LINE1
POWER AMP switch:	MAIN-MONITOR
Output terminal:	POWER AMP 1A, POWER AMP 2A
Output Load:	4 ohm (more than 300W)
	Connect the load resistor of SPEAKER OUT only when inspecting the power amplifier section unless otherwise specified.
INPUT CH1 - 4, CH6	
LEVEL control:	Minimum

#### 3-2 Power ON Muting

The muting relay should be released 2.5 +/- 1 seconds after the power switch is turned on.

#### 3-3 Speaker Terminal DC Voltage

When input terminals are grounded, confirm that each output terminal voltage is 0 +/- 100 mV.

#### 3-4 Gain

Check that  $+22 \pm 2.0$ dBs output voltage is obtained when a -26dBs signal is input to the input terminal. Perform the same check under the setting conditions of POWER AMP switch at MAIN-MAIN and the output terminals at POWER AMP 1G and POWER AMP 2B.

#### 3-5 Frequency Response

Apply a -26dBs signal to the input terminal and check that the output voltage when the signal frequency is 20Hz and 20kHz is within +1 and -3dB ranges respectively, using the output voltage at 1kHz as reference.

#### 3-6 Harmonic Distortion

Apply a 1 kHz sine wave signal to the input; the output level should be 300 W/4 ohms (33.0 dBs/ch); the distortion ratio should be less than 0.5 %.

Apply a sine wave signal of 20 Hz, 1 kHz and 20 kHz separately to the input; the output level should be 150 W/4 ohms (30.0 dBs); the distortion ratio should be less than 0.5 %.

Do this inspection within 30 seconds.

#### 3-7 Residual Noise

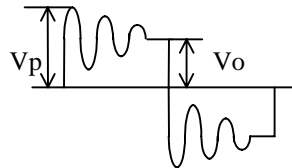
Set the MASTER level controls (MONITOR and MAIN) at minimum; the residual noise at the output terminal should be less than -65 dBs.

Note: Use DIN-AUDIO filter.

#### 3-8 Stability

Apply a 10 kHz -26 dBs rectangular signal to the input and connect a capacitor (10 pF to 0.47  $\mu$ F) parallel to the 4 ohm load resistor, or connect an inductor (10  $\mu$ H to 0.47 H) serial to the 4 ohms load resistor. Confirm that the output signal is as illustrated below.

Overshoot:	$V_p/V_o \leq 1.8$
Ringing:	5 waves and less than 5 waves



Next, only connect a capacitor (10 pF to 0.47 $\mu$ F) to the SPEAKERS terminal as a load, and confirm that the output is as follows:

Overshoot:	$V_p/V_o \leq 2.5$
Ringing:	It should end within 7 waves; there is no oscillation.

**3-9 Protection**

Apply a 10 Hz sine wave signal to the input; increase the input signal so that the output signal is clipped. Confirm that the protection function operates and that the speaker relay does not open.

When a 1 Hz, 6 Vp-p (8.7 dBs) sine wave signal is applied to the input, confirm that the protection function operates within 2 seconds and the speaker relay is turned off. When the input signal is turned off, confirm that the protection function stops and the speaker relay automatically turns on within 5 seconds.

**3-10 PC Limiter and Limiter**

Apply a 1 kHz -20 dBs sine wave signal to the input and then connect a 1 ohm ( +/- 5% 100 W) resistor; confirm that the output signal is  $V_{p-p} \leq 25V$  and that the signal is not rectangular.

**3-11 LIMITER Indicator**

When a 1 kHz -10.8 dBs sine wave signal is applied to the input, the LIMITER indicator should light up.

**3-12 Efficiency**

When the output of POEWR AMP1 and 2 is adjuster to 12.2V (24.0 dBs), confirm that the primary power is 180 +/- 50W.

**4. Main Bridge**

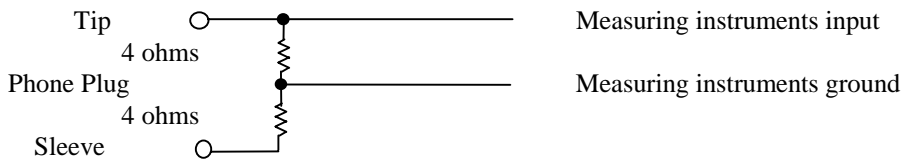
**4-1 Setting Conditions**

Input Terminal:	INPUT CH 5 LINE 1
POWER AMP switch:	MAIN BRIDGE
Measuring Output Terminal:	BRIDGE
Output Load:	8 ohm (more than 600 W)

INPUT CH 1- 4, CH 6  
 LEVEL level control: Minimum

Note: Other control settings are the same as those for the mixer in section 2-3.

**4-2 Connection**



**4-3 Gain**

Apply a 1 kHz -26.0 dBs sine wave signal to the input; confirm that the output levels is are  $+22.0 \pm 2$  dBs.

**4-4 Frequency Response**

Apply a -26dBs signal to the input terminal and check that the output voltage when the signal frequency is 20Hz and 20kHz is within +1 and -6dB ranges respectively, using the output voltage at 1kHz as reference.

**5. Power Supply Fluctuation**

There should be no operational problems when the power voltage is varied within +/- 10% of the nominal voltage.













## ■ TROUBLE SHOOTING

Problem		Cause	Action
Sound is no longer output from the speakers.	The POWER indicator is dark.	The load on this device was too great, and the <b>protection circuit for the internal transformer has operated</b> . Possible reasons for the excessive load are an excessive input to the device, or inappropriate ventilation.	Please wait. When the device cools off, normal operation will resume automatically. However, please check the following two points to prevent the problem from recurring. If the input to this device is greater than the nominal level, lower the input to the nominal level. If the device is not ventilated sufficiently, refer to the cautions given at the beginning of this manual and take appropriate measures to insure adequate ventilation.
	The POWER indicator is lit.	The load on the amplifier of this device was too great, and the <b>protection circuit for the amplifier has operated</b> . Possible reasons for the excessive load are an excessive level setting in the channel control section or main section, insufficient ventilation, or insufficient load impedance of the connected speakers.	Please wait. When the device cools off, normal operation will resume automatically. However, please check the following three points to prevent the problem from recurring. If the level setting is excessive, lower it to the nominal level. You can refer to the peak level indicators of the main section when doing so. If the device is not ventilated sufficiently, refer to the cautions given at the beginning of this manual and take appropriate measures to insure adequate ventilation. If the load impedance (including a short) is too low, and change the connections so that the impedance is correct.
	Other	Connections between devices have come loose.	Inspect the connections, and correct any faulty connections.
		Other	The device may have malfunctioned.

POWERED MIXER

**EMX 660**

# PARTS LIST


## ■ CONTENTS

OVERALL ASSEMBLY	.....	2
ELECTRICAL PARTS	.....	5

## Notes : DESTINATION ABBREVIATIONS

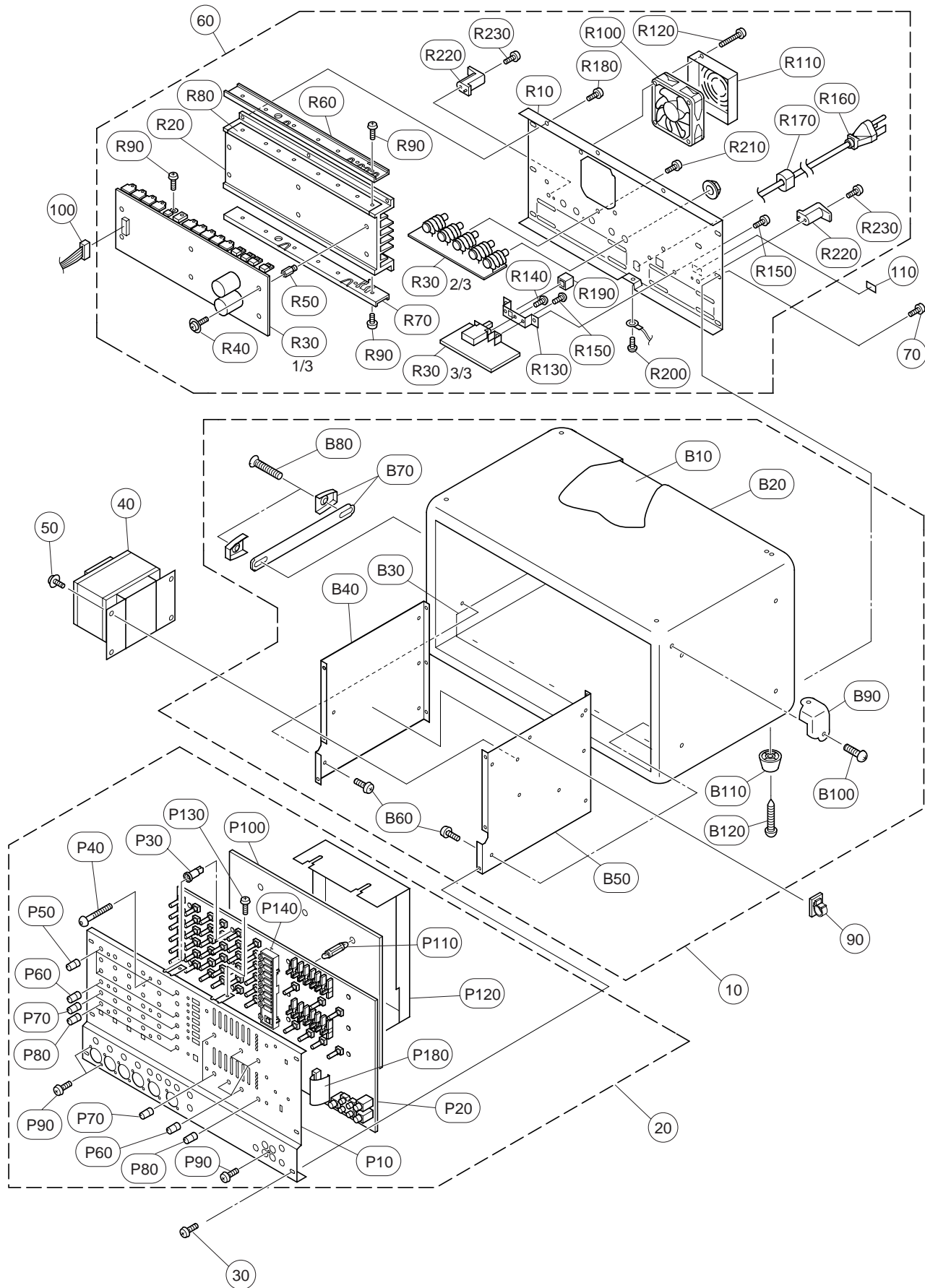
A : Australian model	M: South African model
B : British model	O : Chinese model
C : Canadian model	Q : South-east Asia model
D : German model	T : Taiwan model
E : European model	U : U.S.A. model
F : French model	V : General export model (110V)
H : North European model	W: General export model (220)
I : 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	EMX660			
	--	Overall Assembly		J (V521540)		
	--	Overall Assembly		U,V (V521700)		
	--	Overall Assembly		H,W (V521720)		
	--	Overall Assembly		B (V521740)		
	--	Overall Assembly		A (V521760)		
* 10	<b>V5288600</b>	Body Assembly				
20	--	Panel Assembly			(V528870)	
30	<b>EG340360</b>	Bind Head Screw	4.0X8 MFZN2BL			6 01
40	<b>XY325B00</b>	Power Transformer		J		
* 40	<b>XY326A00</b>	Power Transforme		U,V		
* 40	<b>XY327B00</b>	Power Transforme		H,W,B		
* 40	<b>XY328A00</b>	Power Transforme		A		
50	<b>VU688100</b>	Bind Head Screw	SP 5.0X10 MFZN2BL			4 01
60	--	Rear Assembly		J (V528880)		
60	--	Rear Assembly		U,V (V528960)		
60	--	Rear Assembly		H,W (V528970)		
60	--	Rear Assembly		B (V528980)		
60	--	Rear Assembly		A (V528990)		
70	<b>EG340360</b>	Bind Head Screw	4.0X8 MFZN2BL			6 01
90	<b>VZ765100</b>	Cord Binder	TS-0708 KSS			02
100	--	Cord, Front	1430 #24 14P 500L		(V522900)	
110	<b>VA039300</b>	Label		UV		03
* 110	<b>V5288600</b>	Body Assembly				
B10	--	Body			(V520960)	
B20	--	Carpet	C968		(VZ52800)	
B30	--	Shield Sheet			(VV43470)	
B40	<b>VV102700</b>	Side Plate (L)				06
B50	--	Side Plate (R)			(V520970)	
B60	<b>EG340330</b>	Bind Head Screw	4.0X18 MFZN2BL			10 01
B70	<b>VV085400</b>	Glip Assembly				04
B80	<b>VV435200</b>	Oval Head Screw	5.0X35 MFZN2BL			2 01
B90	<b>VV085500</b>	Corner Protector				8 03
B100	<b>03747270</b>	Truss Head Tapping Screw-1	4.0X12 MFZN2BL			16
B110	<b>VV085600</b>	Leg				8 01
B120	<b>03747290</b>	Truss Head Tapping Screw-1	4.0X20 MFZN2BL			8 01
* P10	--	Panel Assembly			(V528870)	
* P20	<b>V5209800</b>	Front Panel				
P30	<b>V5110900</b>	Circuit Board	MIX			
P40	<b>V3291600</b>	PCB Support	NEW NIFCO			12 01
P50	<b>V3289800</b>	Hexagonal Button Screw-P	3X25 MFZNBL			12 01
P60	<b>VU860200</b>	Knob	MX-GREEN/D-GRAY	CH1-6(HIGH,MID,LOW)		18 01
P60	<b>VU859700</b>	Knob	N-GRAY/D-GRAY	CH1-6(MONI),		10 01
P70	<b>VU860300</b>	Knob	MX-BLUE/D-GRAY	MONI.(TAPE IN,MASTER), MAIN(AUX IN,TAPE IN)		8 01
P80	<b>VV625800</b>	Knob	ORANGE/D-GRAY	CH1-6(EFFECT), MONI.(EFFECT RTN), MAIN(EFFECT RTN)		7 01
P90	<b>VN413300</b>	Bonding Tapping Screw-B	3.0X8 MFZN2BL	CH1-6(LEVEL), MAIN(MASTER)		13 01
* P100	<b>V5111000</b>	Circuit Board	SUB			
P110	<b>V3224800</b>	Spacer Support	KCA-14 PIN GOO			7 01
P120	--	Shield Case			(V520990)	
P130	<b>VN413300</b>	Bonding Tapping Screw-B	3.0X8 MFZN2BL			4 01
* P140	<b>V5210000</b>	DSP Select Button		DIGITAL EFFECT		
P180	--	Cable, FFC	BNCDP=1.25K-35-90		(V430430)	
	--	Rear Assembly		J (V528880)		
	--	Rear Assembly		U,V (V528960)		
	--	Rear Assembly		H,W (V528970)		
	--	Rear Assembly		B (V528980)		
	--	Rear Assembly		A (V528990)		
* R10	<b>V5210400</b>	Rear Panel		J		
* R10	<b>V5210700</b>	Rear Panel		U,V		
* R10	<b>V5211700</b>	Rear Panel		H,W,B		
* R10	<b>V5212300</b>	Rear Panel		A		
R20	--	Heat Sink			(V521290)	

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
* R30	V5227100	Circuit Board	PWR	J		
* R30	V5227200	Circuit Board	PWR	U,V		
* R30	V5227300	Circuit Board	PWR	H,W,B,A		
R40	EG330290	Bind Head Screw	SP 3.0X8 MFZN2Y		6	01
R50	VV086500	Support	H=7.4 B=5.5		6	01
R60	--	Angle A		(V521320)		
R70	--	Angle B		(V521330)		
* R80	V5214900	Insulation Sheet			2	
R90	VQ074600	Bind Head Tapping Screw-B	3.0X12 MFZN2BL		16	01
R100	V2955500	Fan	3110KL05WB50L34			08
R110	V2951400	Angle Bracket, Fan				03
R120	VT229100	Bind Head Screw	4.0X30 ZMC2BL		2	01
R130	--	Switch Bracket		(V319280)		
R140	VB659000	Bind Head Screw	3.0X8 MFZN2BL		2	01
R150	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL		3	01
R160	V3277000	AC Cord	J VCTF 2X0.75 7A	J		05
R160	VV205600	AC Cord	UC SJT 3X#18 10A	U,V		06
R160	V3277100	AC Cord	E H05VV-F3X0.7510A	H,W,A		06
R160	VV058300	AC Cord	BS H05VV-F3X0.75	B		08
R170	VV103100	Cord Strain Relief	SR-6P1			01
R180	EG340190	Bind Head Tapping Screw-B	4.0X8 MFZN2BL		6	01
R190	VU859000	Power Switch Knob	MX12/4	POWER ON/OFF		01
R200	VP156800	Bind Head Screw	A4.0X8 MFZN2BL	U,V,H,W,B,A		01
R210	VN413300	Bonding Tapping Screw-B	3.0X8 MFZN2BL			01
R220	V4773400	Holder, Cord			2	
R230	EG340190	Bind Head Tapping Screw-B	4.0X8 MFZN2BL		2	01

\*: New Parts

RANK: Japan only



# ELECTRICAL PARTS

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
		ELECTRICAL PARTS		EMX660		
*	V5110900	Circuit Board	MIX	(XY280A00)		
*	V5111000	Circuit Board	SUB	(XY281A00)		
*	V5227100	Circuit Board	PWR	J (XY324A00)		
*	V5227200	Circuit Board	PWR	U,V (XY324A00)		
*	V5227300	Circuit Board	PWR	H,W,B,A (XY324A00)		
*	V5110900	Circuit Board	MIX	(XY280A00)		
	VV307300	LED Spacer	MX12/4		22	01
	VZ968500	Button	NO.947 CD-GRAY	PAD	4	01
	VV291400	Jumper Wire	0.6		200	01
C101	UR877470	Electrolytic Cap.	47.00 63.0V			
C102	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C103	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C104	VZ353800	Ceramic Cap.-B	470P 50V K			01
-106	VZ353800	Ceramic Cap.-B	470P 50V K			01
C107	VZ353800	Ceramic Cap.-B	470P 50V K			01
C108	UR828470	Electrolytic Cap.	470.00 10.0V			01
C109	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C111	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-112	UR877100	Electrolytic Cap.	10.00 63.0V			01
C113	UA954270	Mylar Capacitor	0.027 50V J			01
C114	UA953560	Mylar Capacitor	5600P 50V J			01
* C115	UA953820	Mylar Capacitor	8200P 50V J			
C116	UA953220	Mylar Capacitor	2200P 50V J			01
C117	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C118	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C119	UR857470	Electrolytic Cap.	47.00 35.0V			01
C120	UR877100	Electrolytic Cap.	10.00 63.0V			01
C121	UR877100	Electrolytic Cap.	10.00 63.0V			01
C122	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
-125	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C126	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C201	UR877470	Electrolytic Cap.	47.00 63.0V			01
C202	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C203	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C204	VZ353800	Ceramic Cap.-B	470P 50V K			01
-207	VZ353800	Ceramic Cap.-B	470P 50V K			01
C208	UR828470	Electrolytic Cap.	470.00 10.0V			01
C209	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-211	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C212	UR877100	Electrolytic Cap.	10.00 63.0V			01
C213	UA954270	Mylar Capacitor	0.027 50V J			01
C214	UA953560	Mylar Capacitor	5600P 50V J			01
* C215	UA953820	Mylar Capacitor	8200P 50V J			
C216	UA953220	Mylar Capacitor	2200P 50V J			01
C217	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C218	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C219	UR857470	Electrolytic Cap.	47.00 35.0V			01
C220	UR877100	Electrolytic Cap.	10.00 63.0V			01
C221	UR877100	Electrolytic Cap.	10.00 63.0V			01
C301	UR877470	Electrolytic Cap.	47.00 63.0V			01
C302	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C303	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C304	VZ353800	Ceramic Cap.-B	470P 50V K			01
C305	VZ353800	Ceramic Cap.-B	470P 50V K			01
-307	VZ353800	Ceramic Cap.-B	470P 50V K			01
C308	UR828470	Electrolytic Cap.	470.00 10.0V			01
C309	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-311	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C312	UR877100	Electrolytic Cap.	10.00 63.0V			01
C313	UA954270	Mylar Capacitor	0.027 50V J			01
C314	UA953560	Mylar Capacitor	5600P 50V J			01
* C315	UA953820	Mylar Capacitor	8200P 50V J			
C316	UA953220	Mylar Capacitor	2200P 50V J			01
C317	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C318	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C319	UR857470	Electrolytic Cap.	47.00 35.0V			01
C320	UR877100	Electrolytic Cap.	10.00 63.0V			01
C321	UR877100	Electrolytic Cap.	10.00 63.0V			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C322	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
-325	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C326	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C401	UR877470	Electrolytic Cap.	47.00 63.0V			
C402	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C403	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C404	VZ353800	Ceramic Cap.-B	470P 50V K			01
-407	VZ353800	Ceramic Cap.-B	470P 50V K			01
C408	UR828470	Electrolytic Cap.	470.00 10.0V			01
C409	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-411	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C412	UR877100	Electrolytic Cap.	10.00 63.0V			01
C413	UA954270	Mylar Capacitor	0.027 50V J			01
C414	UA953560	Mylar Capacitor	5600P 50V J			01
* C415	UA953820	Mylar Capacitor	8200P 50V J			
C416	UA953220	Mylar Capacitor	2200P 50V J			01
C417	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C418	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C419	UR857470	Electrolytic Cap.	47.00 35.0V			01
C420	UR877100	Electrolytic Cap.	10.00 63.0V			01
C421	UR877100	Electrolytic Cap.	10.00 63.0V			01
C501	UR877470	Electrolytic Cap.	47.00 63.0V			
C502	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C503	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C504	VZ353800	Ceramic Cap.-B	470P 50V K			01
-507	VZ353800	Ceramic Cap.-B	470P 50V K			01
C508	UR828470	Electrolytic Cap.	470.00 10.0V			01
C509	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-511	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C512	UR877100	Electrolytic Cap.	10.00 63.0V			01
C513	UA954270	Mylar Capacitor	0.027 50V J			01
C514	UA953560	Mylar Capacitor	5600P 50V J			01
* C515	UA953820	Mylar Capacitor	8200P 50V J			
C516	UA953220	Mylar Capacitor	2200P 50V J			01
C517	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C518	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C519	UR857470	Electrolytic Cap.	47.00 35.0V			01
C520	UR877100	Electrolytic Cap.	10.00 63.0V			01
C521	UR877100	Electrolytic Cap.	10.00 63.0V			01
C522	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C523	VZ353200	Ceramic Capacitor-SL	47P 50V J			01
C524	UR877100	Electrolytic Cap.	10.00 63.0V			01
C526	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C527	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
-530	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C601	UR877470	Electrolytic Cap.	47.00 63.0V			
C602	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C603	VV488800	Electrolytic Cap.-LLM	10.00 50.0V			01
C604	VZ353800	Ceramic Cap.-B	470P 50V K			01
-607	VZ353800	Ceramic Cap.-B	470P 50V K			01
C608	UR828470	Electrolytic Cap.	470.00 10.0V			01
C609	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
-611	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C612	UR877100	Electrolytic Cap.	10.00 63.0V			01
C613	UA954270	Mylar Capacitor	0.027 50V J			01
C614	UA953560	Mylar Capacitor	5600P 50V J			01
* C615	UA953820	Mylar Capacitor	8200P 50V J			
C616	UA953220	Mylar Capacitor	2200P 50V J			01
C617	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C618	VZ352900	Ceramic Capacitor-SL	27P 50V J			01
C619	UR857470	Electrolytic Cap.	47.00 35.0V			01
C622	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C623	VZ353200	Ceramic Capacitor-SL	47P 50V J			01
C624	UR877100	Electrolytic Cap.	10.00 63.0V			01
C626	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C627	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
-630	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C631	UR877100	Electrolytic Cap.	10.00 63.0V			01
C632	UR877100	Electrolytic Cap.	10.00 63.0V			01
C633	VZ353200	Ceramic Capacitor-SL	47P 50V J			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C634	VZ353200	Ceramic Capacitor-SL	47P 50V J			01
C635	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C636	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C637	VZ352800	Ceramic Capacitor-SL	22P 50V J			01
C638	VZ352800	Ceramic Capacitor-SL	22P 50V J			01
C639	UR877100	Electrolytic Cap.	10.00 63.0V			01
C640	UR877100	Electrolytic Cap.	10.00 63.0V			01
C702	UR838100	Electrolytic Cap.	100.00 16.0V			01
C703	VZ353600	Ceramic Cap.-B	220P 50V K			01
C704	VZ352600	Ceramic Capacitor-SL	6P 50V J			01
C705	UR877100	Electrolytic Cap.	10.00 63.0V			01
C706	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C708	VZ353600	Ceramic Cap.-B	220P 50V K			01
C709	VZ352700	Ceramic Capacitor-SL	10P 50V J			01
C710	UR857470	Electrolytic Cap.	47.00 35.0V			01
C711	UR877100	Electrolytic Cap.	10.00 63.0V			01
C712	VZ353600	Ceramic Cap.-B	220P 50V K			01
C713	VZ353400	Ceramic Capacitor-SL	68P 50V J			01
C714	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C716	UA655820	Mylar Capacitor	0.82 50V J			01
C717	UA954820	Mylar Capacitor	0.082 50V J			01
C718	UA655470	Mylar Capacitor	0.47 50V J			01
C719	UA954390	Mylar Capacitor	0.039 50V J			01
C720	UA655220	Mylar Capacitor	0.22 50V J			01
C721	UA954180	Mylar Capacitor	0.018 50V J			01
C722	UA655100	Mylar Capacitor	0.1 50V J			01
C723	UA954100	Mylar Capacitor	0.01 50V J			01
C724	UA954470	Mylar Capacitor	0.047 50V J			01
C725	UA953470	Mylar Capacitor	4700P 50V J			01
C726	UA954270	Mylar Capacitor	0.027 50V J			01
C727	UA953220	Mylar Capacitor	2200P 50V J			01
C728	UA954120	Mylar Capacitor	0.012 50V J			01
C729	UA953120	Mylar Capacitor	1200P 50V J			01
C730	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C731	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C732	VZ353800	Ceramic Cap.-B	470P 50V K			01
C733	UR857470	Electrolytic Cap.	47.00 35.0V			01
C734	UR877100	Electrolytic Cap.	10.00 63.0V			01
C736	VZ353600	Ceramic Cap.-B	220P 50V K			01
C737	VZ353400	Ceramic Capacitor-SL	68P 50V J			01
C738	UR857470	Electrolytic Cap.	47.00 35.0V			01
C741	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
-748	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C751	UR877100	Electrolytic Cap.	10.00 63.0V			01
C752	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C753	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C754	UR877100	Electrolytic Cap.	10.00 63.0V			01
C802	UR838100	Electrolytic Cap.	100.00 16.0V			01
C803	VZ353600	Ceramic Cap.-B	220P 50V K			01
C804	VZ352600	Ceramic Capacitor-SL	6P 50V J			01
C805	UR877100	Electrolytic Cap.	10.00 63.0V			01
C806	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C808	VZ353600	Ceramic Cap.-B	220P 50V K			01
C809	VZ352700	Ceramic Capacitor-SL	10P 50V J			01
C810	UR877100	Electrolytic Cap.	10.00 63.0V			01
C811	UR877100	Electrolytic Cap.	10.00 63.0V			01
C812	VZ353600	Ceramic Cap.-B	220P 50V K			01
C813	VZ353400	Ceramic Capacitor-SL	68P 50V J			01
C814	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C816	UA655820	Mylar Capacitor	0.82 50V J			01
C817	UA954820	Mylar Capacitor	0.082 50V J			01
C818	UA655470	Mylar Capacitor	0.47 50V J			01
C819	UA954390	Mylar Capacitor	0.039 50V J			01
C820	UA655220	Mylar Capacitor	0.22 50V J			01
C821	UA954180	Mylar Capacitor	0.018 50V J			01
C822	UA655100	Mylar Capacitor	0.1 50V J			01
C823	UA954100	Mylar Capacitor	0.01 50V J			01
C824	UA954470	Mylar Capacitor	0.047 50V J			01
C825	UA953470	Mylar Capacitor	4700P 50V J			01
C826	UA954270	Mylar Capacitor	0.027 50V J			01

\*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
C827	UA953220	Mylar Capacitor	2200P 50V J			01
C828	UA954120	Mylar Capacitor	0.012 50V J			
C829	UA953120	Mylar Capacitor	1200P 50V J			01
C830	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C831	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C832	VZ353800	Ceramic Cap.-B	470P 50V K			01
C833	UR857470	Electrolytic Cap.	47.00 35.0V			01
C834	UR877100	Electrolytic Cap.	10.00 63.0V			01
C901	VZ353600	Ceramic Cap.-B	220P 50V K			01
C902	VZ352600	Ceramic Capacitor-SL	6P 50V J			01
C903	UR877100	Electrolytic Cap.	10.00 63.0V			01
C904	UR877100	Electrolytic Cap.	10.00 63.0V			01
C905	VZ353600	Ceramic Cap.-B	220P 50V K			01
C906	VZ353400	Ceramic Capacitor-SL	68P 50V J			01
C907	UR857470	Electrolytic Cap.	47.00 35.0V			01
C908	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C909	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C910	UR858100	Electrolytic Cap.	100.00 35.0V			01
C911	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C912	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
CN901	VQ048400	Connector, FFC	52045series 35P TE			01
D601	VD631600	Diode	1SS133,176,HSS104			01
-604	VD631600	Diode	1SS133,176,HSS104			01
D901	VD631600	Diode	1SS133,176,HSS104			01
D902	VD631600	Diode	1SS133,176,HSS104			01
EM901	VV056900	Filter, EMI	ZJSR5101-223TA			01
IC101	XM356A00	IC	NJM2068L-D	OP AMP		02
IC102	XQ212A00	IC	NJM4558L-D	OP AMP		03
IC301	XM356A00	IC	NJM2068L-D	OP AMP		02
IC302	XQ212A00	IC	NJM4558L-D	OP AMP		03
IC501	XM356A00	IC	NJM2068L-D	OP AMP		02
IC502	XQ212A00	IC	NJM4558L-D	OP AMP		03
IC601	XM356A00	IC	NJM2068L-D	OP AMP		02
IC603	XM085A00	IC	M5238AP	OP AMP		03
IC701	XG203A00	IC	M5229P	7Seg Grafic		04
IC702	XA534A00	IC	BA6137	LED Driver		03
IC703	XM356A00	IC	NJM2068L-D	OP AMP		02
IC704	XM356A00	IC	NJM2068L-D	OP AMP		02
IC705	XM356A00	IC	NJM2068L-D	OP AMP		02
IC706	XM356A00	IC	NJM2068L-D	OP AMP		02
IC801	XG203A00	IC	M5229P	7Seg Grafic		04
IC802	XA534A00	IC	BA6137	LED Driver		03
IC901	XM356A00	IC	NJM2068L-D	OP AMP		02
IC902	IR013800	IC	TC74HC138AP	DECO-8		02
J1	VV291400	Jumper Wire	0.6		22	01
JK101	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH1(Lo-Z)		04
JK102	V2954500	Phone Jack	LJ-0695-4R-A	CH1(Hi-Z)		02
JK201	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH2(Lo-Z)		04
JK202	V2954500	Phone Jack	LJ-0695-4R-A	CH2(Hi-Z)		02
JK301	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH3(Lo-Z)		04
JK302	V2954500	Phone Jack	LJ-0695-4R-A	CH3(Hi-Z)		02
JK401	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH4(Lo-Z)		04
JK402	V2954500	Phone Jack	LJ-0695-4R-A	CH4(Hi-Z)		02
JK501	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH5(MIC)		04
JK502	V2954500	Phone Jack	LJ-0695-4R-A	CH5(LIN①)		02
JK503	V2954500	Phone Jack	LJ-0695-4R-A	CH5(LINE②)		02
JK601	VU805200	XLM Connector	XLR-Jack NC3FAV1-0	CH6(MIC)		04
JK602	V2954500	Phone Jack	LJ-0695-4R-A	CH6(LIN①)		02
JK603	V2954500	Phone Jack	LJ-0695-4R-A	CH6(LIN②)		02
JK701	V2954500	Phone Jack	LJ-0695-4R-A	OUTPUT(MAIN)		02
* JK702	V4807600	Pin Connector	RJ-1130A-01-0320A	TAPE IN,REC OUT(①,②)		
JK703	V2954500	Phone Jack	LJ-0695-4R-A	INPUT(AUX IN)		02
JK801	V2954500	Phone Jack	LJ-0695-4R-A	OUTPUT(MONITOR)		02
JK901	V2954500	Phone Jack	LJ-0695-4R-A	EFFECT OUT		02
JK902	V2954500	Phone Jack	LJ-0695-4R-A	FOOT SW		02
LD701	VV938100	LED	LT331-41-C13 (YE)	MAIN(+6,+3,0)		01
-703	VV938100	LED	LT331-41-C13 (YE)			01
LD704	VV621000	LED	LT321-41-C13 (GR)	MAIN(-5)		01
LD705	VV621000	LED	LT321-41-C13 (GR)	MAIN(-10)		01
LD801	VV938100	LED	LT331-41-C13 (YE)	MONITOR(+6,+3,0)		01

\*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
-803	VV938100	LED	LT331-41-C13 (YE)			01
LD804	VV621000	LED	LT321-41-C13 (GR)	MONITOR(-5)		01
LD805	VV621000	LED	LT321-41-C13 (GR)	MONITOR(-10)		01
LD901	VV621000	LED	LT321-41-C13 (GR)	D.EFFECT(VO.ECHO1,2,		01
-908	VV621000	LED	LT321-41-C13 (GR)	VO.REV1,2, HALL1,2, HALL,PLATE)		01
LD909	VV938100	LED	LT331-41-C13 (YE)	D.EFFECT ON		01
LD910	VV621000	LED	LT321-41-C13 (GR)	POWER		01
LD911	VV620800	LED	LT311G-41-C13(RE)	LIMITER 1		01
LD912	VV620800	LED	LT311G-41-C13(RE)	LIMITER 2		01
Q101	IC224030	Transistor	2SC2240 GR,BL			01
Q102	IC224030	Transistor	2SC2240 GR,BL			01
Q201	IC224030	Transistor	2SC2240 GR,BL			01
Q202	IC224030	Transistor	2SC2240 GR,BL			01
Q301	IC224030	Transistor	2SC2240 GR,BL			01
Q302	IC224030	Transistor	2SC2240 GR,BL			01
Q401	IC224030	Transistor	2SC2240 GR,BL			01
Q402	IC224030	Transistor	2SC2240 GR,BL			01
Q501	IC224030	Transistor	2SC2240 GR,BL			01
Q502	IC224030	Transistor	2SC2240 GR,BL			01
Q601	IC224030	Transistor	2SC2240 GR,BL			01
Q602	IC224030	Transistor	2SC2240 GR,BL			01
Q901	IA101590	Transistor	2SA1015 O,Y			01
R101	HF458100	Carbon Resistor	100.0K 1/4 J			01
R102	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R103	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R104	VV058400	Flame Proof C. Resistor	390.0 1/4 J			01
R105	HF457150	Carbon Resistor	15.0K 1/4 J			01
R106	HF454100	Carbon Resistor	10.0 1/4 J			01
R107	HF454100	Carbon Resistor	10.0 1/4 J			01
R108	VV066100	Metal Film Resistor	47K 1/4 F			01
R109	VV066100	Metal Film Resistor	47K 1/4 F			01
R110	HF454100	Carbon Resistor	10.0 1/4 J			01
R111	HF454100	Carbon Resistor	10.0 1/4 J			01
R112	HF455150	Carbon Resistor	150.0 1/4 J			01
R113	HF456820	Carbon Resistor	8.2K 1/4 J			01
R114	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R115	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R116	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R117	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R118	VV065500	Metal Film Resistor	10K 1/4 F			01
R119	VV065500	Metal Film Resistor	10K 1/4 F			01
R120	HF457100	Carbon Resistor	10.0K 1/4 J			01
R121	HF457100	Carbon Resistor	10.0K 1/4 J			01
R122	HF456120	Carbon Resistor	1.2K 1/4 J			01
R123	HF456120	Carbon Resistor	1.2K 1/4 J			01
R124	HF456330	Carbon Resistor	3.3K 1/4 J			01
R125	HF456330	Carbon Resistor	3.3K 1/4 J			01
R126	HF457100	Carbon Resistor	10.0K 1/4 J			01
R127	HF456390	Carbon Resistor	3.9K 1/4 J			01
R128	HF454100	Carbon Resistor	10.0 1/4 J			01
R129	HF457180	Carbon Resistor	18.0K 1/4 J			01
-131	HF457180	Carbon Resistor	18.0K 1/4 J			01
R132	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R133	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R134	HF458100	Carbon Resistor	100.0K 1/4 J			01
R135	HF458100	Carbon Resistor	100.0K 1/4 J			01
R201	HF458100	Carbon Resistor	100.0K 1/4 J			01
R202	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R203	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R204	VV058400	Flame Proof C. Resistor	390.0 1/4 J			01
R205	HF457150	Carbon Resistor	15.0K 1/4 J			01
R206	HF454100	Carbon Resistor	10.0 1/4 J			01
R207	HF454100	Carbon Resistor	10.0 1/4 J			01
R208	VV066100	Metal Film Resistor	47K 1/4 F			01
R209	VV066100	Metal Film Resistor	47K 1/4 F			01
R210	HF454100	Carbon Resistor	10.0 1/4 J			01
R211	HF454100	Carbon Resistor	10.0 1/4 J			01
R212	HF455150	Carbon Resistor	150.0 1/4 J			01
R213	HF456820	Carbon Resistor	8.2K 1/4 J			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R214	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R215	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R216	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R217	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R218	VV065500	Metal Film Resistor	10K 1/4 F			01
R219	VV065500	Metal Film Resistor	10K 1/4 F			01
R220	HF457100	Carbon Resistor	10.0K 1/4 J			01
R221	HF457100	Carbon Resistor	10.0K 1/4 J			01
R222	HF456120	Carbon Resistor	1.2K 1/4 J			01
R223	HF456120	Carbon Resistor	1.2K 1/4 J			01
R224	HF456330	Carbon Resistor	3.3K 1/4 J			01
R225	HF456330	Carbon Resistor	3.3K 1/4 J			01
R226	HF457100	Carbon Resistor	10.0K 1/4 J			01
R227	HF456390	Carbon Resistor	3.9K 1/4 J			01
R228	HF454100	Carbon Resistor	10.0 1/4 J			01
R229	HF457180	Carbon Resistor	18.0K 1/4 J			01
-231	HF457180	Carbon Resistor	18.0K 1/4 J			01
R232	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R233	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R234	HF458100	Carbon Resistor	100.0K 1/4 J			01
R235	HF458100	Carbon Resistor	100.0K 1/4 J			01
R301	HF458100	Carbon Resistor	100.0K 1/4 J			01
R302	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R303	V2440200	Metal Film Resistor	2.4K 1/4 F			01
R304	VV058400	Flame Proof C. Resistor	390.0 1/4 J			01
R305	HF457150	Carbon Resistor	15.0K 1/4 J			01
R306	HF454100	Carbon Resistor	10.0 1/4 J			01
R307	HF454100	Carbon Resistor	10.0 1/4 J			01
R308	VV066100	Metal Film Resistor	47K 1/4 F			01
R309	VV066100	Metal Film Resistor	47K 1/4 F			01
R310	HF454100	Carbon Resistor	10.0 1/4 J			01
R311	HF454100	Carbon Resistor	10.0 1/4 J			01
R312	HF455150	Carbon Resistor	150.0 1/4 J			01
R313	HF456820	Carbon Resistor	8.2K 1/4 J			01
R314	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R315	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R316	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R317	VV065100	Metal Film Resistor	2.2K 1/4 F			01
R318	VV065500	Metal Film Resistor	10K 1/4 F			01
R319	VV065500	Metal Film Resistor	10K 1/4 F			01
R320	HF457100	Carbon Resistor	10.0K 1/4 J			01
R321	HF457100	Carbon Resistor	10.0K 1/4 J			01
R322	HF456120	Carbon Resistor	1.2K 1/4 J			01
R323	HF456120	Carbon Resistor	1.2K 1/4 J			01
R324	HF456330	Carbon Resistor	3.3K 1/4 J			01
R325	HF456330	Carbon Resistor	3.3K 1/4 J			01
R326	HF457100	Carbon Resistor	10.0K 1/4 J			01
R327	HF456390	Carbon Resistor	3.9K 1/4 J			01
R328	HF454100	Carbon Resistor	10.0 1/4 J			01
R329	HF457180	Carbon Resistor	18.0K 1/4 J			01
-331	HF457180	Carbon Resistor	18.0K 1/4 J			01
R332	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R333	VV312400	Metal Film Resistor	3.9K 1/4 F			01
R334	HF458100	Carbon Resistor	100.0K 1/4 J			01
R335	HF458100	Carbon Resistor	100.0K 1/4 J			01
R401	HF458100	Carbon Resistor	100.0K 1/4 J			01
R402	VV065300	Metal Film Resistor	6.8K 1/4 F			01
R403	VV065300	Metal Film Resistor	6.8K 1/4 F			01
R404	VV058400	Flame Proof C. Resistor	390.0 1/4 J			01
R405	HF457150	Carbon Resistor	15.0K 1/4 J			01
R406	HF454100	Carbon Resistor	10.0 1/4 J			01
R407	HF454100	Carbon Resistor	10.0 1/4 J			01
R408	VV066100	Metal Film Resistor	47K 1/4 F			01
R409	VV066100	Metal Film Resistor	47K 1/4 F			01
R410	HF454100	Carbon Resistor	10.0 1/4 J			01
R411	HF454100	Carbon Resistor	10.0 1/4 J			01
R412	HF455150	Carbon Resistor	150.0 1/4 J			01
R413	HF456820	Carbon Resistor	8.2K 1/4 J			01
R414	VV065400	Metal Film Resistor	8.2K 1/4 F			01
R415	VV065400	Metal Film Resistor	8.2K 1/4 F			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
R416	VV065100	Metal Film Resistor	2.2K 1/4 F		01
R417	VV065100	Metal Film Resistor	2.2K 1/4 F		01
R418	VV065500	Metal Film Resistor	10K 1/4 F		01
R419	VV065500	Metal Film Resistor	10K 1/4 F		01
R420	HF457100	Carbon Resistor	10.0K 1/4 J		01
R421	HF457100	Carbon Resistor	10.0K 1/4 J		01
R422	HF456120	Carbon Resistor	1.2K 1/4 J		01
R423	HF456120	Carbon Resistor	1.2K 1/4 J		01
R424	HF456330	Carbon Resistor	3.3K 1/4 J		01
R425	HF456330	Carbon Resistor	3.3K 1/4 J		01
R426	HF457100	Carbon Resistor	10.0K 1/4 J		01
R427	HF456390	Carbon Resistor	3.9K 1/4 J		01
R428	HF454100	Carbon Resistor	10.0 1/4 J		01
R429	HF457180	Carbon Resistor	18.0K 1/4 J		01
-431	HF457180	Carbon Resistor	18.0K 1/4 J		01
R432	VV312400	Metal Film Resistor	3.9K 1/4 F		01
R433	VV312400	Metal Film Resistor	3.9K 1/4 F		01
R434	HF458100	Carbon Resistor	100.0K 1/4 J		01
R435	HF458100	Carbon Resistor	100.0K 1/4 J		01
R501	HF458100	Carbon Resistor	100.0K 1/4 J		01
R502	V2440200	Metal Film Resistor	2.4K 1/4 F		01
R503	V2440200	Metal Film Resistor	2.4K 1/4 F		01
R504	VV058400	Flame Proof C. Resistor	390.0 1/4 J		01
R505	HF457150	Carbon Resistor	15.0K 1/4 J		01
R506	HF454100	Carbon Resistor	10.0 1/4 J		01
R507	HF454100	Carbon Resistor	10.0 1/4 J		01
R508	VV066100	Metal Film Resistor	47K 1/4 F		01
R509	VV066100	Metal Film Resistor	47K 1/4 F		01
R510	HF454100	Carbon Resistor	10.0 1/4 J		01
R511	HF454100	Carbon Resistor	10.0 1/4 J		01
R512	HF455150	Carbon Resistor	150.0 1/4 J		01
R513	HF457180	Carbon Resistor	18.0K 1/4 J		01
R514	VV065400	Metal Film Resistor	8.2K 1/4 F		01
R515	VV065400	Metal Film Resistor	8.2K 1/4 F		01
R516	VV065100	Metal Film Resistor	2.2K 1/4 F		01
R517	VV065100	Metal Film Resistor	2.2K 1/4 F		01
R518	VV065500	Metal Film Resistor	10K 1/4 F		01
R519	VV065500	Metal Film Resistor	10K 1/4 F		01
R520	HF457100	Carbon Resistor	10.0K 1/4 J		01
R521	HF457100	Carbon Resistor	10.0K 1/4 J		01
R522	HF456120	Carbon Resistor	1.2K 1/4 J		01
R523	HF456120	Carbon Resistor	1.2K 1/4 J		01
R524	HF456330	Carbon Resistor	3.3K 1/4 J		01
R525	HF456330	Carbon Resistor	3.3K 1/4 J		01
R526	HF457100	Carbon Resistor	10.0K 1/4 J		01
R527	HF456390	Carbon Resistor	3.9K 1/4 J		01
R528	HF454100	Carbon Resistor	10.0 1/4 J		01
R529	HF457180	Carbon Resistor	18.0K 1/4 J		01
-533	HF457180	Carbon Resistor	18.0K 1/4 J		01
R534	HF458100	Carbon Resistor	100.0K 1/4 J		01
-536	HF458100	Carbon Resistor	100.0K 1/4 J		01
R537	HF456470	Carbon Resistor	4.7K 1/4 J		01
R538	HF457100	Carbon Resistor	10.0K 1/4 J		01
R601	HF458100	Carbon Resistor	100.0K 1/4 J		01
R602	V2440200	Metal Film Resistor	2.4K 1/4 F		01
R603	V2440200	Metal Film Resistor	2.4K 1/4 F		01
R604	VV058400	Flame Proof C. Resistor	390.0 1/4 J		01
R605	HF457150	Carbon Resistor	15.0K 1/4 J		01
R606	HF454100	Carbon Resistor	10.0 1/4 J		01
R607	HF454100	Carbon Resistor	10.0 1/4 J		01
R608	VV066100	Metal Film Resistor	47K 1/4 F		01
R609	VV066100	Metal Film Resistor	47K 1/4 F		01
R610	HF454100	Carbon Resistor	10.0 1/4 J		01
R611	HF454100	Carbon Resistor	10.0 1/4 J		01
R612	HF455150	Carbon Resistor	150.0 1/4 J		01
R613	HF457180	Carbon Resistor	18.0K 1/4 J		01
R614	VV065400	Metal Film Resistor	8.2K 1/4 F		01
R615	VV065400	Metal Film Resistor	8.2K 1/4 F		01
R616	VV065100	Metal Film Resistor	2.2K 1/4 F		01
R617	VV065100	Metal Film Resistor	2.2K 1/4 F		01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
R618	VV065500	Metal Film Resistor	10K 1/4 F		01
R619	VV065500	Metal Film Resistor	10K 1/4 F		01
R620	HF457100	Carbon Resistor	10.0K 1/4 J		01
R621	HF457100	Carbon Resistor	10.0K 1/4 J		01
R622	HF456120	Carbon Resistor	1.2K 1/4 J		01
R623	HF456120	Carbon Resistor	1.2K 1/4 J		01
R624	HF456330	Carbon Resistor	3.3K 1/4 J		01
R625	HF456330	Carbon Resistor	3.3K 1/4 J		01
R626	HF457100	Carbon Resistor	10.0K 1/4 J		01
R627	HF456390	Carbon Resistor	3.9K 1/4 J		01
R628	HF454100	Carbon Resistor	10.0 1/4 J		01
R629	HF457180	Carbon Resistor	18.0K 1/4 J		01
-633	HF457180	Carbon Resistor	18.0K 1/4 J		01
R636	HF458100	Carbon Resistor	100.0K 1/4 J		01
R637	HF456470	Carbon Resistor	4.7K 1/4 J		01
R638	HF457100	Carbon Resistor	10.0K 1/4 J		01
R639	HF456100	Carbon Resistor	1.0K 1/4 J		01
R640	HF456100	Carbon Resistor	1.0K 1/4 J		01
R641	HF458470	Carbon Resistor	470.0K 1/4 J		01
R642	HF458470	Carbon Resistor	470.0K 1/4 J		01
R643	HF456470	Carbon Resistor	4.7K 1/4 J		01
R644	HF456470	Carbon Resistor	4.7K 1/4 J		01
R645	HF457470	Carbon Resistor	47.0K 1/4 J		01
R646	HF457470	Carbon Resistor	47.0K 1/4 J		01
R701	HF456820	Carbon Resistor	8.2K 1/4 J		01
R702	HF456820	Carbon Resistor	8.2K 1/4 J		01
R703	HF456150	Carbon Resistor	1.5K 1/4 J		01
R704	HF456150	Carbon Resistor	1.5K 1/4 J		01
R705	HF456120	Carbon Resistor	1.2K 1/4 J		01
R706	HF456120	Carbon Resistor	1.2K 1/4 J		01
R710	HF457180	Carbon Resistor	18.0K 1/4 J		01
R711	HF457360	Carbon Resistor	36.0K 1/4 J		01
R712	HF457360	Carbon Resistor	36.0K 1/4 J		01
R713	HF458220	Carbon Resistor	220.0K 1/4 J		01
R714	HF458100	Carbon Resistor	100.0K 1/4 J		01
R716	HF458120	Carbon Resistor	120.0K 1/4 J		01
R717	HF458120	Carbon Resistor	120.0K 1/4 J		01
R718	HF457180	Carbon Resistor	18.0K 1/4 J		01
R719	HF455220	Carbon Resistor	220.0 1/4 J		01
R720	HF456430	Carbon Resistor	4.3K 1/4 J		01
R721	HF457100	Carbon Resistor	10.0K 1/4 J		01
R724	HF456330	Carbon Resistor	3.3K 1/4 J		01
R725	HF458100	Carbon Resistor	100.0K 1/4 J		01
R726	HF456330	Carbon Resistor	3.3K 1/4 J		01
R727	HF457100	Carbon Resistor	10.0K 1/4 J		01
R728	HF456470	Carbon Resistor	4.7K 1/4 J		01
R729	HF455750	Carbon Resistor	750.0 1/4 J		01
R730	HF457100	Carbon Resistor	10.0K 1/4 J		01
R731	HF455680	Carbon Resistor	680.0 1/4 J		01
-733	HF455680	Carbon Resistor	680.0 1/4 J		01
R734	HF455560	Carbon Resistor	560.0 1/4 J		01
R735	HF455560	Carbon Resistor	560.0 1/4 J		01
R737	VV065500	Metal Film Resistor	10K 1/4 F		01
R738	VV065500	Metal Film Resistor	10K 1/4 F		01
R739	HF458100	Carbon Resistor	100.0K 1/4 J		01
R741	HF456910	Carbon Resistor	9.1K 1/4 J		01
R742	HF455100	Carbon Resistor	100.0 1/4 J		01
R812	HF457180	Carbon Resistor	18.0K 1/4 J		01
R813	HF458220	Carbon Resistor	220.0K 1/4 J		01
R814	HF458100	Carbon Resistor	100.0K 1/4 J		01
R816	HF458120	Carbon Resistor	120.0K 1/4 J		01
R817	HF458120	Carbon Resistor	120.0K 1/4 J		01
R818	HF457180	Carbon Resistor	18.0K 1/4 J		01
R819	HF455220	Carbon Resistor	220.0 1/4 J		01
R820	HF456430	Carbon Resistor	4.3K 1/4 J		01
R821	HF457100	Carbon Resistor	10.0K 1/4 J		01
R824	HF456330	Carbon Resistor	3.3K 1/4 J		01
R825	HF458100	Carbon Resistor	100.0K 1/4 J		01
R826	HF456330	Carbon Resistor	3.3K 1/4 J		01
R827	HF457100	Carbon Resistor	10.0K 1/4 J		01

\*: New Parts

RANK: Japan only



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R828	HF456470	Carbon Resistor	4.7K 1/4 J			01
R829	HF455750	Carbon Resistor	750.0 1/4 J			01
R830	HF457100	Carbon Resistor	10.0K 1/4 J			01
R831	HF455680	Carbon Resistor	680.0 1/4 J			01
-833	HF455680	Carbon Resistor	680.0 1/4 J			01
R834	HF455560	Carbon Resistor	560.0 1/4 J			01
R835	HF455560	Carbon Resistor	560.0 1/4 J			01
R900	HF454100	Carbon Resistor	10.0 1/4 J			01
R901	HF458220	Carbon Resistor	220.0K 1/4 J			01
R902	HF457220	Carbon Resistor	22.0K 1/4 J			01
R903	HF457180	Carbon Resistor	18.0K 1/4 J			01
R904	HF455220	Carbon Resistor	220.0 1/4 J			01
R905	HF457150	Carbon Resistor	15.0K 1/4 J			01
R906	HF457100	Carbon Resistor	10.0K 1/4 J			01
R907	HF458100	Carbon Resistor	100.0K 1/4 J			01
R908	HF455560	Carbon Resistor	560.0 1/4 J			01
R909	HF455560	Carbon Resistor	560.0 1/4 J			01
R910	HF458470	Carbon Resistor	470.0K 1/4 J			01
R911	HF456470	Carbon Resistor	4.7K 1/4 J			01
R912	HF457270	Carbon Resistor	27.0K 1/4 J			01
R913	HF457270	Carbon Resistor	27.0K 1/4 J			01
R914	HF457680	Carbon Resistor	68.0K 1/4 J			01
R915	HF457680	Carbon Resistor	68.0K 1/4 J			01
R916	HF456270	Carbon Resistor	2.7K 1/4 J			01
R917	HF455330	Carbon Resistor	330.0 1/4 J			01
-925	HF455330	Carbon Resistor	330.0 1/4 J			01
SW101	VZ587700	Push Switch	2C-2S ROCK	CH1(PAD)		01
SW201	VZ587700	Push Switch	2C-2S ROCK	CH2(PAD)		01
SW301	VZ587700	Push Switch	2C-2S ROCK	CH3(PAD)		01
SW401	VZ587700	Push Switch	2C-2S ROCK	CH4(PAD)		01
SW701	VV044700	Slide Switch	SSSU013NB1-YL	MAIN BRIDGE		02
SW702	VV051500	Slide Switch	SSSU012NB1-YL	PHANTOM		02
SW901	VV056000	Tact Switch	SKQNAE025A	D.EFFECT(VO.ECHO1,2,		01
-909	VV056000	Tact Switch	SKQNAE025A	VO.REV1,2, HALL1,2,		01
				HALL,PLATE)		
* VR101	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH1(LOW, MID,HIGH)		
* -103	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR104	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH1(MONI,EFFECT,LEVEL)		
* -106	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR201	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH2(LOW, MID,HIGH)		
* -203	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR204	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH2(MONI,EFFECT,LEVEL)		
* -206	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR301	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH3(LOW, MID,HIGH)		
* -303	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR304	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH3(MONI,EFFECT,LEVEL)		
* -306	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR401	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH4(LOW, MID,HIGH)		
* -403	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR404	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH4(MONI,EFFECT,LEVEL)		
* -406	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR501	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH5(LOW, MID,HIGH)		
* -503	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR504	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH5(MONI,EFFECT,LEVEL)		
* -506	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR601	V5521600	Rotary Variable Resistor	B 50.0K RD09F113	CH6(LOW, MID,HIGH)		
* -603	V5521600	Rotary Variable Resistor	B 50.0K RD09F113			
* VR604	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	CH6(MONI,EFFECT,LEVEL)		
* -606	V5521500	Rotary Variable Resistor	A 20.0K RK09D113			
* VR701	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MAIN(AUX IN,TAPE IN,		
* -703	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MASTER)		
VR704	VV044600	Slide Variable Resistor	RS20H11KD017-YL	MAIN(125,250,500,1k,2k,		03
-710	VV044600	Slide Variable Resistor	RS20H11KD017-YL	4k,8k)		03
* VR802	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MONITOR(TAPE IN)		
* VR803	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MONITOR(MASTER)		
VR804	VV044600	Slide Variable Resistor	RS20H11KD017-YL	MONITOR(125,250,500,1k,		03
-810	VV044600	Slide Variable Resistor	RS20H11KD017-YL	2k,4k,8k)		03
* VR901	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MONITOR(EFFECT RTN)		
* VR902	V5521500	Rotary Variable Resistor	A 20.0K RK09D113	MAIN(EFFECT RTN)		

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
*	V5111000	Circuit Board	SUB	(XY281A00)		
	VV291400	Jumper Wire	0.6			01
C101	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C102	VZ353300	Ceramic Capacitor-SL	56P 50V J			01
C103	UR838100	Electrolytic Cap.	100.00 16.0V			01
C104	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C105	VZ353800	Ceramic Cap.-B	470P 50V K			01
C106	UR857470	Electrolytic Cap.	47.00 35.0V			01
C107	UR857470	Electrolytic Cap.	47.00 35.0V			01
C108	UR877100	Electrolytic Cap.	10.00 63.0V			01
C109	UR877100	Electrolytic Cap.	10.00 63.0V			01
C110	UR897100	Electrolytic Cap.	10.0 100.0V			01
C111	UR897100	Electrolytic Cap.	10.0 100.0V			01
C112	FU451680	Mica Capacitor	68P 500V J			01
C113	FU451820	Mica Capacitor	82P 500V J			01
C114	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C115	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C201	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C202	VZ353300	Ceramic Capacitor-SL	56P 50V J			01
C203	UR838100	Electrolytic Cap.	100.00 16.0V			01
C204	VZ353900	Ceramic Cap.-B	1000P 50V K			01
C205	VZ353800	Ceramic Cap.-B	470P 50V K			01
C206	UR857470	Electrolytic Cap.	47.00 35.0V			01
C207	UR857470	Electrolytic Cap.	47.00 35.0V			01
C208	UR877100	Electrolytic Cap.	10.00 63.0V			01
C209	UR877100	Electrolytic Cap.	10.00 63.0V			01
C210	UR897100	Electrolytic Cap.	10.0 100.0V			01
C211	UR897100	Electrolytic Cap.	10.0 100.0V			01
C212	FU451680	Mica Capacitor	68P 500V J			01
C213	FU451820	Mica Capacitor	82P 500V J			01
C214	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C215	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C301	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C302	UR877100	Electrolytic Cap.	10.00 63.0V			01
C303	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C304	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C305	UR877100	Electrolytic Cap.	10.00 63.0V			01
C306	UR877100	Electrolytic Cap.	10.00 63.0V			01
C307	UA953270	Mylar Capacitor	2700P 50V J			01
C308	UR857470	Electrolytic Cap.	47.00 35.0V			01
C309	VZ353500	Ceramic Capacitor-SL	100P 50V J			01
C310	VV190000	Mylar Capacitor	820P 50V J			01
C311	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C312	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C313	UR877100	Electrolytic Cap.	10.00 63.0V			01
* C314	UA953820	Mylar Capacitor	8200P 50V J			01
C315	UR877100	Electrolytic Cap.	10.00 63.0V			01
-317	UR877100	Electrolytic Cap.	10.00 63.0V			01
C318	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C319	UR877100	Electrolytic Cap.	10.00 63.0V			01
C320	UR877100	Electrolytic Cap.	10.00 63.0V			01
C321	VZ353800	Ceramic Cap.-B	470P 50V K			01
C322	VZ353800	Ceramic Cap.-B	470P 50V K			01
C323	UR877100	Electrolytic Cap.	10.00 63.0V			01
C324	UR877100	Electrolytic Cap.	10.00 63.0V			01
C325	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C326	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C327	UR877100	Electrolytic Cap.	10.00 63.0V			01
C328	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
-331	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C332	UR877100	Electrolytic Cap.	10.00 63.0V			01
C333	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C334	UR838100	Electrolytic Cap.	100.00 16.0V			01
C335	UR838100	Electrolytic Cap.	100.00 16.0V			01
C336	UR857470	Electrolytic Cap.	47.00 35.0V			01
C337	UR877100	Electrolytic Cap.	10.00 63.0V			01
C338	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C339	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
CN101	--	Connector Base Post	M2426XX 14P TE	(VV06740)		
CN301	VQ046400	Connector , FFC	52044series 35P SE			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
D101	VD631600	Diode	1SS133,176,HSS104			01
-103	VD631600	Diode	1SS133,176,HSS104			01
D201	VD631600	Diode	1SS133,176,HSS104			01
-203	VD631600	Diode	1SS133,176,HSS104			01
D301	VD631600	Diode	1SS133,176,HSS104			01
EM301	GE300670	Ferrite Bead	BL02RN2-R62T4			02
EM302	GE300670	Ferrite Bead	BL02RN2-R62T4			02
EM303	VV056900	Filter, EMI	ZJSR5101-223TA			01
-307	VV056900	Filter, EMI	ZJSR5101-223TA			01
EM308	GE300670	Ferrite Bead	BL02RN2-R62T4			02
-312	GE300670	Ferrite Bead	BL02RN2-R62T4			02
IC101	XQ212A00	IC	NJM4558L-D	OP AMP		03
IC201	XQ212A00	IC	NJM4558L-D	OP AMP		03
* IC301	XY298A00	IC	93LC46B-I/P	DRAM 1K		02
IC302	IG142200	IC	TC74HCU04AP	INVERTER		02
* IC303	XY296A00	IC	UPD78082GB-XXX	MSK		05
IC304	XQ212A00	IC	NJM4558L-D	OP AMP		03
* IC305	XY282A00	IC	PCM3001E	ADA		07
IC306	XY297A00	IC	ZFX-2	DSP		13
IC307	XT810A00	IC	MSM514260C-60TS-K	DRAM 4M		16
IC308	XJ607A00	IC	NJM7805FA	5V REGULATOR		02
J301	VV291400	Jumper Wire	0.6			01
-303	VV291400	Jumper Wire	0.6			01
Q101	IA097030	Transistor	2SA970 GR,BL			01
Q102	IA097030	Transistor	2SA970 GR,BL			01
Q103	IC224030	Transistor	2SC2240 GR,BL			01
Q104	IC224030	Transistor	2SC2240 GR,BL			01
Q105	VD678500	Digital Transistor	DTA114ES			01
Q106	VD678700	Digital Transistor	DTC114ES			01
Q107	VD678500	Digital Transistor	DTA114ES			01
Q108	IA097030	Transistor	2SA970 GR,BL			01
-110	IA097030	Transistor	2SA970 GR,BL			01
Q111	IC224030	Transistor	2SC2240 GR,BL			01
Q112	IC1815M0	Transistor	2SC1815 Y,GR			01
Q113	IC1815M0	Transistor	2SC1815 Y,GR			01
Q114	VU418400	Transistor	2SA1371 D,E			01
Q115	VU418600	Transistor	2SC3468 D,E			01
Q201	IA097030	Transistor	2SA970 GR,BL			01
Q202	IA097030	Transistor	2SA970 GR,BL			01
Q203	IC224030	Transistor	2SC2240 GR,BL			01
Q204	IC224030	Transistor	2SC2240 GR,BL			01
Q205	VD678500	Digital Transistor	DTA114ES			01
Q206	VD678700	Digital Transistor	DTC114ES			01
Q207	VD678500	Digital Transistor	DTA114ES			01
Q208	IA097030	Transistor	2SA970 GR,BL			01
-210	IA097030	Transistor	2SA970 GR,BL			01
Q211	IC224030	Transistor	2SC2240 GR,BL			01
Q212	IC1815M0	Transistor	2SC1815 Y,GR			01
Q213	IC1815M0	Transistor	2SC1815 Y,GR			01
Q214	VU418400	Transistor	2SA1371 D,E			01
Q215	VU418600	Transistor	2SC3468 D,E			01
Q301	VD678700	Digital Transistor	DTC114ES			01
Q302	IC1815M0	Transistor	2SC1815 Y,GR			01
Q303	IC1815M0	Transistor	2SC1815 Y,GR			01
Q304	VD678500	Digital Transistor	DTA114ES			01
Q305	VD678700	Digital Transistor	DTC114ES			01
Q306	IC1815M0	Transistor	2SC1815 Y,GR			01
R101	VV313500	Metal Film Resistor	220K 1/4 F			01
R102	VV313500	Metal Film Resistor	220K 1/4 F			01
R103	HF454680	Carbon Resistor	68.0 1/4 J			01
R104	V0030400	Metal Film Resistor	75.0K 1/5 F			01
-107	V0030400	Metal Film Resistor	75.0K 1/5 F			01
R108	VV066000	Metal Film Resistor	33K 1/4 F			01
R109	HF454680	Carbon Resistor	68.0 1/4 J			01
R110	VV066000	Metal Film Resistor	33K 1/4 F			01
R111	HF457270	Carbon Resistor	27.0K 1/4 J			01
R112	VZ598300	Metal Film Resistor	510.0 1/4 F			01
R113	HF456150	Carbon Resistor	1.5K 1/4 J			01
R114	HF455220	Carbon Resistor	220.0 1/4 J			01
R115	HF458330	Carbon Resistor	330.0K 1/4 J			01

\*: New Parts

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REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R116	HF456220	Carbon Resistor	2.2K 1/4 J			01
R117	HF456220	Carbon Resistor	2.2K 1/4 J			01
R118	HF457470	Carbon Resistor	47.0K 1/4 J			01
R119	HF455330	Carbon Resistor	330.0 1/4 J			01
R120	HF458390	Carbon Resistor	390.0K 1/4 J			01
R121	HF458390	Carbon Resistor	390.0K 1/4 J			01
R122	HF458330	Carbon Resistor	330.0K 1/4 J			01
R123	HF457220	Carbon Resistor	22.0K 1/4 J			01
R124	HF457220	Carbon Resistor	22.0K 1/4 J			01
R125	HF455560	Carbon Resistor	560.0 1/4 J			01
R126	HF455100	Carbon Resistor	100.0 1/4 J			01
R127	HF455100	Carbon Resistor	100.0 1/4 J			01
R128	HF455560	Carbon Resistor	560.0 1/4 J			01
R129	HF455560	Carbon Resistor	560.0 1/4 J			01
R130	VB068100	Metal Film Resistor	22.0K 1/5 F			01
R131	HF457470	Carbon Resistor	47.0K 1/4 J			01
R132	HF457470	Carbon Resistor	47.0K 1/4 J			01
R133	HF455330	Carbon Resistor	330.0 1/4 J			01
R134	HF455330	Carbon Resistor	330.0 1/4 J			01
R201	VV313500	Metal Film Resistor	220K 1/4 F			01
R202	VV313500	Metal Film Resistor	220K 1/4 F			01
R203	HF454680	Carbon Resistor	68.0 1/4 J			01
R204	V0030400	Metal Film Resistor	75.0K 1/5 F			01
-207	V0030400	Metal Film Resistor	75.0K 1/5 F			01
R208	VV066000	Metal Film Resistor	33K 1/4 F			01
R209	HF454680	Carbon Resistor	68.0 1/4 J			01
R210	VV066000	Metal Film Resistor	33K 1/4 F			01
R211	HF457270	Carbon Resistor	27.0K 1/4 J			01
R212	VZ598300	Metal Film Resistor	510.0 1/4 F			01
R213	HF456150	Carbon Resistor	1.5K 1/4 J			01
R214	HF455220	Carbon Resistor	220.0 1/4 J			01
R215	HF458330	Carbon Resistor	330.0K 1/4 J			01
R216	HF456220	Carbon Resistor	2.2K 1/4 J			01
R217	HF456220	Carbon Resistor	2.2K 1/4 J			01
R218	HF457470	Carbon Resistor	47.0K 1/4 J			01
R219	HF455330	Carbon Resistor	330.0 1/4 J			01
R220	HF458390	Carbon Resistor	390.0K 1/4 J			01
R221	HF458390	Carbon Resistor	390.0K 1/4 J			01
R222	HF458330	Carbon Resistor	330.0K 1/4 J			01
R223	HF457220	Carbon Resistor	22.0K 1/4 J			01
R224	HF457220	Carbon Resistor	22.0K 1/4 J			01
R225	HF455560	Carbon Resistor	560.0 1/4 J			01
R226	HF455100	Carbon Resistor	100.0 1/4 J			01
R227	HF455100	Carbon Resistor	100.0 1/4 J			01
R228	HF455560	Carbon Resistor	560.0 1/4 J			01
R229	HF455560	Carbon Resistor	560.0 1/4 J			01
R230	VB068100	Metal Film Resistor	22.0K 1/5 F			01
R231	HF457470	Carbon Resistor	47.0K 1/4 J			01
R232	HF457470	Carbon Resistor	47.0K 1/4 J			01
R233	HF455330	Carbon Resistor	330.0 1/4 J			01
R234	HF455330	Carbon Resistor	330.0 1/4 J			01
R301	HF455100	Carbon Resistor	100.0 1/4 J			01
-315	HF455100	Carbon Resistor	100.0 1/4 J			01
R316	HF457100	Carbon Resistor	10.0K 1/4 J			01
R317	HF457220	Carbon Resistor	22.0K 1/4 J			01
R318	HF457100	Carbon Resistor	10.0K 1/4 J			01
R319	HF457220	Carbon Resistor	22.0K 1/4 J			01
R320	HF457100	Carbon Resistor	10.0K 1/4 J			01
R321	HF457220	Carbon Resistor	22.0K 1/4 J			01
-330	HF457220	Carbon Resistor	22.0K 1/4 J			01
R331	HF457100	Carbon Resistor	10.0K 1/4 J			01
R332	HF457220	Carbon Resistor	22.0K 1/4 J			01
R333	HF456100	Carbon Resistor	1.0K 1/4 J			01
R334	HF459100	Carbon Resistor	1.0M 1/4 J			01
R335	HF459100	Carbon Resistor	1.0M 1/4 J			01
R336	HF457220	Carbon Resistor	22.0K 1/4 J			01
R337	HF457100	Carbon Resistor	10.0K 1/4 J			01
R338	HF457220	Carbon Resistor	22.0K 1/4 J			01
-342	HF457220	Carbon Resistor	22.0K 1/4 J			01
R343	HF456100	Carbon Resistor	1.0K 1/4 J			01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R344	HF457270	Carbon Resistor	27.0K 1/4 J			01
R345	HF456300	Carbon Resistor	3.0K 1/4 J			01
R346	HF457300	Carbon Resistor	30.0K 1/4 J			01
R347	HF459100	Carbon Resistor	1.0M 1/4 J			01
R348	HF457100	Carbon Resistor	10.0K 1/4 J			01
R349	HF458100	Carbon Resistor	100.0K 1/4 J			01
R350	HF458100	Carbon Resistor	100.0K 1/4 J			01
R351	HF456100	Carbon Resistor	1.0K 1/4 J			01
R352	HF457220	Carbon Resistor	22.0K 1/4 J			01
R353	HF457680	Carbon Resistor	68.0K 1/4 J			01
R354	HF456910	Carbon Resistor	9.1K 1/4 J			01
R355	HF456130	Carbon Resistor	1.3K 1/4 J			01
R356	HF457220	Carbon Resistor	22.0K 1/4 J			01
R357	HF453220	Carbon Resistor	2.2 1/4 J			01
-359	HF453220	Carbon Resistor	2.2 1/4 J			01
R360	V4566800	Meta Oxide Film Resistor	47 2W J			
R361	HF457220	Carbon Resistor	22.0K 1/4 J			01
-363	HF457220	Carbon Resistor	22.0K 1/4 J			01
X301	VD827600	Ceramic Resonator	0.1% 4.0MHZ			02
* * *	V5227100	Circuit Board	PWR	J (XY324A00)		
	V5227200	Circuit Board	PWR	U,V (XY324A00)		
	V5227300	Circuit Board	PWR	H,W,B,A (XY324A00)		
	V3225000	Ferrite Core	FR25/15/12-D40			03
	VV319600	Fuse Holder	CQ-05CT		6	01
	VV291400	Jumper Wire	0.6		100	01
C103	UR877100	Electrolytic Cap.	10.00 63.0V			01
C104	UR877100	Electrolytic Cap.	10.00 63.0V			01
C105	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C106	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C107	UA953220	Mylar Capacitor	2200P 50V J			01
C108	V4567500	Ceramic Capacitor-SL	10P 500V K			
C109	V4567500	Ceramic Capacitor-SL	10P 500V K			
C112	UR877100	Electrolytic Cap.	10.00 63.0V			01
C113	UR877100	Electrolytic Cap.	10.00 63.0V			01
C114	V4567500	Ceramic Capacitor-SL	10P 500V K			
C115	V4567500	Ceramic Capacitor-SL	10P 500V K			
C116	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C117	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C118	UA953220	Mylar Capacitor	2200P 50V J			01
C119	UR897100	Electrolytic Cap.	10.0 100.0V			01
C120	UR897100	Electrolytic Cap.	10.0 100.0V			01
C121	V3280500	Ceramic Capacitor-B	100P 500 K			01
C122	V3280500	Ceramic Capacitor-B	100P 500 K			01
C123	VV082200	Mylar Capacitor	3.3 100V M			03
C124	VV082200	Mylar Capacitor	3.3 100V M			03
C125	UR897100	Electrolytic Cap.	10.0 100.0V			01
C126	UR897100	Electrolytic Cap.	10.0 100.0V			01
C127	VV314600	Ceramic Capacitor-B	0.0022 500V K			01
C128	VV314600	Ceramic Capacitor-B	0.0022 500V K			01
C129	V5307900	Electrolytic Cap.	100 100.0V			
C130	V5307900	Electrolytic Cap.	100 100.0V			
C131	VV330700	Electrolytic Cap.	470.00 10.0V			01
C132	UR857470	Electrolytic Cap.	47.00 35.0V			01
C133	UR877100	Electrolytic Cap.	10.00 63.0V			01
-135	UR877100	Electrolytic Cap.	10.00 63.0V			01
C136	V5482000	Electrolytic Cap.	1000 35.0V			
-139	V5482000	Electrolytic Cap.	1000 35.0V			
C140	UR877100	Electrolytic Cap.	10.00 63.0V			01
C141	UR877100	Electrolytic Cap.	10.00 63.0V			01
C142	VY897000	Electrolytic Cap.	6800 100V			08
C143	VY897000	Electrolytic Cap.	6800 100V			08
C144	VV082300	Mylar Capacitor	0.1 250V M			01
C145	VV082300	Mylar Capacitor	0.1 250V M			01
C146	VZ354000	Ceramic Capacitor-F	0.01 50V Z			01
C147	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
C148	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z			01
* C149	UR896470	Electrolytic Cap.	4.7 100.0V			
C150	V3280500	Ceramic Capacitor-B	100P 500 K			01
C151	VY704000	Capacitor	4700P 400V J.U.C.S	U,V,H,W,B,A		01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
C152	VZ353500	Ceramic Capacitor-SL	100P 50V J		01
C153	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z		01
C154	VZ354600	Monolithic Ceramic Cap.	0.1 50V Z		01
C155	VZ353500	Ceramic Capacitor-SL	100P 50V J		01
C156	VV314800	Capacitor	1000P 400V J.U.C.S		01
C157	VV520600	Capacitor	0.01 400V J.U.C.S		02
C158	VY704000	Capacitor	4700P 400V J.U.C.S	U,V,H,W,B,A	01
C159	VZ354000	Ceramic Capacitor-F	0.01 50V Z		01
C160	VZ354000	Ceramic Capacitor-F	0.01 50V Z		01
CN101	--	Connector Base Post	M2426XX 14P TE	(VV06740)	
CN102	LB933040	Base Post Connector	VH- 4P SE		01
CN103	LB932060	Base Post Connector	VH- 6P TE		01
CN104	VV066200	Connector Base Post	M2426XX 2P TE		01
CN105	LB933030	Base Post Connector	VH- 3P SE		01
CN106	LB933030	Base Post Connector	VH- 3P SE		01
D101	VD631600	Diode	1SS133,176,HSS104		01
-104	VD631600	Diode	1SS133,176,HSS104		01
D105	VG437700	Zener Diode	MTZ J 5.6B 5.6V		01
D106	VD631600	Diode	1SS133,176,HSS104		01
D107	IF005560	Diode	1SS82TD		01
D108	IF005560	Diode	1SS82TD		01
D109	VD631600	Diode	1SS133,176,HSS104		01
D110	VG437700	Zener Diode	MTZ J 5.6B 5.6V		01
D111	IF005560	Diode	1SS82TD		01
D112	IF005560	Diode	1SS82TD		01
D113	VN478200	Diode	D1NL20U		01
D114	VN478200	Diode	D1NL20U		01
D115	VU801600	Diode	1N4004L 26		01
D116	VU801600	Diode	1N4004L 26		01
D117	VD631600	Diode	1SS133,176,HSS104		01
-120	VD631600	Diode	1SS133,176,HSS104		01
D121	VG437700	Zener Diode	MTZ J 5.6B 5.6V		01
D122	VN478200	Diode	D1NL20U		01
D123	IF005560	Diode	1SS82TD		01
D124	VD631600	Diode	1SS133,176,HSS104		01
D125	IF005560	Diode	1SS82TD		01
D126	IF005560	Diode	1SS82TD		01
D127	VD631600	Diode	1SS133,176,HSS104		01
D128	IF005560	Diode	1SS82TD		01
D129	VG437700	Zener Diode	MTZ J 5.6B 5.6V		01
D130	VN478200	Diode	D1NL20U		01
D131	VU801600	Diode	1N4004L 26		01
D132	VU801600	Diode	1N4004L 26		01
D133	VR149700		D8LD40 8.0A 400V		04
D134	VU801600	Diode	1N4004L 26		01
D135	VS135800		FMX-22S 10.0A 200V		03
D136	VR149700		D8LD40 8.0A 400V		04
D137	VU801600	Diode	1N4004L 26		01
D138	VS135800		FMX-22S 10.0A 200V		03
D139	VU801600	Diode	1N4004L 26		01
D140	VD631600	Diode	1SS133,176,HSS104		01
D141	VU801600	Diode	1N4004L 26		01
D142	VU801600	Diode	1N4004L 26		01
D143	VG438900	Zener Diode	MTZ J 8.2B 8.2V		01
D144	V2261600	Diode Stack	RBV-1306 13.0A 600		04
D145	VU801600	Diode	1N4004L 26		01
-149	VU801600	Diode	1N4004L 26		01
E101	VV075700	Terminal Plate			01
E102	VV075700	Terminal Plate			01
F101	VV070600	Fuse	TDS 2A 250V J/U/C	J,U,V	01
F101	VV071500	Fuse	TSD 2A 250V SEMKO	H,W,B,A	01
F102	VV070600	Fuse	TDS 2A 250V J/U/C	J,U,V	01
F102	VV071500	Fuse	TSD 2A 250V SEMKO	H,W,B,A	01
F103	KB001380	Fuse	15.00A U	J	04
F103	KB001540	Fuse	12.00A UL	U,V	04
F103	KB003360	Fuse	6.30A S	H,W,B,A	02
IC101	XD853A00	IC	NJM7815FA	REGULATOR +15V	03
IC102	XD854A00	IC	NJM7915FA	REGULATOR -15V	03
JK101	VV089300	Phone Jack	H30280072N	SPEAKERS(POWER AMP1-A,B,	02
-105	VV089300	Phone Jack	H30280072N	BRIDGE,POWER AMP2-A,B)	02



\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
L101	V4668300	Coil	OH-20 100UH		
L102	V4668300	Coil	OH-20 100UH		
L103	GE300670	Ferrite Bead	BL02RN2-R62T4		02
L104	GE300670	Ferrite Bead	BL02RN2-R62T4		02
L105	VR150900	Coil	RZ-001 21MM		02
L106	VR150900	Coil	RZ-001 21MM		02
PR101	VL964800	Positive Thermistor	PTH9M04BH222TS2		04
PR102	VL965100	Positive Thermistor	PTH9M04BE222TS2		04
Q101	VU418400	Transistor	2SA1371 D,E		01
Q102	VU418600	Transistor	2SC3468 D,E		01
Q103	V2797700	Transistor	2SC5395 E,F		01
Q104	V2797600	Transistor	2SA1993 E,F		01
Q105	VU418600	Transistor	2SC3468 D,E		01
Q106	VU418400	Transistor	2SA1371 D,E		01
Q107N	VR732800	Transistor	A1859A/C4883A		04
Q107P	VR732800	Transistor	A1859A/C4883A		04
* Q108N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q108P	V5611000	Pair Transistor	A1386A/C3519A		05
* Q109N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q109P	V5611000	Pair Transistor	A1386A/C3519A		05
Q110	VU418400	Transistor	2SA1371 D,E		01
Q111	VU418600	Transistor	2SC3468 D,E		01
Q112	V2797700	Transistor	2SC5395 E,F		01
Q113	V2797600	Transistor	2SA1993 E,F		01
Q114	VU418600	Transistor	2SC3468 D,E		01
Q115	VU418400	Transistor	2SA1371 D,E		01
Q116N	VR732800	Transistor	A1859A/C4883A		04
Q116P	VR732800	Transistor	A1859A/C4883A		04
* Q117N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q117P	V5611000	Pair Transistor	A1386A/C3519A		05
* Q118N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q118P	V5611000	Pair Transistor	A1386A/C3519A		05
Q119	VU418600	Transistor	2SC3468 D,E		01
Q120	VU418400	Transistor	2SA1371 D,E		01
Q121N	VR732800	Transistor	A1859A/C4883A		04
Q121P	VR732800	Transistor	A1859A/C4883A		04
Q122N	V5611000	Pair Transistor	A1386A/C3519A		05
Q122P	V5611000	Pair Transistor	A1386A/C3519A		05
Q123N	V5611000	Pair Transistor	A1386A/C3519A		05
Q123P	V5611000	Pair Transistor	A1386A/C3519A		05
Q124N	VR732800	Transistor	A1859A/C4883A		04
Q124P	VR732800	Transistor	A1859A/C4883A		04
* Q125N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q125P	V5611000	Pair Transistor	A1386A/C3519A		05
* Q126N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q126P	V5611000	Pair Transistor	A1386A/C3519A		05
* Q127N	V5611000	Pair Transistor	A1386A/C3519A		05
* Q127P	V5611000	Pair Transistor	A1386A/C3519A		05
Q128	V2797700	Transistor	2SC5395 E,F		01
Q129	V2797700	Transistor	2SC5395 E,F		01
Q130	V2797600	Transistor	2SA1993 E,F		01
Q131	V2797700	Transistor	2SC5395 E,F		01
Q132	VS883400	Transistor	2SD2394 E,F		02
Q133	IC1815M0	Transistor	2SC1815 Y,GR		01
R101	HF455220	Carbon Resistor	220.0 1/4 J		01
R102	HF455220	Carbon Resistor	220.0 1/4 J		01
R103	HF457470	Carbon Resistor	47.0K 1/4 J		01
-106	HF457470	Carbon Resistor	47.0K 1/4 J		01
R107	HF457120	Carbon Resistor	12.0K 1/4 J		01
R108	HF457120	Carbon Resistor	12.0K 1/4 J		01
R109	VV313800	Flame Proof C. Resistor	220.0 1/4 J		01
R110	VV313800	Flame Proof C. Resistor	220.0 1/4 J		01
R111	VZ009300	Flame Proof C. Resistor	330.0 1/4 J		01
R112	VZ009300	Flame Proof C. Resistor	330.0 1/4 J		01
R113	VV276800	Flame Proof C. Resistor	100 1/4 J		01
-116	VV276800	Flame Proof C. Resistor	100 1/4 J		01
R117	VZ009100	Flame Proof C. Resistor	33.0 1/4 J		01
R118	VZ009100	Flame Proof C. Resistor	33.0 1/4 J		01
R119	VZ008800	Flame Proof C. Resistor	22.0 1/4 J		01
R120	VZ008800	Flame Proof C. Resistor	22.0 1/4 J		01

\*: New Parts

RANK: Japan only

REF NO.	PART NO.	DESCRIPTION	REMARKS	QTY	RANK
R121	<b>V4833200</b>	Wire Wound Resistor	0.22 5W K		
-124	<b>V4833200</b>	Wire Wound Resistor	0.22 5W K		
R125	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R126	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R127	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R128	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R129	<b>HF455220</b>	Carbon Resistor	220.0 1/4 J		01
R130	<b>HF455220</b>	Carbon Resistor	220.0 1/4 J		01
R131	<b>HF457470</b>	Carbon Resistor	47.0K 1/4 J		01
-134	<b>HF457470</b>	Carbon Resistor	47.0K 1/4 J		01
R135	<b>HF457120</b>	Carbon Resistor	12.0K 1/4 J		01
R136	<b>HF457120</b>	Carbon Resistor	12.0K 1/4 J		01
R137	<b>VV313800</b>	Flame Proof C. Resistor	220.0 1/4 J		01
R138	<b>VV313800</b>	Flame Proof C. Resistor	220.0 1/4 J		01
R139	<b>VZ009300</b>	Flame Proof C. Resistor	330.0 1/4 J		01
R140	<b>VZ009300</b>	Flame Proof C. Resistor	330.0 1/4 J		01
R141	<b>VV276800</b>	Flame Proof C. Resistor	100 1/4 J		01
R142	<b>VV276800</b>	Flame Proof C. Resistor	100 1/4 J		01
R143	<b>VV276800</b>	Flame Proof C. Resistor	100 1/4 J		01
R144	<b>VV276800</b>	Flame Proof C. Resistor	100 1/4 J		01
R145	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R146	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R147	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R148	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R149	<b>V4833200</b>	Wire Wound Resistor	0.22 5W K		
-152	<b>V4833200</b>	Wire Wound Resistor	0.22 5W K		
R153	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R154	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R155	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R156	<b>VZ009100</b>	Flame Proof C. Resistor	33.0 1/4 J		01
R157	<b>HF456560</b>	Carbon Resistor	5.6K 1/4 J		01
R158	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R159	<b>VZ008700</b>	Flame Proof C. Resistor	2.2K 1/4 J		01
R160	<b>VZ008600</b>	Flame Proof C. Resistor	150.0 1/4 J		01
R161	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R162	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R163	<b>VZ370200</b>	Wire Wound Resistor	0.1 5W K		01
R164	<b>VZ370200</b>	Wire Wound Resistor	0.1 5W K		01
R165	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R166	<b>VV276700</b>	Flame Proof C. Resistor	4.7 1/4 J		01
R167	<b>VV276700</b>	Flame Proof C. Resistor	4.7 1/4 J		01
R168	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
-171	<b>VV313900</b>	Flame Proof C. Resistor	680.0 1/4 J		01
R172	<b>HF456560</b>	Carbon Resistor	5.6K 1/4 J		01
R173	<b>VZ008800</b>	Flame Proof C. Resistor	22.0 1/4 J		01
R174	<b>VZ008700</b>	Flame Proof C. Resistor	2.2K 1/4 J		01
R175	<b>VZ008600</b>	Flame Proof C. Resistor	150.0 1/4 J		01
R176	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R177	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R178	<b>VZ370200</b>	Wire Wound Resistor	0.1 5W K		01
R179	<b>VZ370200</b>	Wire Wound Resistor	0.1 5W K		01
R180	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R181	<b>VV276700</b>	Flame Proof C. Resistor	4.7 1/4 J		01
R182	<b>VV276700</b>	Flame Proof C. Resistor	4.7 1/4 J		01
R183	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
-185	<b>VV313600</b>	Flame Proof C. Resistor	2.2 1/4 J		05
R186	<b>VV313900</b>	Flame Proof C. Resistor	680.0 1/4 J		01
R187	<b>HF458150</b>	Carbon Resistor	150.0K 1/4 J		01
R188	<b>HF458150</b>	Carbon Resistor	150.0K 1/4 J		01
R189	<b>HF456470</b>	Carbon Resistor	4.7K 1/4 J		01
R190	<b>HF457560</b>	Carbon Resistor	56.0K 1/4 J		01
R191	<b>HF457100</b>	Carbon Resistor	10.0K 1/4 J		01
R192	<b>HF457100</b>	Carbon Resistor	10.0K 1/4 J		01
R193	<b>HF456220</b>	Carbon Resistor	2.2K 1/4 J		01
R194	<b>HF457120</b>	Carbon Resistor	12.0K 1/4 J		01
R195	<b>VV313800</b>	Flame Proof C. Resistor	220.0 1/4 J		01
R196	<b>VV313800</b>	Flame Proof C. Resistor	220.0 1/4 J		01
R197	<b>HF455100</b>	Carbon Resistor	100.0 1/4 J		01
R198	<b>HF456220</b>	Carbon Resistor	2.2K 1/4 J		01
R199	<b>HF457120</b>	Carbon Resistor	12.0K 1/4 J		01

\*: New Parts

RANK: Japan only



REF NO.	PART NO.	DESCRIPTION		REMARKS	QTY	RANK
R200	<b>HF457560</b>	Carbon Resistor	56.0K 1/4 J			01
R201	<b>VV058500</b>	Flame Proof C. Resistor	10.0 1/4 J			01
-204	<b>VV058500</b>	Flame Proof C. Resistor	10.0 1/4 J			01
R205	<b>HF455560</b>	Carbon Resistor	560.0 1/4 J			01
-208	<b>HF455560</b>	Carbon Resistor	560.0 1/4 J			01
RY101	<b>VV315400</b>	Relay	DC OSA-SH-224DM3M			06
RY102	<b>VV315400</b>	Relay	DC OSA-SH-224DM3M			06
SW101	<b>VY898100</b>	Push Switch	SDDFA3107U-YL UCS	POWER ON/OFF		05
W101	--	Connector Assembly	B&C #18 4P	(V522750)		
*	<b>XY325B00</b>	Power Transformer		J		
*	<b>XY326A00</b>	Power Transforme		U,V		
*	<b>XY327B00</b>	Power Transforme		H,W,B		
*	<b>XY328A00</b>	Power Transforme		A		
	<b>V2955500</b>	Fan	3110KL05WB50L34			08
	<b>V3277000</b>	AC Cord	J VCTF 2X0.75 7A	J		05
	<b>VV205600</b>	AC Cord	UC SJT 3X#18 10A	U,V		06
	<b>V3277100</b>	AC Cord	E H05VV-F3X0.7510A	H,W,A		06
	<b>VV058300</b>	AC Cord	BS H05VV-F3X0.75	B		08

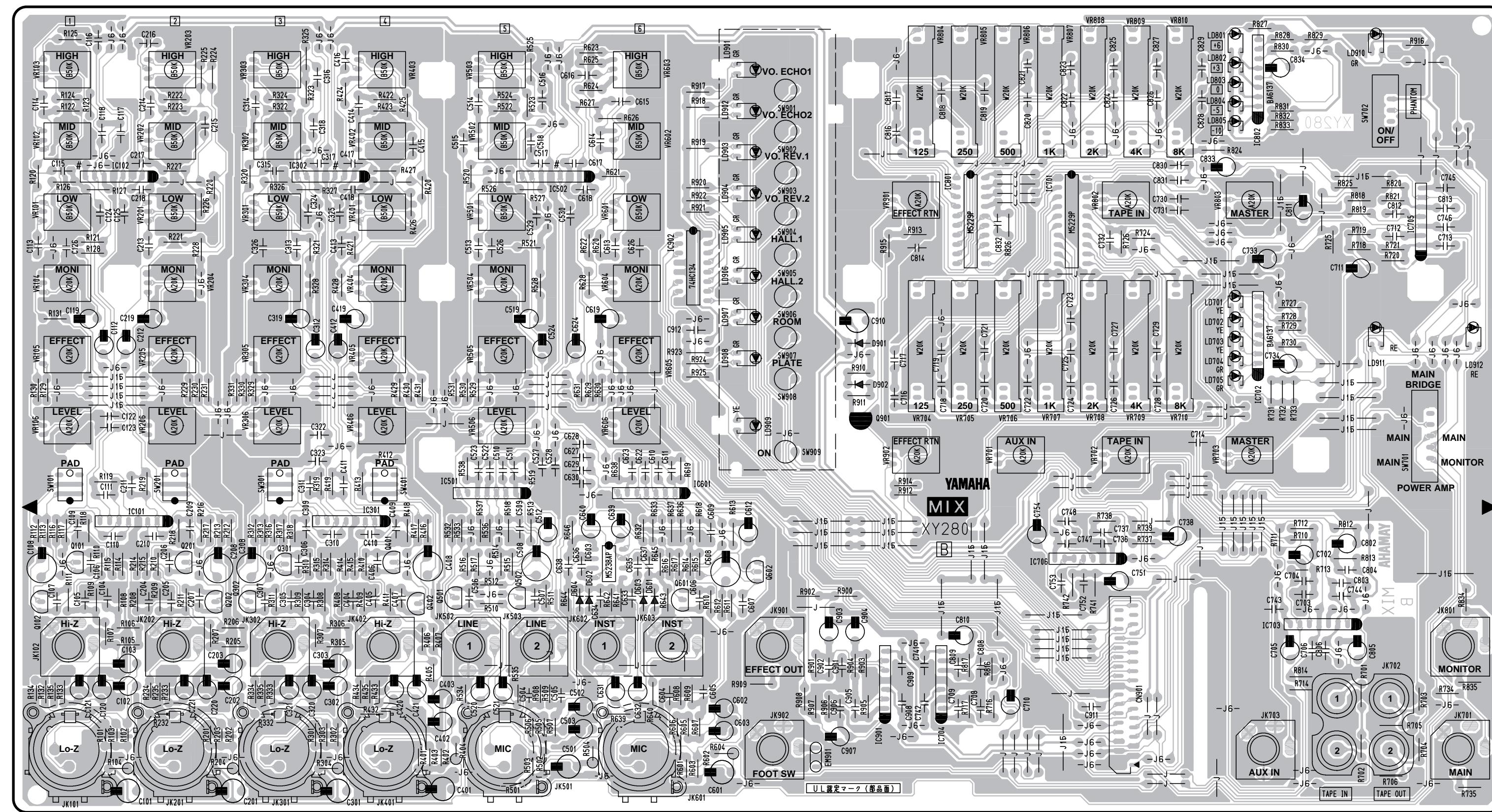
\*: New Parts

RANK: Japan only



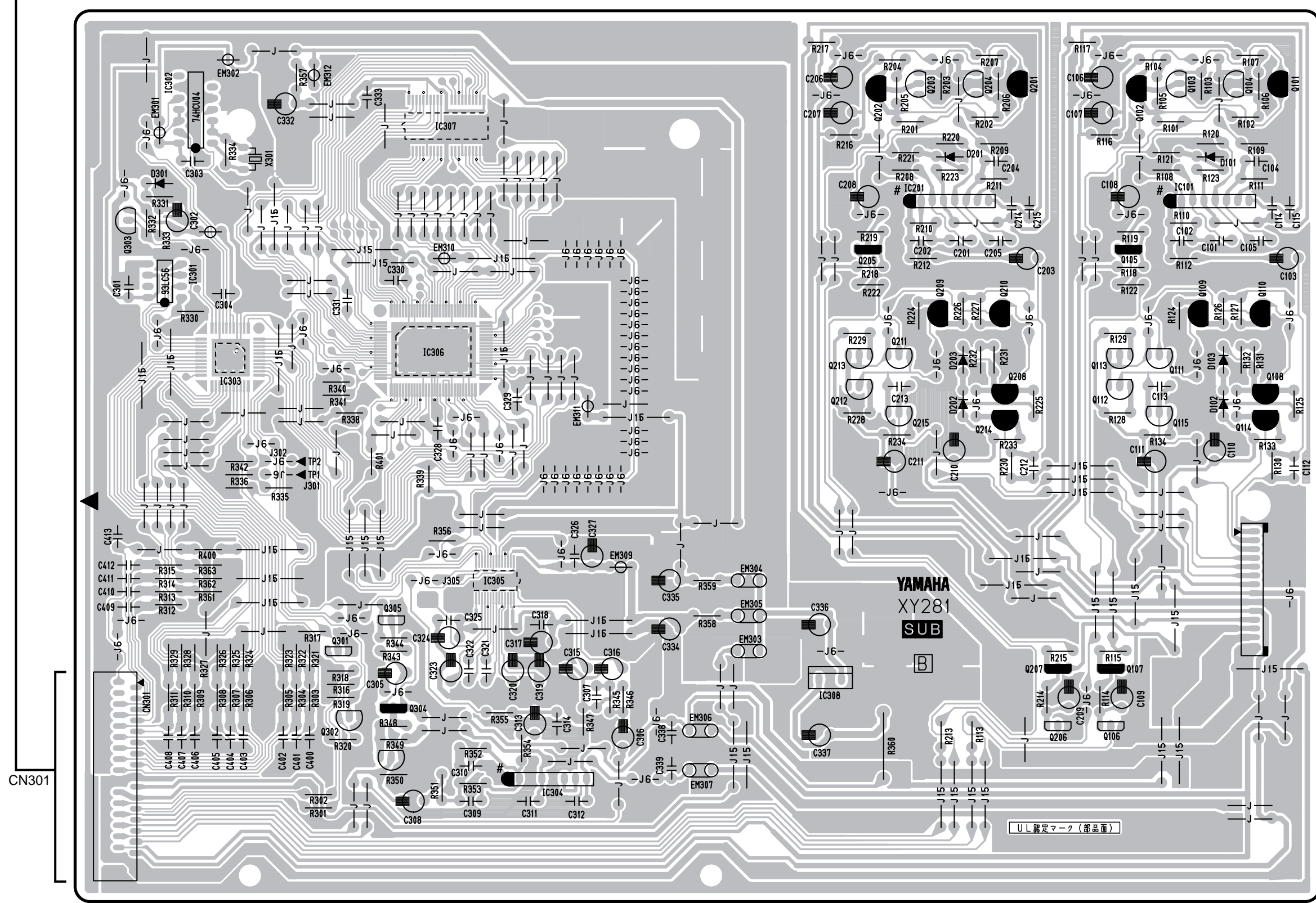
EMX660 CIRCUIT BOARDS & WIRING

MIX Circuit Board



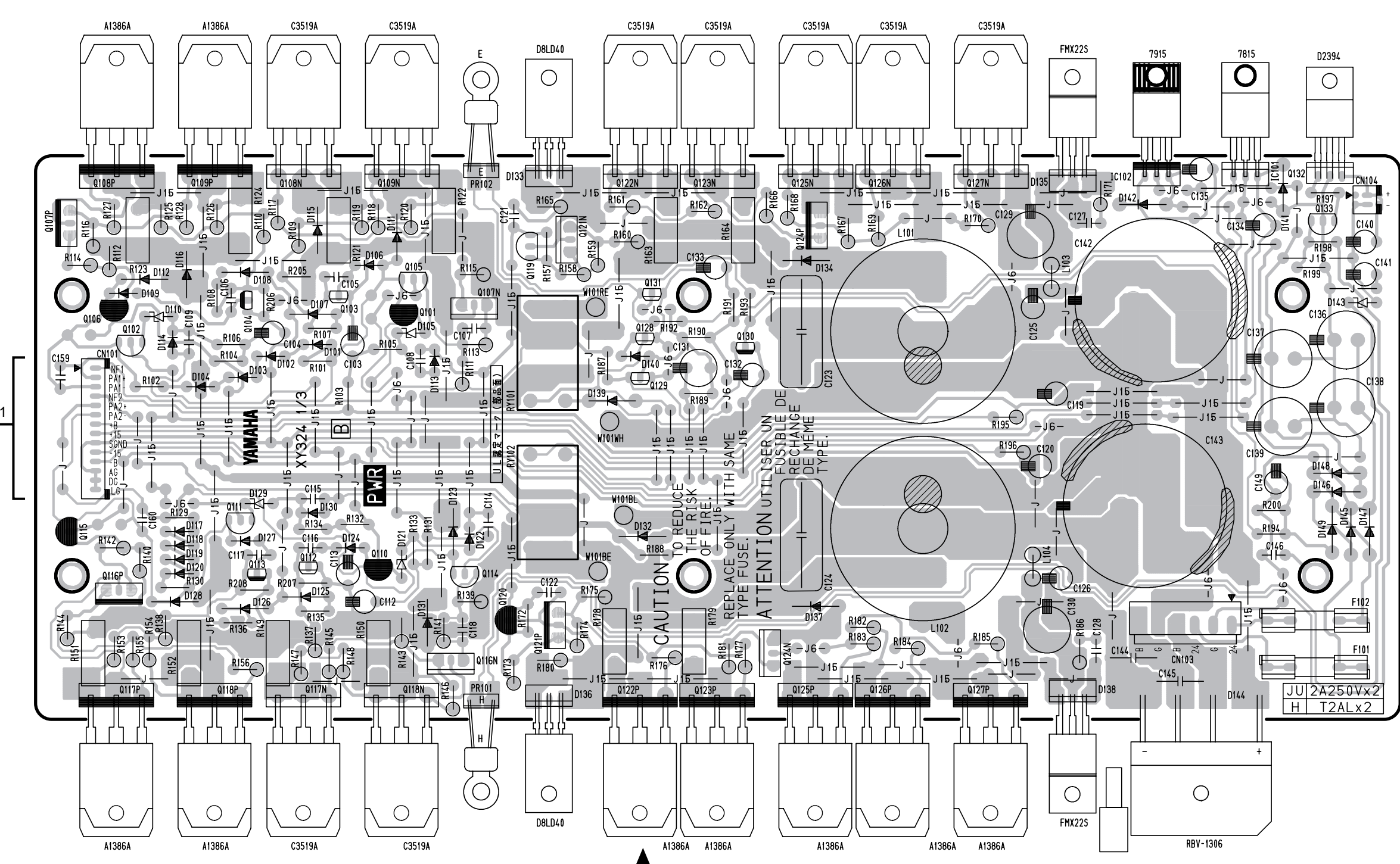
Component side

SUB Circuit Board



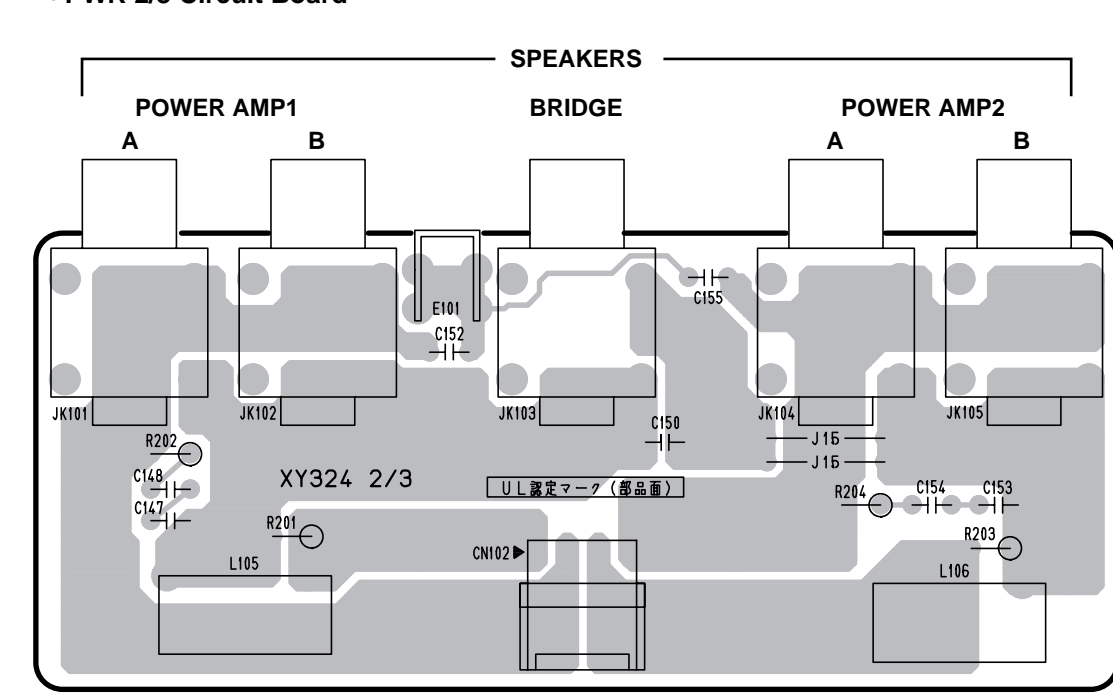
Component side

PWR 1/3 Circuit Board



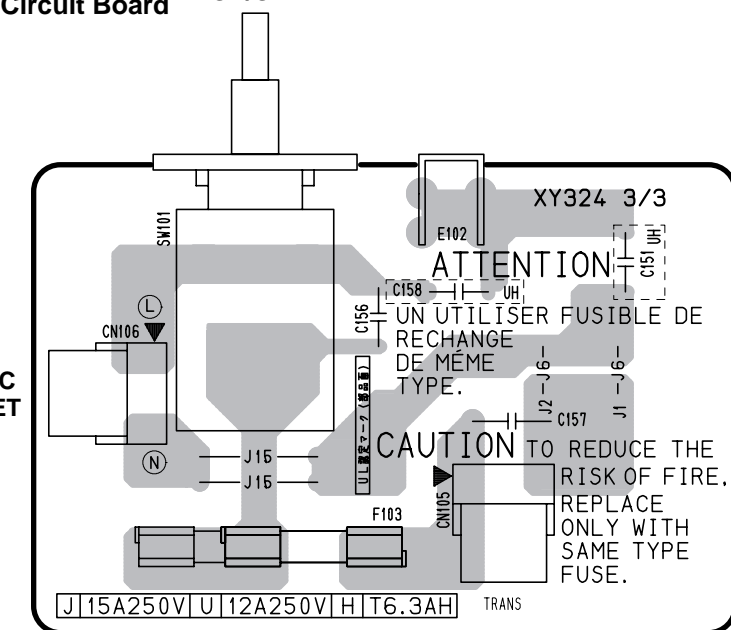
Component side

PWR 2/3 Circuit Board

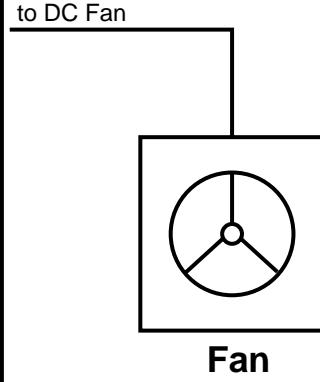


Component side

PWR 3/3 Circuit Board

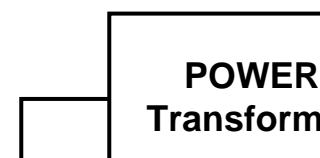


Component side



to DC Fan

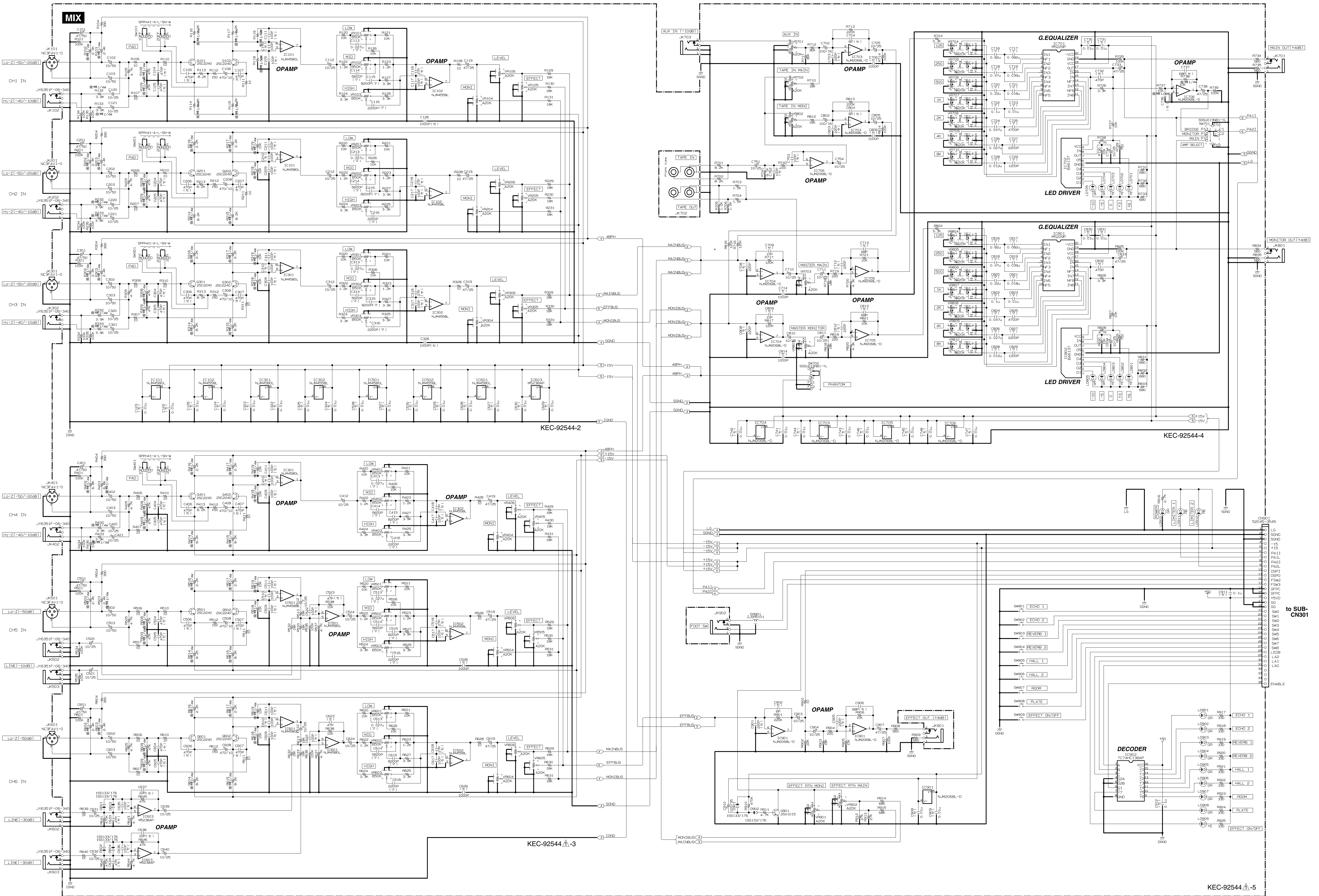
CN103: to Power Trans.

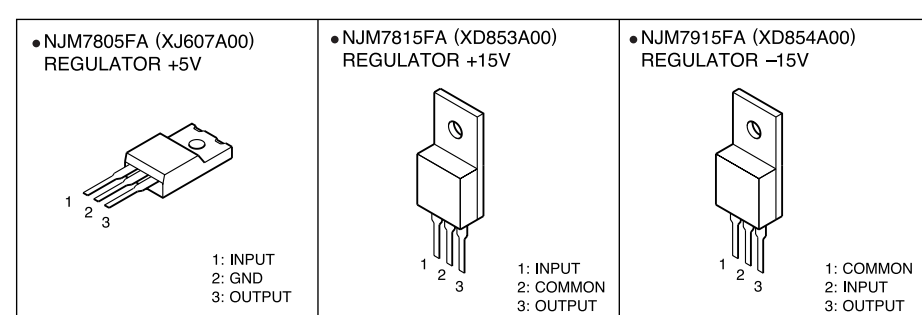
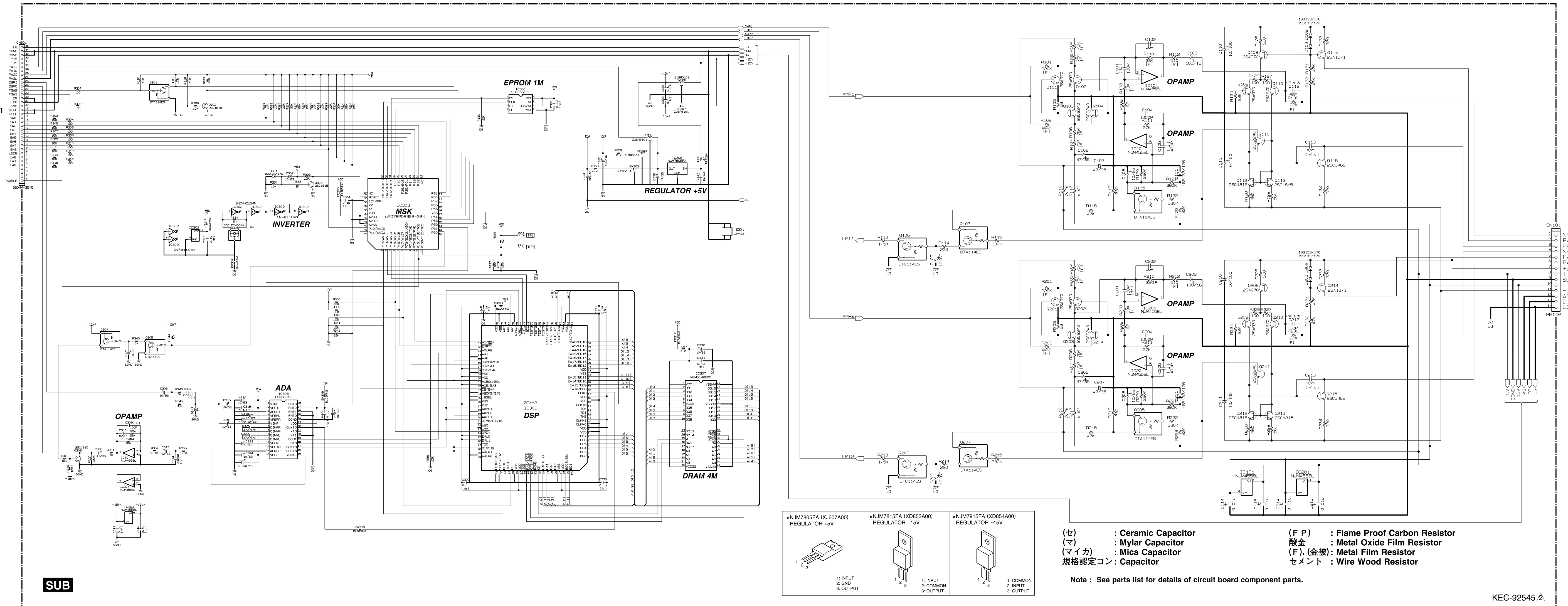


POWER Transformer

DM: 2NA-V466260 ▲  
 SUB: 3NA-V511100 ▲  
 PWR1/3: 3NA-V522710 ▲  
 PWR2/3: 3NA-V522710 ▲  
 PWR3/3: 3NA-V522710 ▲







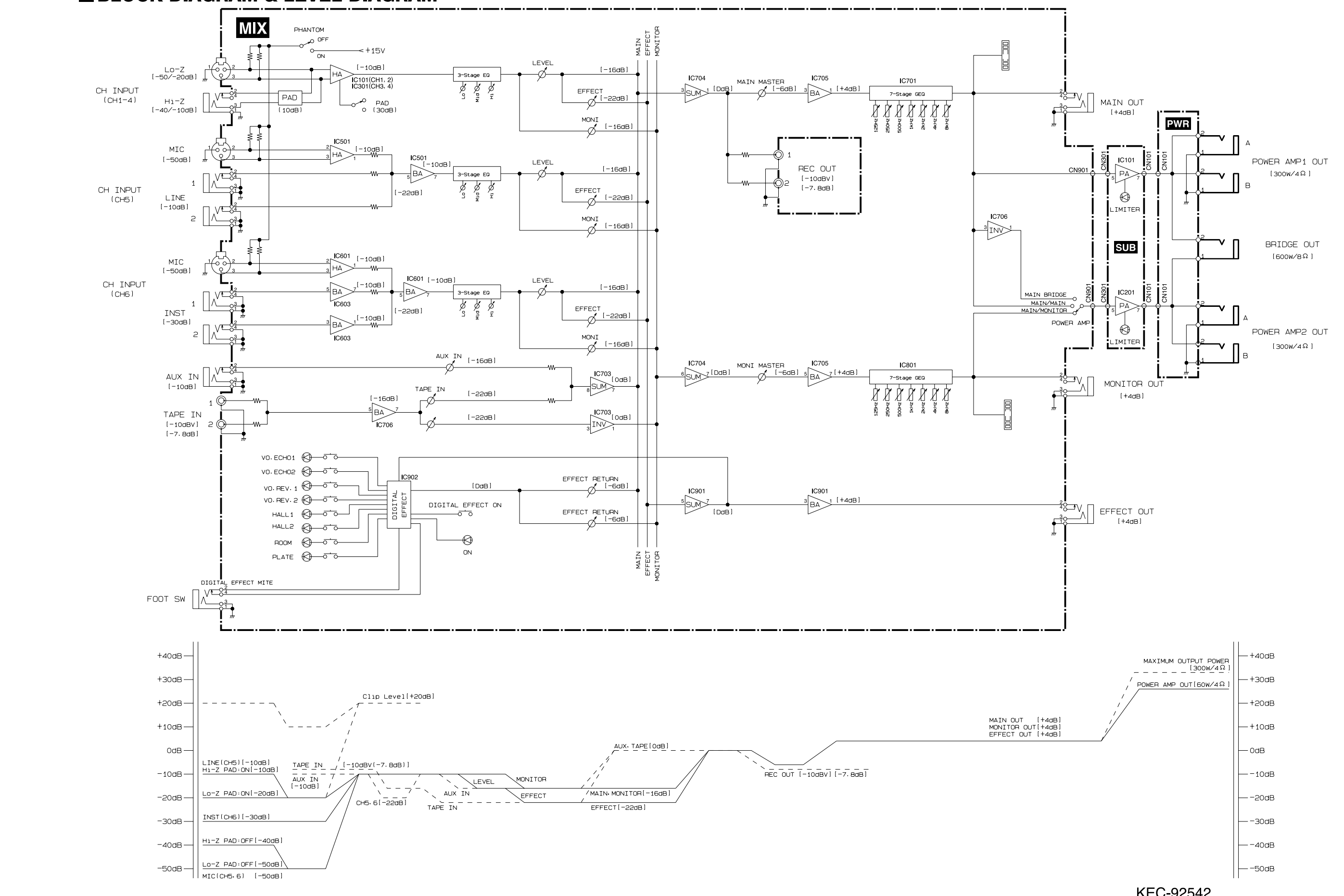
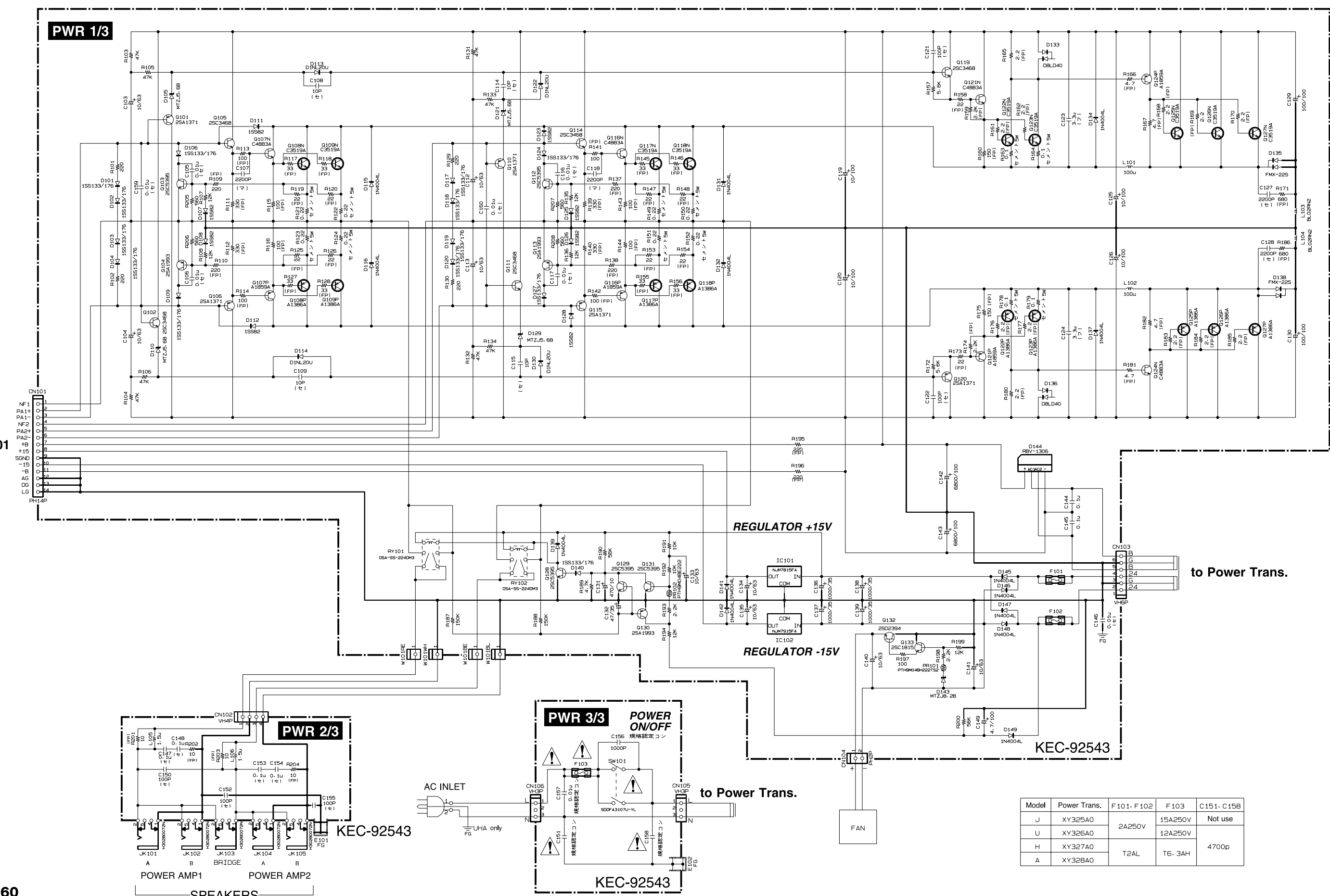
(C) : Ceramic Capacitor  
 (マ) : Mylar Capacitor  
 (マイカ) : Mica Capacitor  
 規格認定コン: Capacitor

(F P) : Flame Proof Carbon Resistor  
 酸化 : Metal Oxide Film Resistor  
 (F) (金被) : Metal Film Resistor  
 セメント : Wire Wood Resistor

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

KEC-92545

BLOCK DIAGRAM & LEVEL DIAGRAM



KEC-92542