

STEREO POWER AMPLIFIER MX-2000

SERVICE MANUAL

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: The presentation or sale of this manual to any individual or firm does not constitute authorization, certification or recognition of any applicable technical capabilities, or establish a principle-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 specifications 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 buss in the unit (heavy gauge black wires connect to this buss).

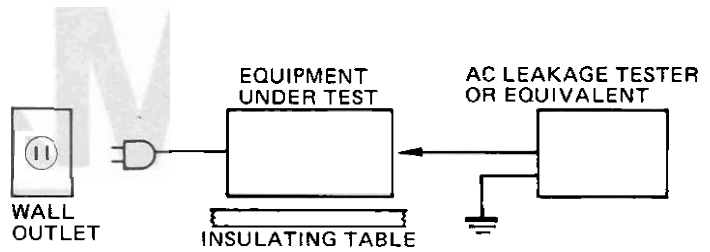
IMPORTANT: Turn the unit OFF during disassembly and parts replacement. Recheck all work before you apply power to the unit.

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■ TO SERVICE PERSONNEL

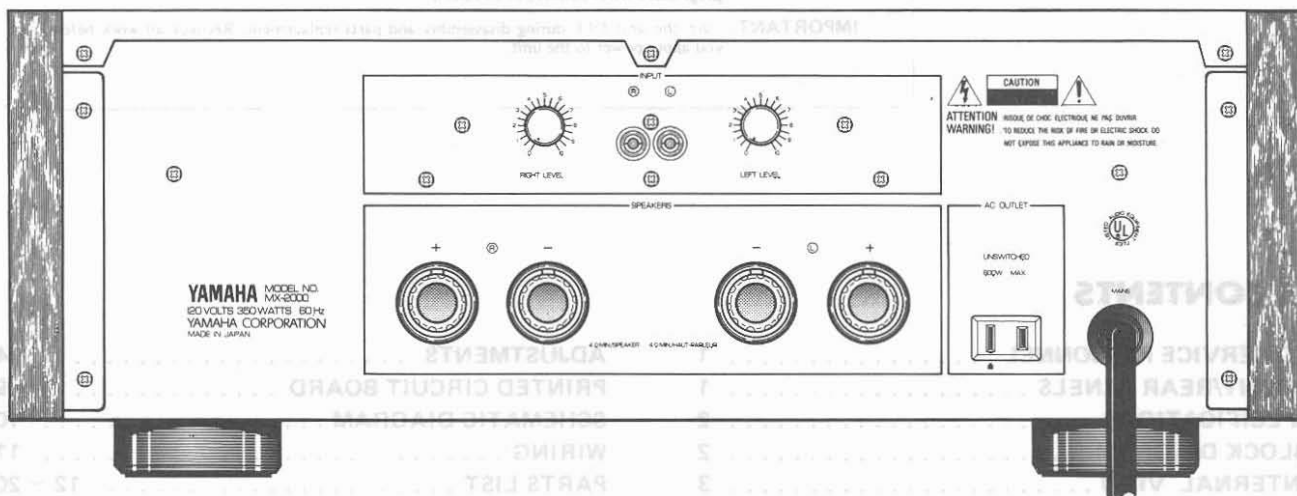
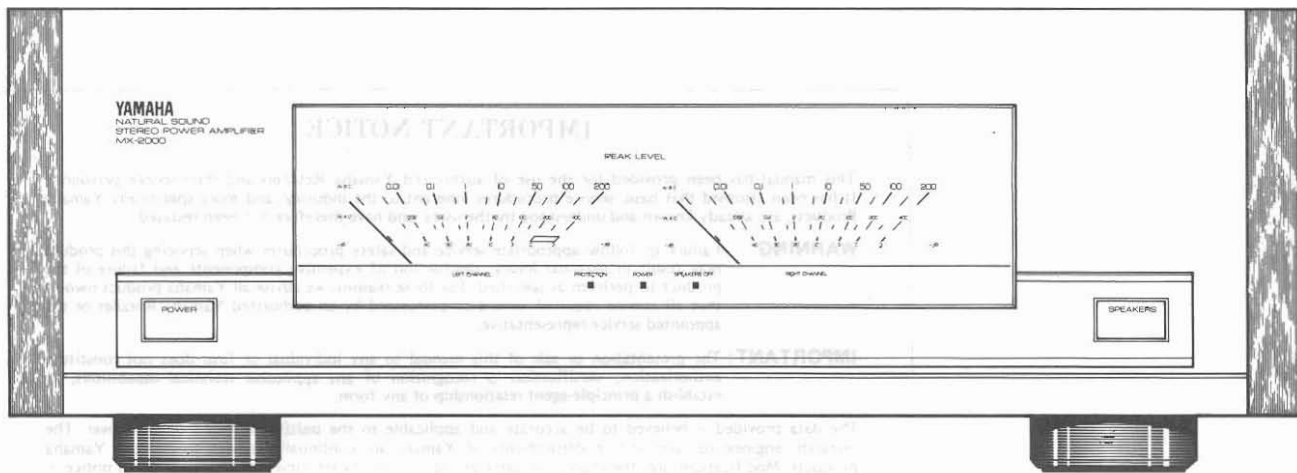
1. Critical Components Information.
Components having special characteristics are marked Δ and must be replaced with parts having specifications equal to those originally installed.
2. Leakage Current Measurement (For 120V Model Only).
When service has been completed, it is imperative that you verify that all exposed conductive surfaces are properly insulated from supply circuits.
 - Meter impedance should be equivalent to 1500 ohm shunted by 0.15 μ F.
 - Leakage current must not exceed 0.5mA.
 - Be sure to test for leakage with the AC plug in both polarities.



● POLARIZATION

This amplifier product is equipped with a polarized alternating current line plug (a plug having one blade wider than the other). This plug will fit into the power outlet only one way. This is a safety feature.

■ FRONT/REAR PANELS

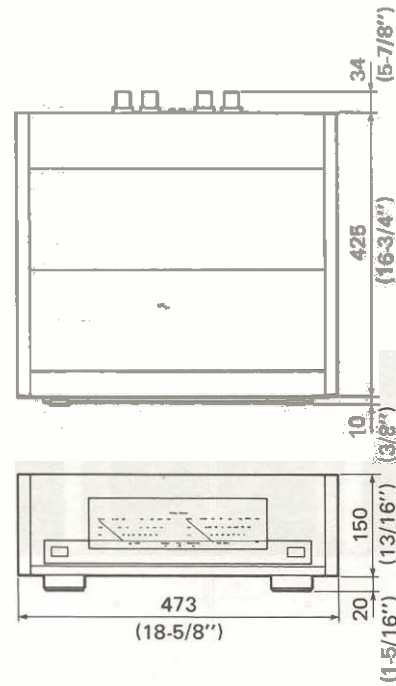


MX-2000

SPECIFICATIONS

| | |
|--|---|
| Minimum RMS Output Power per Channel | |
| 20Hz ~ 20kHz | |
| 0.005% THD, 8Ω | 130W + 130W |
| 0.005% THD, 6Ω | 150W + 150W |
| 0.01% THD, 4Ω | 180W + 180W |
| Dynamic Power per Channel (by IHF Dynamic Headroom measuring method) | |
| 8Ω | 180W |
| 6Ω | 240W |
| 4Ω | 340W |
| 2Ω | 490W |
| 1Ω | 600W |
| Power Band Width | |
| 0.02% THD, 65W, 8Ω | 10Hz ~ 100kHz |
| Damping Factor | |
| 1kHz, 8Ω | 1000 |
| Input Sensitivity/Impedance | |
| MAIN IN 130W, 8Ω | 1.2mV/20kΩ |
| Frequency Response | |
| 20Hz ~ 20kHz, MAIN IN | +0, -0.3dB |
| Total Harmonic Distortion (20Hz ~ 20kHz) | |
| MAIN IN TO SP OUT, 130W, 8Ω | 0.005% |
| Signal to Noise Ratio (IHF-A-Network) | |
| MAIN IN (Shorted) | 126dB |
| Residual Noise (IHF-A-Network) | |
| | 15μV |
| Channel Separation | |
| 1kHz, Input Shorted, Vol. max. | 95dB |
| Power Supply | |
| | AC120V, 60Hz |
| Power Consumption | |
| | 580W |
| AC Outlet | |
| Un Switched x 1 | 600W max. |
| Dimension (W x H x D) | |
| | 473 x 170 x 469mm (18-5/8" x 6-11/16" x 18-7/16") |
| Weight | |
| | 28kg (61 lbs 11 oz) |

DIMENSION

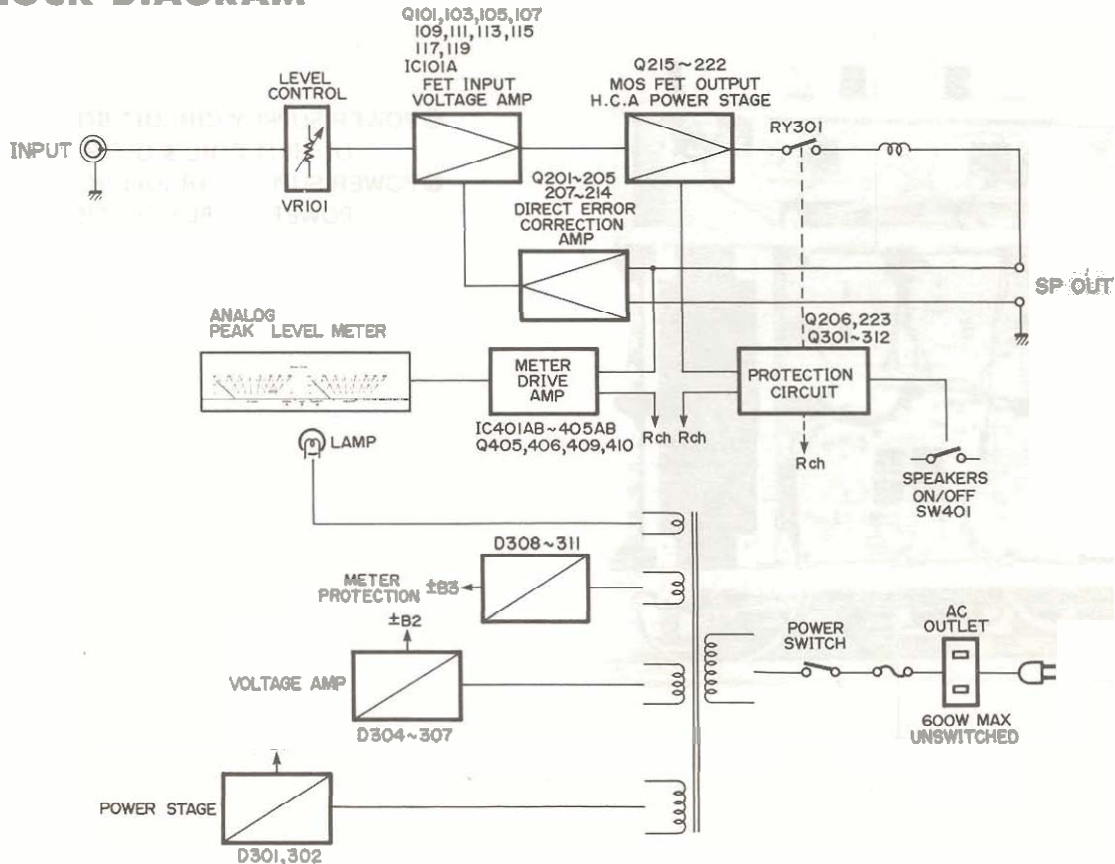


Unit: mm (inch)

* Specifications are subject to change without notice.

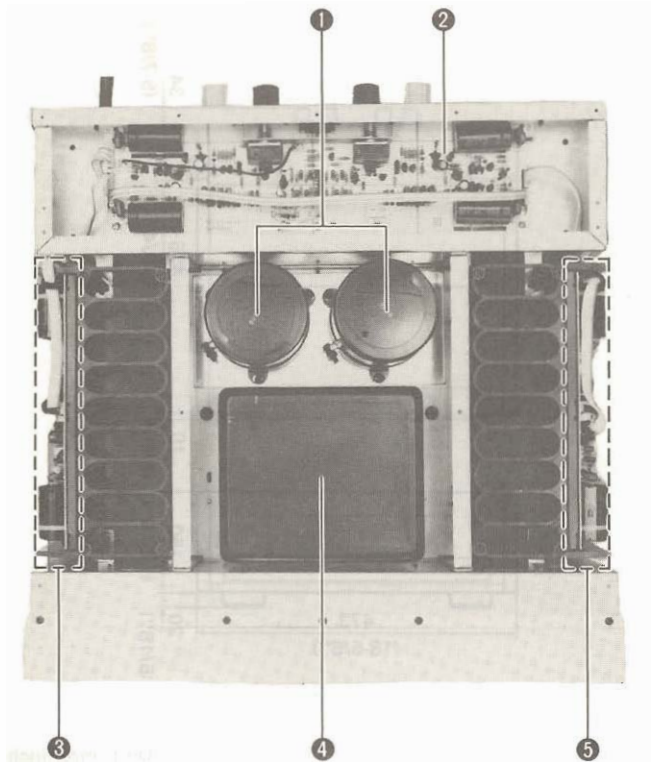
(U) ... U.S.A. Model
(C) ... Canadian Model

BLOCK DIAGRAM



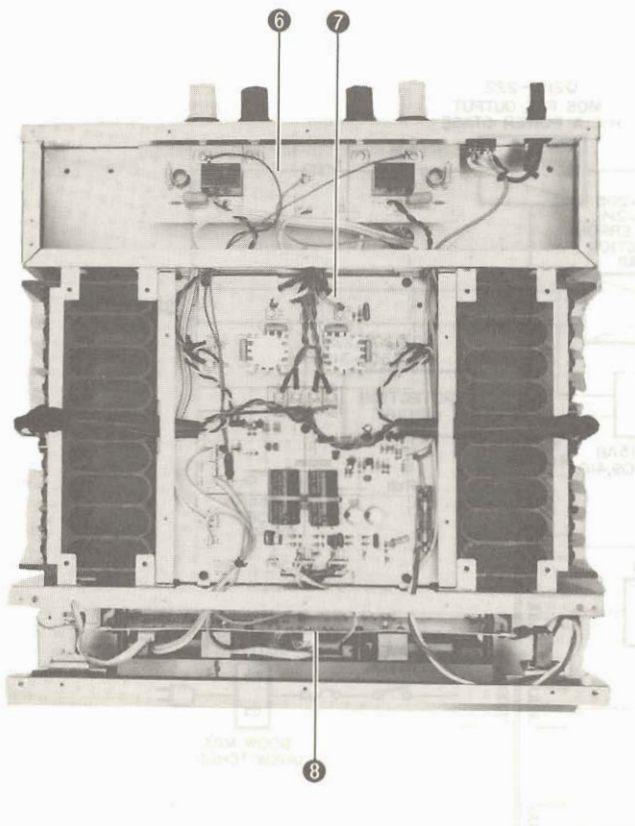
INTERNAL VIEW

• TOP VIEW



- ① ELECTRICAL CAPACITOR:
22000 μ F 80V x 2
- ② INPUT CIRCUIT BOARD:
VOLTAGE AMP SECTION & DIRECT
ERROR CORRECTION SECTION
- ③ MAIN CIRCUIT BOARD (Lch):
H.C.A. POWER STAGE
- ④ POWER TRANSFORMER
U model : XE669001
C model : XE670001
- ⑤ MAIN CIRCUIT BOARD (Rch):
H.C.A. POWER STAGE

• BOTTOM VIEW



- ⑥ POWER SUPPLY CIRCUIT BOARD (2):
OUTPUT COIL & OUTPUT ERROR
- ⑦ POWER SUPPLY CIRCUIT BOARD (1):
POWER SUPPLY SECTION
(\pm B1, \pm B2 and \pm B3)
& PROTECTION CIRCUIT SECTION
- ⑧ METER CIRCUIT BOARD (1)

DISASSEMBLY PROCEDURES

(Remove parts in disassembly order as numbered.)

1. **Removal of Top Cover Ass'y**
Remove 11 screws (①) in Fig. 1.
2. **Removal of Bottom Cover**
Remove 24 screws (②) in Fig. 1.
3. **Removal of Wood Panel Ass'y**
Remove 8 screws (③) in Fig. 1.
4. **Removal of Front Panel**
Remove 4 screws (④) and plastic rivet (⑤) in Fig. 1.

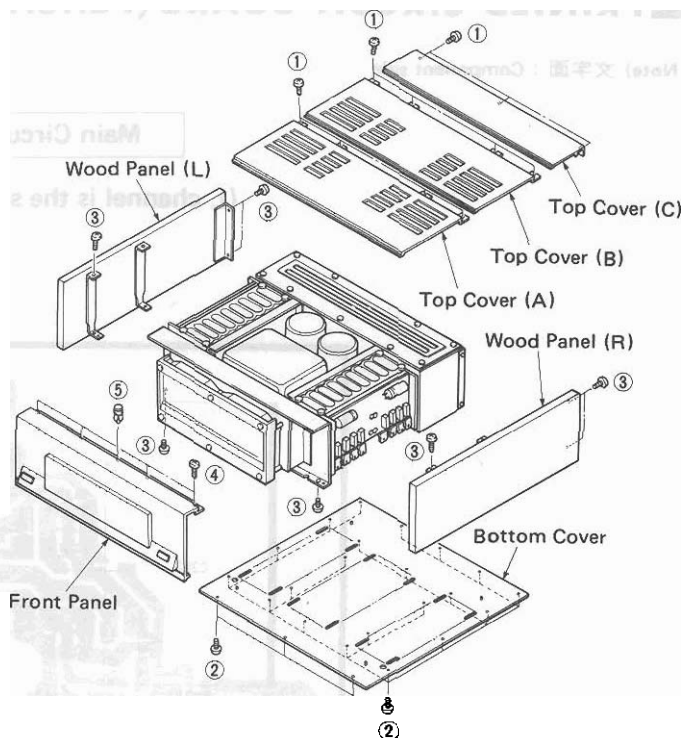
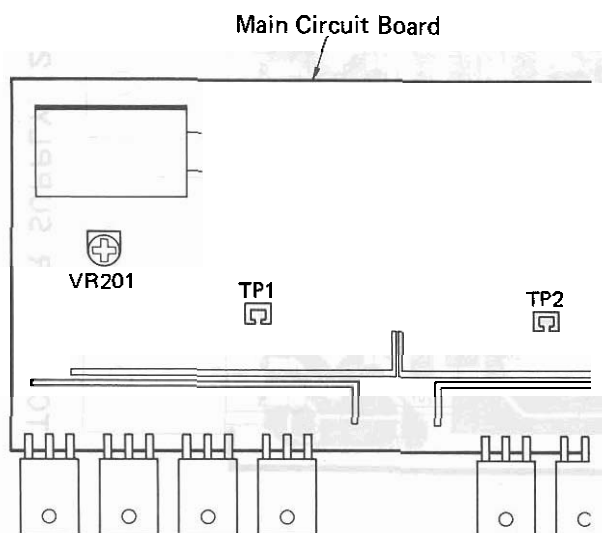


Fig. 1

ADJUSTMENTS

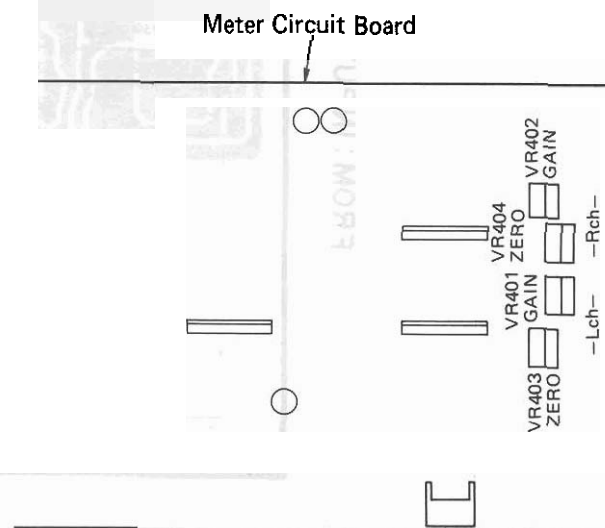
● Idling Adjustment

- 1) Remove the wood panel assembly.
- 2) Adjust VR201 (both L and R) so that the voltage between test pins TP1 and TP2 in the main circuit board becomes $DC60mV \pm 590mV$.



● Meter Adjustment

- 1) Connect a 8Ω dummy load.
- 2) Adjust VR403 (L ch) and VR404 (R ch) so that meter indicator reads 0W with no signal applied.
- 3) Apply 1kHz sine wave signal to INPUT and set the signal level so that 28.3Vrms voltage is obtained at both ends of the dummy load.
- 4) Adjust VR401 (L ch) and VR402 (R ch) so that the meter indicator reads 100W.
- 5) Recheck that the meter indicator reads 0W with no signal applied and adjust again if necessary.

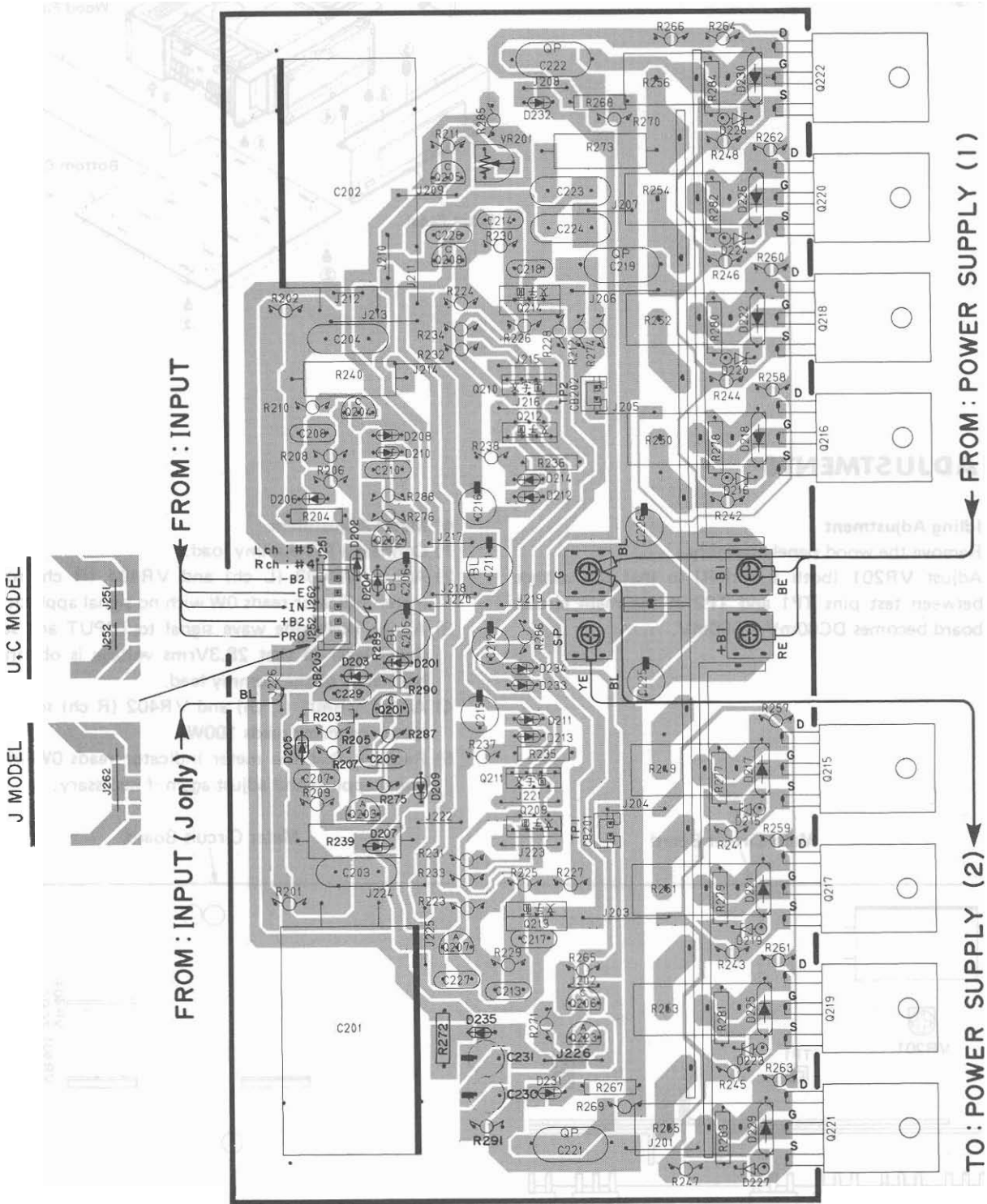


PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Main Circuit Board

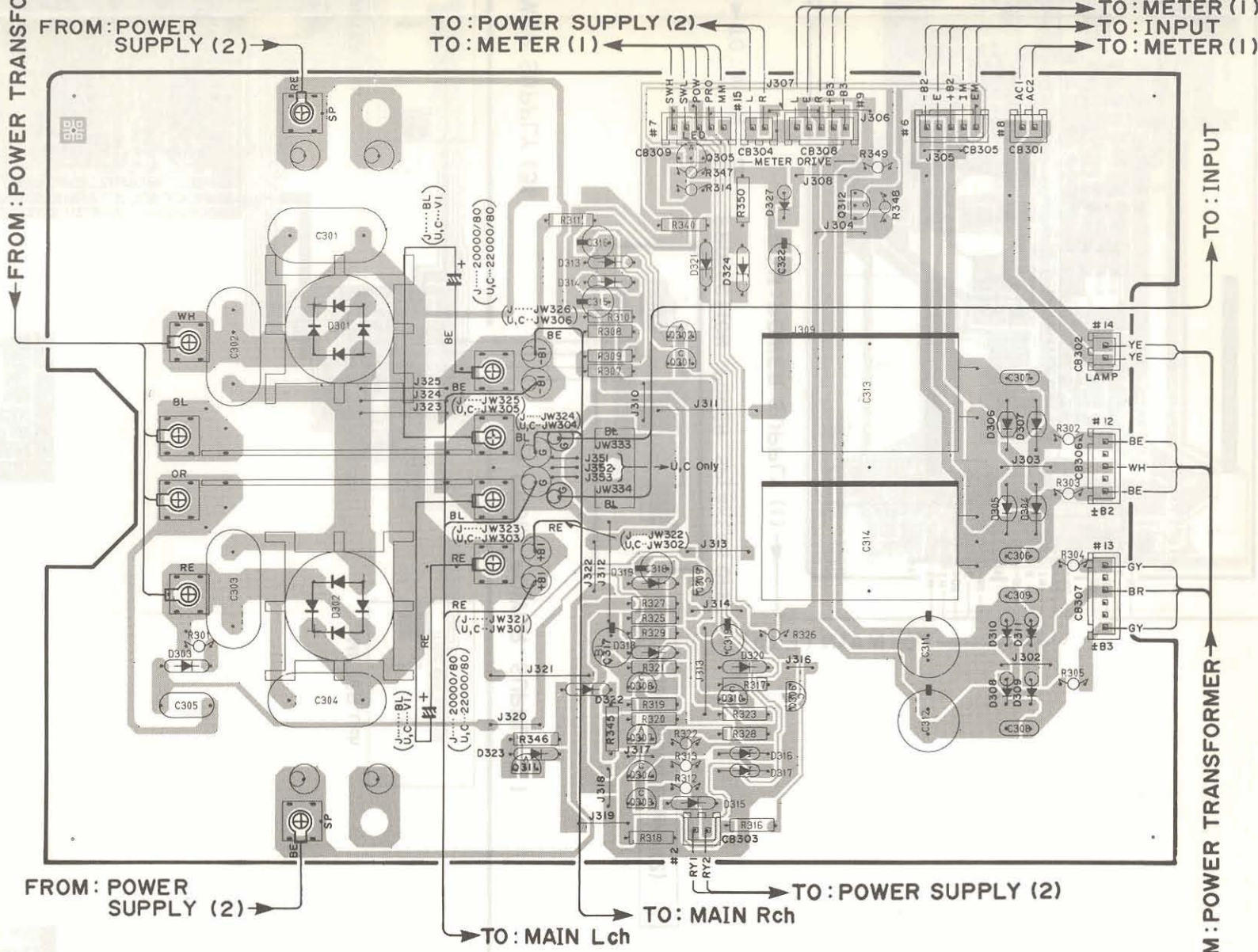
(L channel is the same as R channel)



PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Power Supply Circuit Board (1)



FROM: POWER TRANSFORMER

FROM: POWER SUPPLY (2)

TO: MAIN Lch

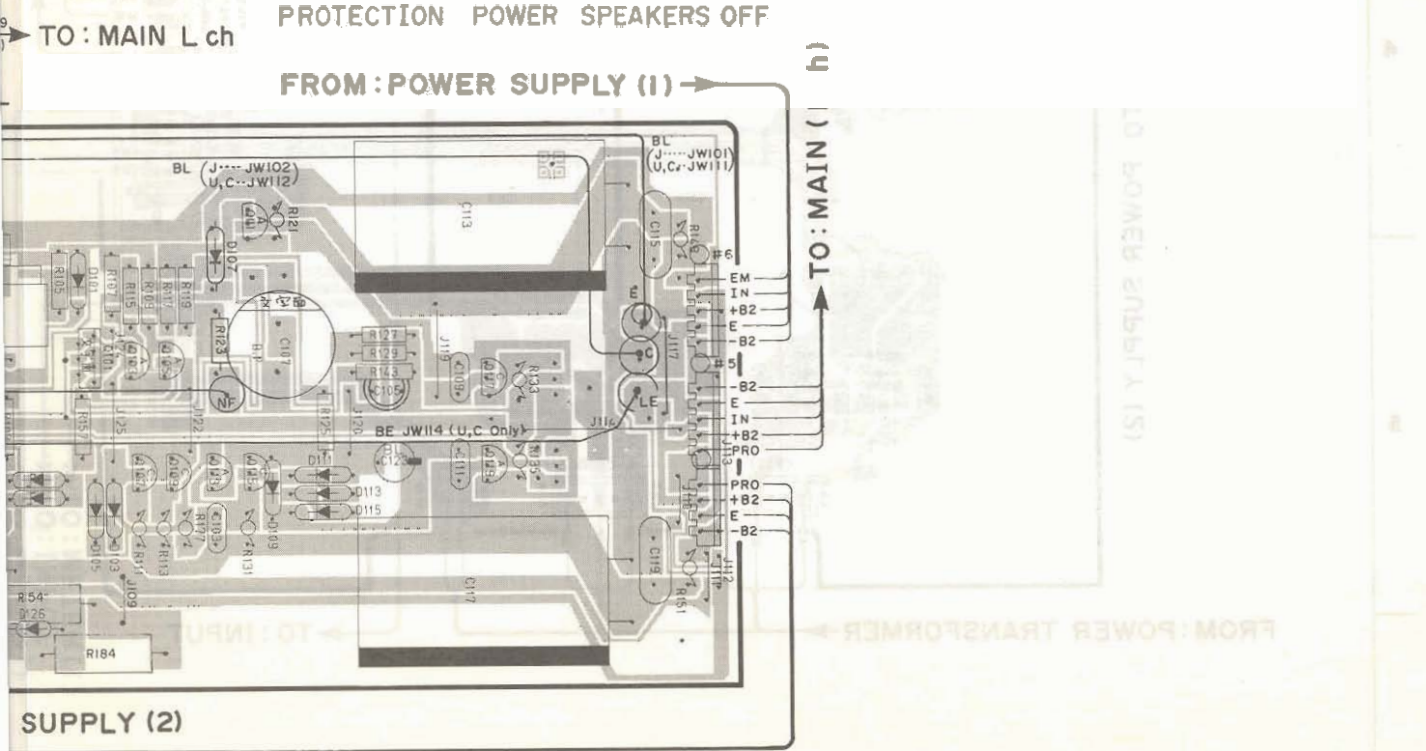
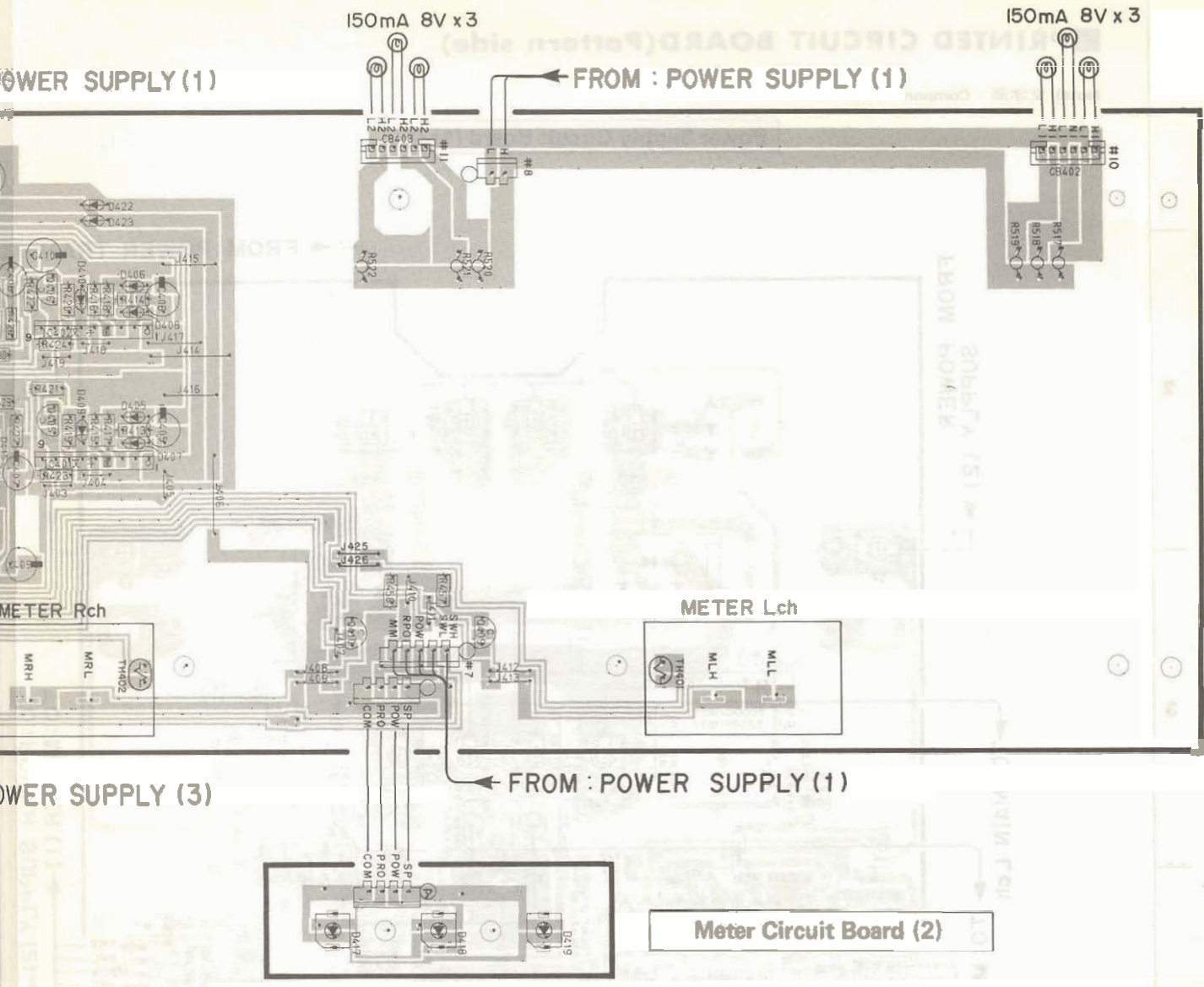
TO: MAIN Rch

TO: POWER SUPPLY (2)

TO: INPUT

TO: METER (1)

TO: METER (2)

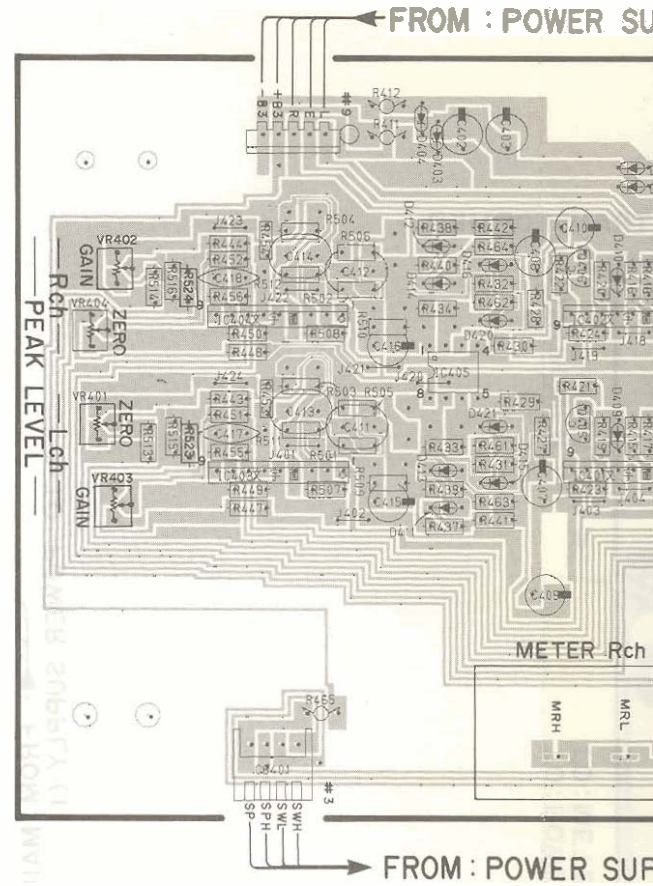
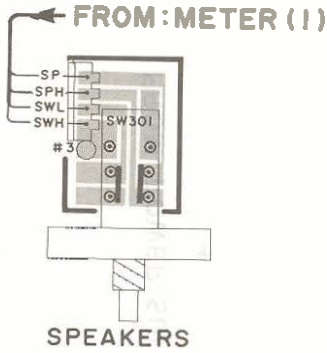


PRINTED CIRCUIT BOARD (Pattern side)

Note) 文字面 : Component side

Meter Circuit Board (1)

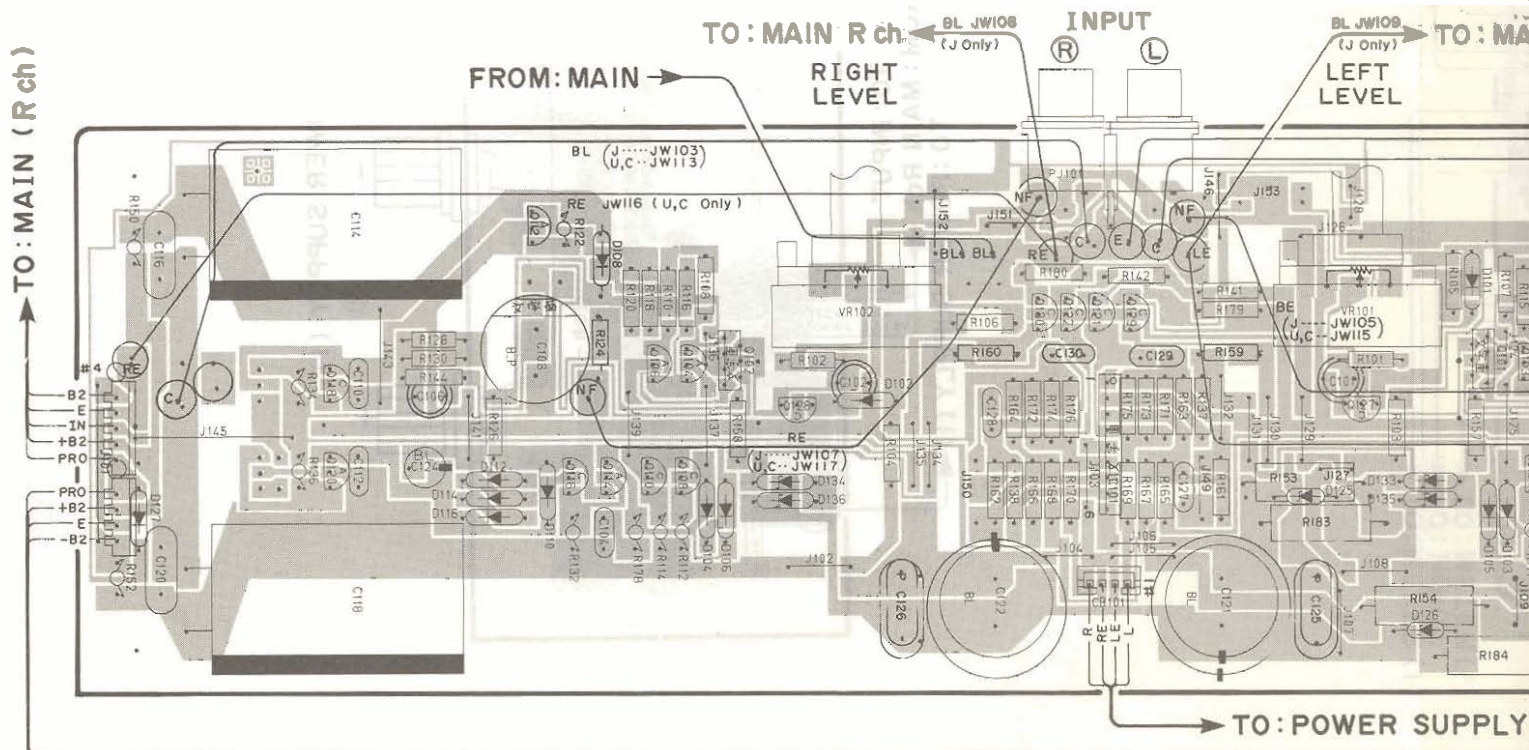
Power Supply Circuit Board (3)



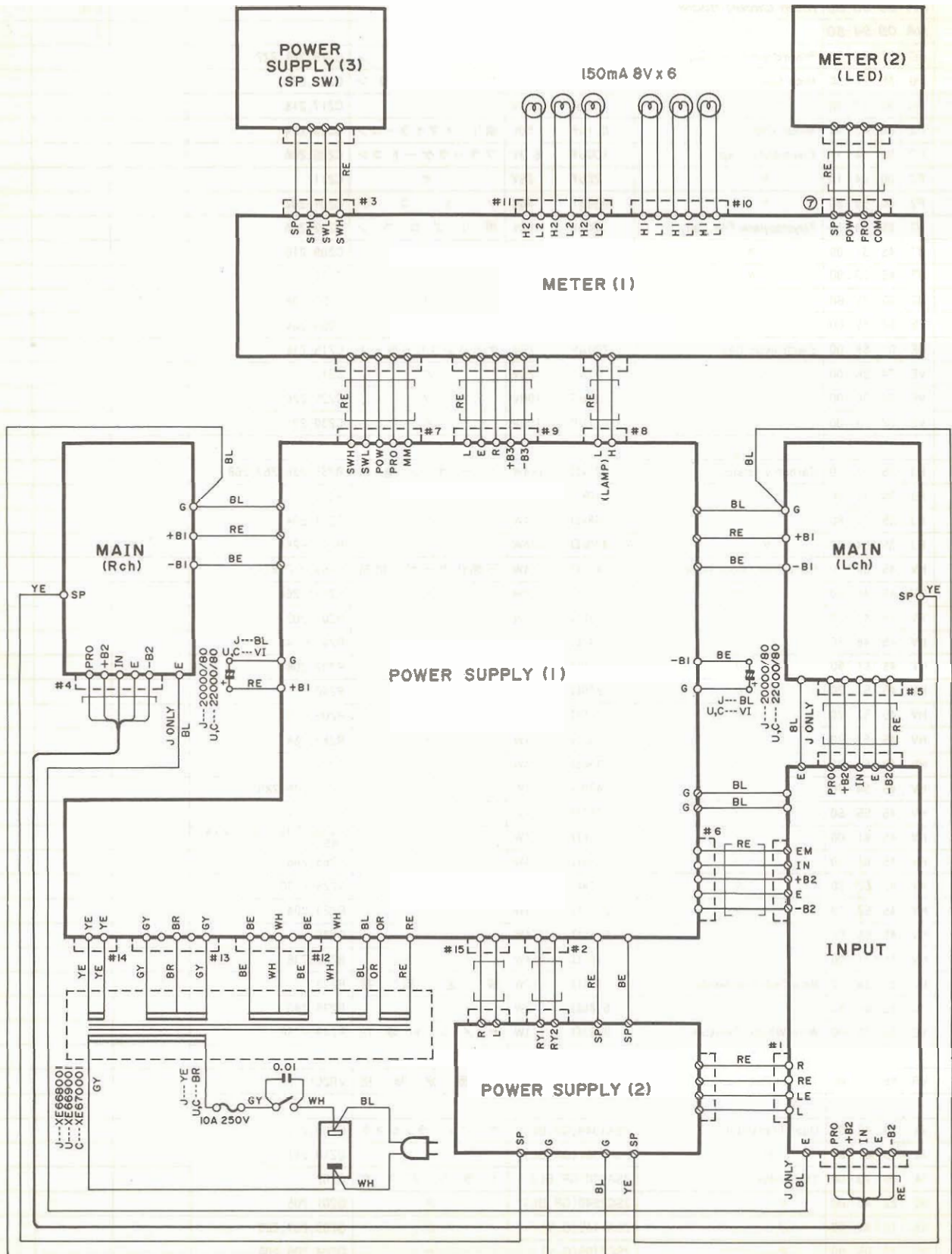
Operation Check of Input Circuit Board Alone

- Connect IN and E of board-in going to R channel main circuit board of the input circuit board and IN and E of board-in going to L channel one to sockets R, RE, LE and L which receive board-in of the power circuit board (2) with wires.
- Connect ±60V power source to +B2, E and -B2 of board-in going to the power supply circuit board (1) and then connect EM terminal to -B2 with 47kΩ resistance included.

Input Circuit Board



■ WIRING



MX-2000

PARTS LIST

ELECTRICAL PARTS

■WARNING

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

● Carbon resistors (1/6W or 1/4W) are not included in the ELECTRICAL PARTS list. For the parts No. of the carbon resistor, refer to p. 20.

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------------|---------------------|--------------------------|--------------|---------|-----|
| | NA 09 93 80 | Main Circuit Board | メ イ ン シ ー ト | | | U,C | |
| | NA 09 94 50 | " | " | | | J | |
| | FC 27 51 00 | Polypropylene Film Cap. | Q P コ ン | C219,221,222 | | | |
| | FU 35 21 00 | Mica Cap. | F E マ イ カ コ ン | C227,228 | | | |
| | FU 35 17 50 | " | " | C217,218 | | | |
| | FZ 00 49 40 | Mylar Cap. | 銅 リ ー ド マ イ ラ ー コ ン | C223,224 | | | |
| | FZ 00 54 10 | Electrolytic Cap. | ブ ラ ッ ク ゲ ー ト コ ン | C205,206 | | | |
| | FZ 00 64 10 | " | " | C211 | | | |
| | FZ 00 59 80 | " | ケ ミ コ ン | C201,202 | | | |
| | UT 65 23 30 | Polypropylene Film Cap. | ポ リ プ ロ コ ン | C213,214 | | | |
| | UT 45 31 00 | " | " | C209,210 | | | |
| | UT 45 33 90 | " | " | C229 | | | |
| | UT 65 35 60 | " | " | C207,208 | | | |
| | VE 87 45 00 | " | " | C203,204 | | | |
| | VE 01 88 00 | Electrolytic Cap. | ケ ミ コ ン D U O R E X | C215,216 | | | |
| | VE 74 26 00 | " | " | C212 | | | |
| | VE 74 30 00 | " | " | C225,226 | | | |
| | VE 02 19 00 | " | " | C230,231 | | | |
| | HJ 35 72 70 | Carbon Resistor | カ ー ボ ン 抵 抗 | R235,236,267,268 | | | |
| | HJ 35 71 00 | " | " | R272 | | | |
| | HJ 35 76 80 | " | " | R203,204 | | | |
| | HJ 35 84 70 | " | " | R277~284 | | | |
| | HV 45 34 70 | Flame Proof Carbon Resistor | 不 燃 化 カ ー ボ ン 抵 抗 | R269,270,274 | | | |
| | HV 45 41 00 | " | " | R257~264 | | | |
| | HV 45 42 20 | " | " | R201,202 | | | |
| | HV 45 48 20 | " | " | R241~248 | | | |
| | HV 45 51 50 | " | " | R207,208 | | | |
| | HV 45 52 20 | " | " | R290 | | | |
| | HV 45 52 70 | " | " | R209,210 | | | |
| | HV 45 53 30 | " | " | R287,288 | | | |
| | HV 45 53 90 | " | " | R212 | | | |
| | HV 45 54 70 | " | " | R275,276,289 | | | |
| | HV 45 55 60 | " | " | R211,271 | | | |
| | HV 45 61 00 | " | " | R205,206,231~234,285,291 | | | |
| | HV 45 61 50 | " | " | R265,266 | | | |
| | HV 45 62 20 | " | " | R225~230 | | | |
| | HV 45 62 70 | " | " | R223,224 | | | |
| | HV 45 65 60 | " | " | R286 | | | |
| | HV 45 71 00 | " | " | R237,238 | | | |
| | HL 32 34 70 | Metal Oxide Film Resistor | 酸 金 抵 抗 | R273 | | | |
| | HL 32 66 80 | " | " | R239,240 | | | |
| | VE 33 25 00 | Wire Wound Resistor | セ メ ン ト 抵 抗 | R249~256 | | | |
| | VB 86 13 00 | Pre-Set Potentiometer | 半 固 定 抵 抗 | VR201 | | | |
| | iA 13 49 00 | Dual Transistor | デュアルトランジスタ | Q209,212 | | | |
| | iC 33 81 00 | " | " | Q210,211 | | | |
| | iA 09 70 00 | Transistor | ト ラ ン ジ ス タ | Q202 | | | |
| | iC 22 40 00 | " | " | Q201,205 | | | |
| | iA 11 45 00 | " | " | Q203,207,223 | | | |
| | iC 27 05 00 | " | " | Q204,206,208 | | | |

※New Parts (新規部品) NR

| Ref. No. | Part No. | Description | 部品名 | | Remarks | Common Model | Markets | ランク |
|----------|--------------------|-----------------------------|--------------------------|-----------|----------------------------------|--------------|---------|-----|
| | IA 13 06 00 | Pair Transistor | 2SA1306(O,Y) | ペアトランジスタ | Q214 | Pair | | |
| | IC 32 98 00 | // | 2SC3298(O,Y) | // | Q213 | | | |
| | VF 44 79 00 | Pair FET | 2SK405 | ペア F E T | Q215,217,219,221 | Pair | | |
| | VF 44 80 00 | // | 2SJ115 | // | Q216,218,220,222 | | | |
| | iF 00 34 50 | Diode | ISS133 | ダイオード | D205~208,211~214,233,234 | | | |
| | VC 39 84 00 | // | MA185 | // | D231,232 | | | |
| | iF 00 14 00 | // | ISS82 | // | D217,218,221,222,225,226,229,230 | | | |
| | VB 44 40 00 | // | ISS287 | // | D201~204 | | | |
| | iF 00 89 30 | Zener Diode | MTZ16A | ツェナーダイオード | D209,210 | | | |
| | iF 00 30 40 | // | HZ18-1L | // | D215,216,219,220,223,224,227,228 | | | |
| | VC 39 83 00 | Diode | ISS146 | ダイオード | D235 | | | |
| | LB 91 80 50 | Base Pin | 5P i-Type | X H ベースピン | CB203 | | | |
| | VD 00 45 00 | // | 2P i-Type | P H ベースピン | CB201,202 | | | |
| | VE 80 85 00 | Screw Terminal | M4 | ネジ端子 | | | | |
| | VF 52 32 00 | Bas Bar | 5P-L | バスバー | | | | |
| | VF 52 33 00 | // | 5P-R | // | | | | |
| | CB 81 85 40 | Binding Tie | T30R | インシュロックタイ | | | | |
| ※ | NA 09 93 90 | Meter Circuit Board | | メーターシート | | | | |
| | FG 41 33 30 | Ceramic Cap. | 3300pF 50V | セラコン | C417,418 | | | |
| | FA 15 61 00 | Mylar Cap. | 1 μ F 50V | マイラーコン | C411~414 | | | |
| | UJ 14 64 70 | Electrolytic Cap. | 4.7 μ F 25V | ケミコン | C405,406 | | | |
| | UJ 14 72 20 | // | 22 μ F 25V | // | C402,403 | | | |
| | UJ 46 63 30 | // | 3.3 μ F 50V | // | C407~410 | | | |
| ※ | VF 94 63 00 | // | 10 μ F 16V | // | C415,416 | | | |
| | HU 57 57 50 | Metal Film Resistor | 750 Ω 1/4W | 金属皮膜抵抗 | R453,454 | | | |
| | HV 45 33 30 | Flame Proof Carbon Resistor | 3.3 Ω 1/4W | 不燃化カーボン抵抗 | R517~522 | | | |
| | HV 45 52 70 | // | 270 Ω 1/4W | // | R411,412 | | | |
| | HV 45 61 50 | // | 1.5k Ω 1/4W | // | R465 | | | |
| | VB 85 95 00 | Pre-Set Potentiometer | B2.2k Ω | 半固定抵抗 | VR401,402 | | | |
| | VB 86 01 00 | // | B47k Ω | // | VR403,404 | | | |
| | iX 60 42 00 | Transistor | 2SC2878(A,B) | トランジスタ | Q405,406,409,410 | | | |
| | iF 00 34 50 | Diode | ISS133 | ダイオード | D405~416,420~423 | | | |
| | iF 00 89 30 | Zener Diode | MTZ16A | ツェナーダイオード | D403,404 | | | |
| | iF 00 42 70 | LED(Red) | SLR-55URC3H | L E D | D417~419 | | | |
| | iG 12 18 00 | IC | NJM4560S | I C | IC401,402 | | | |
| | iG 07 68 00 | // | NJM4558S | // | IC403,404 | | | |
| | iG 00 13 90 | // | NJM4558DV | // | IC405 | | | |
| | VB 97 26 00 | Thermister | 10k Ω DIN-DI03H4R | サーミスタ | TH401,402 | | | |
| | LB 91 90 40 | Base Pin | 4P L-Type | H X ベースピン | CB401 | | | |
| | VD 00 49 00 | // | 6P i-Type | P H ベースピン | CB402,403 | | | |

※New Parts (新規部品) NR

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------------|------------------------------------|--|----------------------|------------------|-----|
| ※ | NA 09 94 00 | Input Circuit Board | 入 力 シ ー ト | | | J | |
| ※ | NA 09 99 90 | " | " | | | U,C | |
| | FU 35 12 20 | Mica Cap. | 22pF 500V F E マイカコン | C109~112 | | | |
| | FU 35 14 70 | " | 47pF 500V " | C127~130 | | | |
| | FF 11 21 00 | Polystyrene Cap. | 100pF 銅ハクスチコン | C101,102 | | | |
| ※ | FF 11 16 80 | " | 68pF " | C105,106 | | | |
| | FZ 00 64 10 | Electrolytic Cap. | 22 μ F 25V ブラックゲートコン | C123,124 | | | |
| | FZ 00 74 10 | " | 1000 μ F 25V " | C121,122 | | U,C | |
| | VF 87 81 00 | " | 820 μ F 80V オーディオケミコン | " | | J | |
| ※ | VF 97 54 00 | Polypropylene Film Cap. | 0.022 μ F 50V 銅ハクポリプロコン | C125,126 | | U,C | |
| | VE 87 45 00 | " | 0.047 μ F 100V ポリプロコン | " | | J | |
| | UT 45 31 50 | " | 1500pF 100V " | C103,104 | | | |
| | VE 87 45 00 | " | 0.047 μ F 100V " | C115,116,119,120 | | | |
| ※ | VF 87 81 00 | Electrolytic Cap. | 820 μ F 80V オーディオケミコン | C113,114,117,118 | | | |
| | VF 47 28 00 | " | 47 μ F 50V " (B P) | C107,108 | | | |
| | HJ 35 51 20 | Carbon Resistor | 120 Ω 1/4W カ ー ボ ン 抵 抗 | R119,120 | | | |
| | HJ 35 63 30 | " | 3.3k Ω 1/4W " | R115,116 | | | |
| | HJ 35 61 20 | " | 1.2k Ω 1/4W " | R159,160 | | | |
| | HJ 35 61 50 | " | 1.5k Ω 1/4W " | R137,138 | | | |
| | HJ 35 64 70 | " | 4.7k Ω 1/4W " | R157,158,163,164, 173,174,179,180 | | | |
| | HJ 35 71 00 | " | 10k Ω 1/4W " | R107~110,141,142,161,162, 165~172,175,176 | | | |
| | HJ 35 71 20 | " | 12k Ω 1/4W " | R117,118 | | | |
| | HJ 35 72 70 | " | 27k Ω 1/4W " | R125,126 | | | |
| | HJ 35 74 70 | " | 47k Ω 1/4W " | R105,106 | | | |
| | HJ 35 81 00 | " | 100k Ω 1/4W " | R143,144 | | | |
| | HJ 35 82 20 | " | 220k Ω 1/4W " | R103,104 | | | |
| | HJ 35 91 00 | " | 1M Ω 1/4W " | R181,182 | | | |
| | HL 32 65 60 | Metal Oxide Film Resistor | 5.6k Ω 2W 酸 金 抵 抗 | R153,154,183,184 | | | |
| | HU 57 52 20 | Metal Film Resistor | 220 Ω 1/4W 金 属 皮 膜 抵 抗 | R123,124 | | | |
| | HU 57 54 70 | " | 470 Ω 1/4W " | R101,102 | | | |
| | HU 57 71 20 | " | 12k Ω 1/4W " | R127~130 | | | |
| | HV 45 42 70 | Flame Proof Carbon Resistor | 27 Ω 1/4W 不 燃 化 カ ー ボ ン 抵 抗 | R177,178 | | | |
| | HV 45 46 80 | " | 68 Ω 1/4W " | R133~136 | | | |
| | HV 45 51 00 | " | 100 Ω 1/4W " | R149~152 | | | |
| | HV 45 51 20 | " | 120 Ω 1/4W " | R121,122,131,132 | | | |
| | HV 45 51 50 | " | 150 Ω 1/4W " | R111~114 | | | |
| ※ | VF 47 35 00 | Potentiometer | 20kA | ロータリーボリューム | VR101,102 | | |
| | iA 09 70 00 | Transistor | 2SA970(GR,BL) | ト ラ ン ジ ス タ | Q103~106,113,114 | | |
| | iC 18 15 20 | " | 2SC1815(Y) | " | Q107~110 | | |
| | iX 60 42 00 | " | 2SC2878(A,B) | " | Q121,122,127~130 | | |
| | iA 11 45 00 | " | 2SA1145(O,Y) | " | Q111,112,119,120 | | |
| | iC 27 05 00 | " | 2SC2705(O,Y) | " | Q115~118 | | |
| | iE 10 45 00 | FET | 2SK389 | F E T | Q101,102 | | |
| | iF 00 00 40 | Diode | 1S1555 | ダ イ オ ー ド | D101~108,111~116,127 | Inter-changeable | |
| | iF 00 06 70 | " | 1S2473 | " | " | | |
| | iF 00 14 00 | " | 1SS82 | " | D109,110 | | |
| | iF 00 30 40 | Zener Diode | HZ18-1L | ツェナーダイオード | D125,126 | | |
| | iF 01 06 30 | " | MTZ4.3B | " | D133~136 | | |

※New Parts (新規部品) NR

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|-----------------------------|--------------------|-------------|------------------|---------|-----|
| | XA 42 60 01 | IC | NJM5532S | I C | IC101 | | |
| ※ | VF 80 39 00 | Pin Jack | 2P | ピンジャック | PJ101 | | |
| | VD 00 47 00 | Base Pin | 4P i-Type | P H ベースピン | CB101 | | |
| ※ | VF 33 09 00 | VR Holder | | V R ホルダー | | | |
| | CB 06 92 50 | Binding Tie | BK-I | インシュロックタイ | | | |
| | | | | | | | |
| ※ | NA 09 94 10 | Power Supply Circuit Board | | 電 源 シ ー ト | | J | |
| ※ | NA 09 94 20 | " | | " | | U,C | |
| | FC 29 44 70 | Polypropylene Film Cap. | 0.047 μ F 250V | Q P コ ン | C301~304 | | |
| | FZ 00 46 60 | Metallized Mylar Cap. | 0.1 μ F 250V | M M コ ン | C305 | | |
| | FZ 00 59 80 | Electrolytic Cap. | 1000 μ F 80V | ケ ミ コ ン | C313,314 | | |
| | FZ 00 63 00 | " | 47 μ F 16V | ブラックゲートコン | C317 | | |
| ※ | UT 45 41 00 | Polypropylene Film Cap. | 0.01 μ F 100V | ポリプロコン | C306~309 | | |
| | VG 19 63 00 | Mylar Cap. | 0.1 μ F 100V | マイラーコン | C323,324 | | |
| | UJ 11 74 70 | Electrolytic Cap. | 47 μ F 6.3V | ケ ミ コ ン | C315,316 | | |
| | UJ 14 84 70 | " | 470 μ F 25V | " | C322 | | |
| | UJ 46 63 30 | " | 3.3 μ F 50V | " | C318,319 | | |
| ※ | UJ 14 91 00 | " | 1000 μ F 25V | " | C311,312 | | |
| ※ | VF 92 21 00 | Metallized Cap. | 0.47 μ F 200V | メタライズコン | C320,321 | | |
| ※ | GD 90 05 20 | Coil | 1.5 μ H | 空 芯 コ イ ル | L301,302 | | |
| | | | | | | | |
| | HJ 35 51 00 | Carbon Resistor | 100 Ω 1/4W | カ ー ボ ン 抵 抗 | R323 | | |
| | HJ 35 71 00 | " | 10k Ω 1/4W | " | R311,317,320,346 | | |
| | HJ 35 71 50 | " | 15k Ω 1/4W | " | R350 | | |
| | HJ 35 72 20 | " | 22k Ω 1/4W | " | R319,340,345 | | |
| | HJ 35 81 00 | " | 100k Ω 1/4W | " | R307,309 | | |
| | HJ 35 81 20 | " | 120k Ω 1/4W | " | R308,310 | | |
| | HJ 35 82 20 | " | 220k Ω 1/4W | " | R316,318,325,329 | | |
| | HJ 35 84 70 | " | 470k Ω 1/4W | " | R327,328 | | |
| | HJ 35 88 20 | " | 820k Ω 1/4W | " | R321 | | |
| ※ | VF 63 53 00 | " | 68 Ω 1/4W | " | R343,344 | | |
| | HL 32 33 30 | Metal Oxide Film Resistor | 3.3 Ω 2W | 酸 金 抵 抗 | R341,342 | | |
| | HL 32 71 20 | " | 12k Ω 2W | " | R351,352 | | |
| | HV 45 32 20 | Flame Proof Carbon Resistor | 2.2 Ω 1/4W | 不燃化カーボン抵抗 | R302~305 | | |
| | HV 45 34 70 | " | 4.7 Ω 1/4W | " | R301,312,313 | | |
| | HV 45 51 00 | " | 100 Ω 1/4W | " | R314 | | |
| | HV 45 61 00 | " | 1k Ω 1/4W | " | R347,349 | | |
| | HV 45 61 50 | " | 1.5k Ω 1/4W | " | R326 | | |
| | HV 45 63 30 | " | 3.3k Ω 1/4W | " | R322 | | |
| | HV 45 71 00 | " | 10k Ω 1/4W | " | R348 | | |
| | | | | | | | |
| | iA 09 70 00 | Transistor | 2SA970(GR,BL) | ト ラ ン ジ ス タ | Q302,305,307,311 | | |
| | iC 18 15 20 | " | 2SC1815(Y) | " | Q306,308~310 | | |
| | iC 22 40 00 | " | 2SC2240(GR,BL) | " | Q301,312 | | |
| | iC 27 05 00 | " | 2SC2705(O,Y) | " | Q303,304 | | |

※New Parts (新規部品) NR

EXPLODED VIEW

| Ref. No. | Part No. | Description | 部 品 名 | | Remarks | Common Model | Markets | ランク |
|----------|-------------|--------------------|------------|-----------|-------------------------------------|--------------|---------|-----|
| | iF 00 00 40 | Diode | IS1555 | ダイオード | D313,314,319~323 } Inter-changeable | | | |
| | iF 00 06 70 | // | IS2473 | // | | // | | |
| | iF 00 14 00 | // | ISS82 | // | | D303,315 | | |
| | iH 00 14 30 | // | ISR35-100A | // | D308~311,327 | | | |
| | iF 00 25 40 | Zener Diode | HZ27-1L | ツェナーダイオード | D316,317,324 | | | |
| | iF 00 35 30 | // | HZ6C-1L | // | D318 | | | |
| | iX 55 11 20 | Diode | V11J | ダイオード | D304~307 | | | |
| | iH 00 11 30 | Diode Bridge | 5FB20 | ダイオードブリッジ | D301,302 | | | |
| | VE 29 76 00 | Relay | JC2a DC48V | リ レ ー | RY301,302 | | | |
| | LB 91 80 20 | Base Pin | 2P i-Type | X H ベースピン | CB301~304 | | | |
| | LB 91 80 50 | // | 5P i-Type | // | CB305,306,308,309 | | | |
| | LB 91 80 60 | // | 6P i-Type | // | CB307 | | | |
| ※ | VF 49 93 00 | Push Switch | 2-2 NS | プッシュスイッチ | SW301 | | | |
| | VE 80 85 00 | Screw Terminal | M4 | ネジ端子 | | | | |
| | CB 81 85 40 | Binding Tie | T30R | インシュロックタイ | | | | |
| | BB 06 95 10 | Land Metal Fitting | | ランド金具 | | | | |
| | VC 37 58 00 | Terminal Plate | | ターミナルプレート | | MX-10000 | | |
| | BB 07 04 10 | Bus Bar | I=55 | バスバー | | | | |

※New Parts (新規部品) NR

0007-YW

MECHANISM PARTS

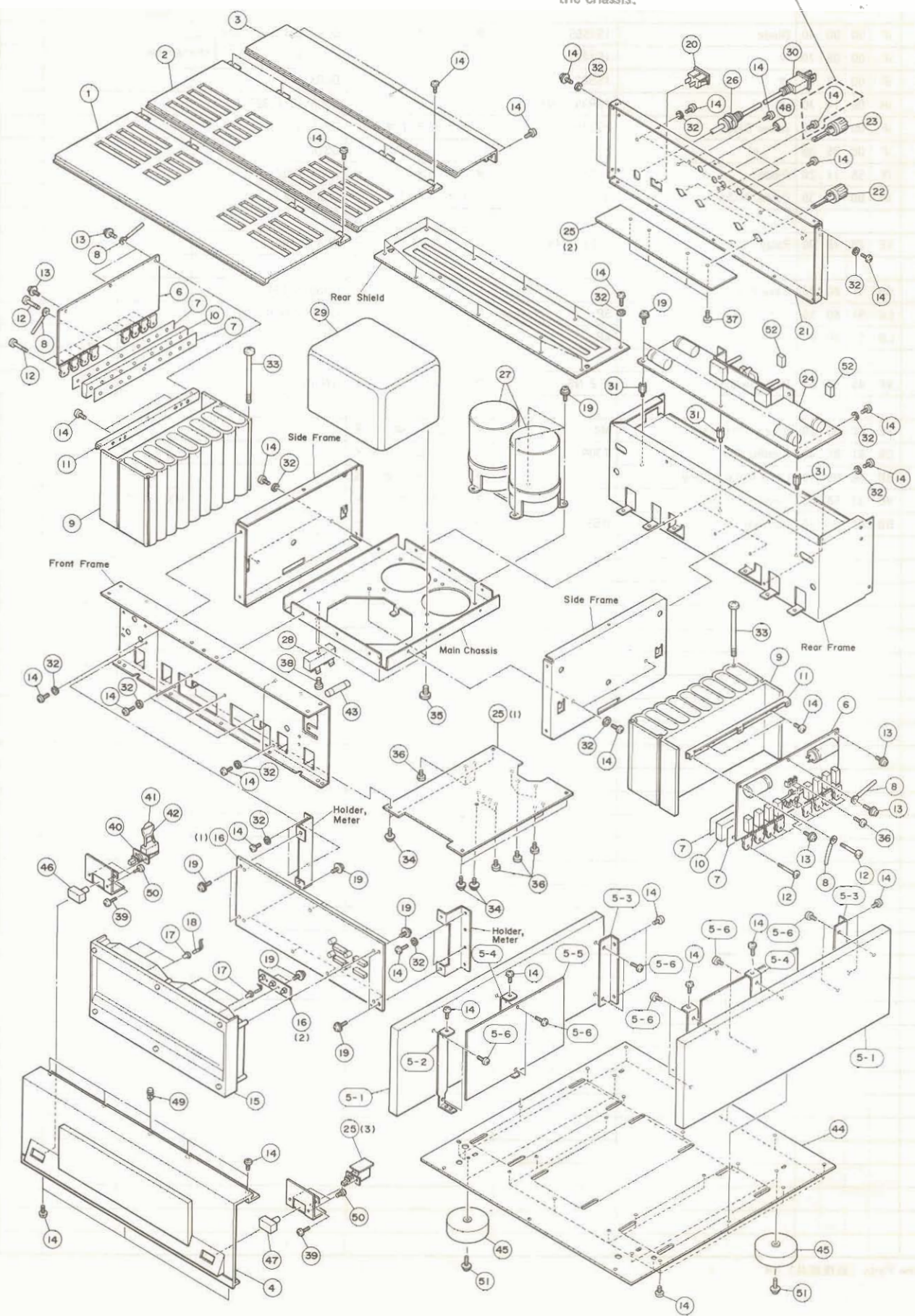
Note) φ : Diameter

| Ref. No. | Part No. | Description | 部 品 名 | Remarks | Common Model | Markets | ランク |
|----------|-------------|--------------------|---|---------------|--------------|----------|-----|
| 1 | VF 01 24 00 | Top Cover Ass'y, A | トップカバー Ass'y A | | AX-2000 | | |
| 2 | VF 01 25 00 | // , B | // B | | // | | |
| 3 | VF 01 26 00 | // , C | // C | | // | | |
| ※ | 4 | VF 50 46 00 | Front Panel Unit | フロントパネルユニット | | | |
| | 5-1 | VE 27 54 10 | Wood Panel L+R | ウッドパネル | AX-2000 | | |
| | 5-2 | VE 27 55 00 | Wood Panel Holder (F) | ウッドパネルホルダー(F) | // | | |
| | 5-3 | VE 27 56 00 | // (R) | // (R) | // | | |
| | 5-4 | VE 41 38 00 | Top Cover Stay | トップカバーステイ | // | | |
| ※ | 5-5 | VF 47 68 00 | Barrier | バリアー | | U,C | |
| | 5-6 | EQ 03 11 66 | Round Head Wood Screw 3.1×16 ZMC2-Y | 丸木ネジ | PACK | | |
| ※ | 6 | NA 09 93 80 | Main Circuit Board | メインシート | | U,C | |
| ※ | // | NA 09 94 50 | // | // | | J | |
| ※ | 7 | VF 47 70 00 | Sheet, TR | TRシート | | | |
| | 8 | CB 04 05 40 | Wire Stopper | 束線止メ | | | |
| ※ | 9 | VF 32 99 00 | Radiator | ラジエター | | | |
| ※ | 10 | VF 33 00 00 | Block, TR | TRブロック | | | |
| | 11 | AA 62 00 50 | Holder, P.C.B. | シートホルダー | | | |
| | 12 | EK 93 50 10 | BW Head Tapping Screw 3×20(φ8) ZMC2-BI | BWヘッドタッピングネジ | | | |
| | 13 | EK 33 60 10 | // 3×8(φ8) FCRM3-BI | // | | | |
| | 14 | Ei 33 00 86 | Binding Head Tapping Screw 3×8 FCRM3-BI | バインドタッピングネジ | PACK | | |
| ※ | 15 | VF 33 01 00 | Meter | メーター | | | |
| ※ | 16 | NA 09 93 90 | Meter Circuit Board | メーターシート | | | |
| | 17 | VB 22 26 00 | Lamp Cap. | ランプキャップ | | | |
| ※ | 18 | VF 90 99 00 | Lamp Unit | ランプユニット | | | |
| | 19 | EK 03 00 60 | BW Head Tapping Screw 3×8(φ8) ZMC2-Y | BWヘッドタッピングネジ | | | |
| | 20 | LB 20 30 60 | AC Outlet | ACアウトレット | | | △ |
| ※ | 21 | VF 33 03 00 | Rear Panel | リアパネル | | J | |
| ※ | // | VF 33 04 00 | // | // | | U,C | |
| | 22 | VC 68 39 00 | Speaker Terminal | SPターミナル | + | MX-10000 | |
| | 23 | VC 68 40 00 | // | // | - | // | |
| ※ | 24 | NA 09 94 00 | Input Circuit Board | 入力シート | | J | |
| ※ | // | NA 09 99 90 | // | // | | U,C | |
| ※ | 25 | NA 09 94 10 | Power Supply Circuit Board | 電源シート | | J | |
| ※ | // | NA 09 94 20 | // | // | | U,C | |
| | 26 | CB 80 68 50 | Cord Stopper SR-6N3-4 | コードストッパー | | U,C | |
| ※ | 27 | VF 47 32 00 | Electrolytic Cap. 20000μF 80V | ブロックケミコン | | J | |
| | // | VF 90 79 00 | // 20000μF 80V | // | | J | |
| | // | VF 90 80 00 | // 22000μF 80V | // | | U,C | |
| | // | VF 90 81 00 | // 22000μF 80V | // | | U,C | |
| | 28 | LB 20 13 00 | Fuse Holder | ヒューズホルダー | | | |
| ※ | 29 | XE 66 80 01 | Power Transformer | 電源トランス | | J | △ |
| ※ | // | XE 66 90 01 | // | // | | U | △ |
| ※ | // | XE 67 00 01 | // | // | | C | △ |
| ※ | 30 | VF 90 98 00 | Power Cord 15A 125V | 電源コード | | J | △ |
| | // | VE 01 31 00 | // 13A 125V | // | | U,C | △ |
| | 31 | VE 27 63 00 | P.C.B, Post | P C B ポスト | | AX-2000 | |
| | 32 | EV 41 30 36 | Toothed Lock Washer φ3 FCRM3-BI | 歯付座金 | PACK | | |
| | 33 | EX 60 09 70 | BW Head Screw 4×132 FCM3-BI | BWヘッド小ネジ | | | |
| | 34 | EX 60 07 60 | // 3×8(φ8) FNM3-3g | // | | | |
| | 35 | EK 36 52 00 | // 4×10(φ10) FCRM3-BI | // | | | |
| | 36 | VE 98 95 00 | Pan Head Screw 4×5 AU | ナベ小ネジ | | AX-2000 | |
| | 37 | EX 60 05 60 | // 4×8 AU | // | | MX-10000 | |
| | 38 | ED 03 01 06 | Binding Head Screw 3×10 ZMC2-Y | バインド小ネジ | PACK | | |

※New Parts (新規部品) NR

EXPLODED VIEW

Tighten this screw securely as it grounds the circuit to the chassis.

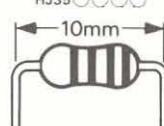


Parts List for Carbon Resistor

| Value | 1/4W Type Part No. | 1/6W Type Part No. | Value | 1/4W Type Part No. | 1/6W Type Part No. |
|-------|--------------------|--------------------|-------|--------------------|--------------------|
| 1.0 Ω | HJ353100 | HF853100 | 12KΩ | HJ357120 | HF857120 |
| 1.8 " | HJ353180 | ※ | 15 " | HJ357150 | HF857150 |
| 2.2 " | HJ353220 | HF853220 | 18 " | HJ357180 | HF857180 |
| 3.3 " | HJ353330 | HF853330 | 22 " | HJ357220 | HF857220 |
| 4.7 " | HJ353470 | HF853470 | 27 " | HJ357270 | HF857270 |
| 5.6 " | HJ353560 | HF853560 | 33 " | HJ357330 | HF857330 |
| 10 " | HJ354100 | HF854100 | 39 " | HJ357390 | HF857390 |
| 15 " | HJ354150 | HF854150 | 47 " | HJ357470 | HF857470 |
| 22 " | HJ354220 | HF854220 | 56 " | HJ357560 | HF857560 |
| 27 " | HJ354270 | HF854270 | 68 " | HJ357680 | HF857680 |
| 33 " | HJ354330 | HF854330 | 82 " | HJ357820 | HF857820 |
| 39 " | HJ354390 | HF854390 | 91 " | HJ357910 | HF857910 |
| 47 " | HJ354470 | HF854470 | 100 " | HJ358100 | HF858100 |
| 56 " | HJ354560 | HF854560 | 120 " | HJ358120 | HF858120 |
| 68 " | HJ354680 | HF854680 | 150 " | HJ358150 | HF858150 |
| 82 " | HJ354820 | HF854820 | 180 " | HJ358180 | HF858180 |
| 100 " | HJ355100 | HF855100 | 220 " | HJ358220 | HF858220 |
| 110 " | HJ355110 | HF855110 | 270 " | HJ358270 | HF858270 |
| 120 " | HJ355120 | HF855120 | 330 " | HJ358330 | HF858330 |
| 150 " | HJ355150 | HF855150 | 390 " | HJ358390 | HF858390 |
| 160 " | HJ355160 | ※ | 470 " | HJ358470 | HF858470 |
| 180 " | HJ355180 | HF855180 | 560 " | HJ358560 | HF858560 |
| 220 " | HJ355220 | HF855220 | 680 " | HJ358680 | HF858680 |
| 270 " | HJ355270 | HF855270 | 820 " | HJ358820 | HF858820 |
| 330 " | HJ355330 | HF855330 | 1.0MΩ | HJ359100 | HF859100 |
| 390 " | HJ355390 | HF855390 | 1.2 " | HJ359120 | ※ |
| 470 " | HJ355470 | HF855470 | 1.5 " | HJ359150 | HF859150 |
| 510 " | ※ | HF855510 | 1.8 " | HJ359180 | HF859180 |
| 560 " | HJ355560 | HF855560 | 2.2 " | HJ359220 | HF859220 |
| 680 " | HJ355680 | HF855680 | 3.3 " | HJ359330 | HF859330 |
| 820 " | HJ355820 | HF855820 | 3.9 " | HJ359390 | ※ |
| 910 " | HJ355910 | HF855910 | 4.7 " | HJ359470 | HF859470 |
| 1.0KΩ | HJ356100 | HF856100 | | | |
| 1.2 " | HJ356120 | HF856120 | | | |
| 1.5 " | HJ356150 | HF856150 | | | |
| 1.8 " | HJ356180 | HF856180 | | | |
| 2.0 " | HJ356200 | HF856200 | | | |
| 2.2 " | HJ356220 | HF856220 | | | |
| 2.4 " | HJ356240 | HF856240 | | | |
| 2.7 " | HJ356270 | HF856270 | | | |
| 3.0 " | HJ356300 | HF856300 | | | |
| 3.3 " | HJ356330 | HF856330 | | | |
| 3.6 " | HJ356360 | HF856360 | | | |
| 3.9 " | HJ356390 | HF856390 | | | |
| 4.7 " | HJ356470 | HF856470 | | | |
| 5.1 " | HJ356510 | HF856510 | | | |
| 5.6 " | HJ356560 | HF856560 | | | |
| 6.8 " | HJ356680 | HF856680 | | | |
| 8.2 " | HJ356820 | HF856820 | | | |
| 9.1 " | HJ356910 | HF856910 | | | |
| 10 " | HJ357100 | HF857100 | | | |

1/4W Type


HJ35○○○○




10mm

1/6W Type

HF85○○○○



5mm



S M MX2000U