

CENTER

STEREO POWER AMPLIFIER MX-1/MX-2

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 any 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 part replacement. Recheck all work before you apply power to the unit.

■ CONTENTS

TO SERVICE PERSONNEL	1
FRONT PANELS	1
MX-1 REAR PANELS	2
MX-2 REAR PANELS	3
SPECIFICATIONS	4
INTERNAL VIEW	5
DISASSEMBLY PROCEDURES	5~6

ADJUSTMENTS	7
PRINTED CIRCUIT BOARD	8~20
BLOCK DIAGRAM	21
MX-1 SCHEMATIC DIAGRAM	22
MX-2 SCHEMATIC DIAGRAM	23
PARTS LIST	24~36

■ TO SERVICE PERSONNEL

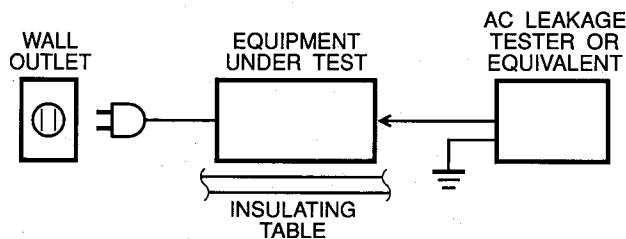
1. Critical Components Information.

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

2. Leakage Current Measurement (For 120V Models Only).

When service has been completed, it is imperative to 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.



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.

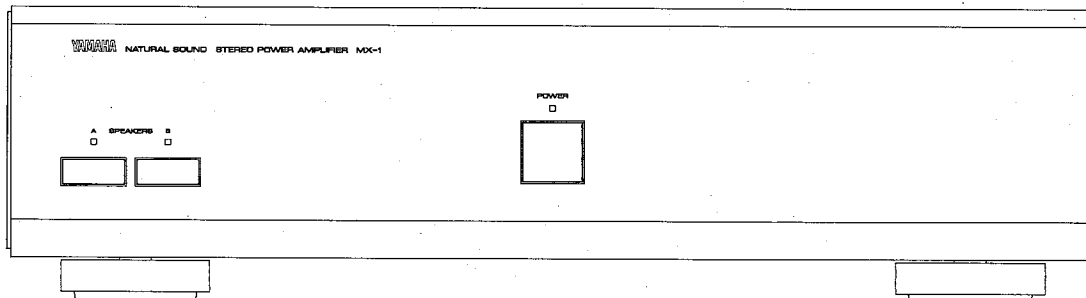
DO NOT PLACE SOLDER, ELECTRICAL/ELECTRONIC OR PLASTIC COMPONENTS IN YOUR MOUTH FOR ANY REASON WHATSOEVER!

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

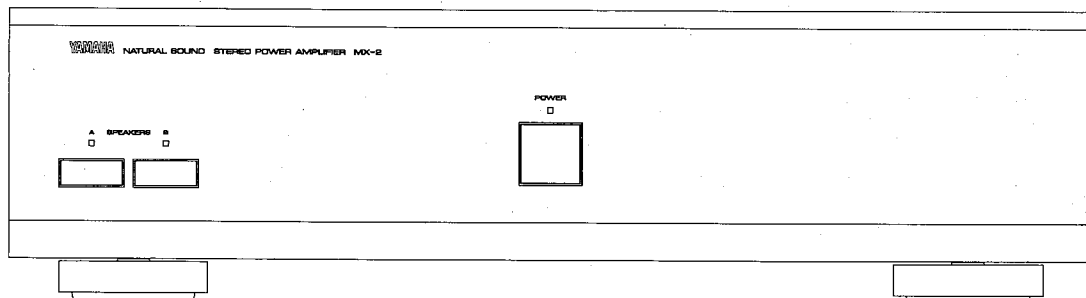
If you come in contact with solder or components located inside the enclosure of this product, wash your hands before handling food.

■ FRONT PANELS

● MX-1



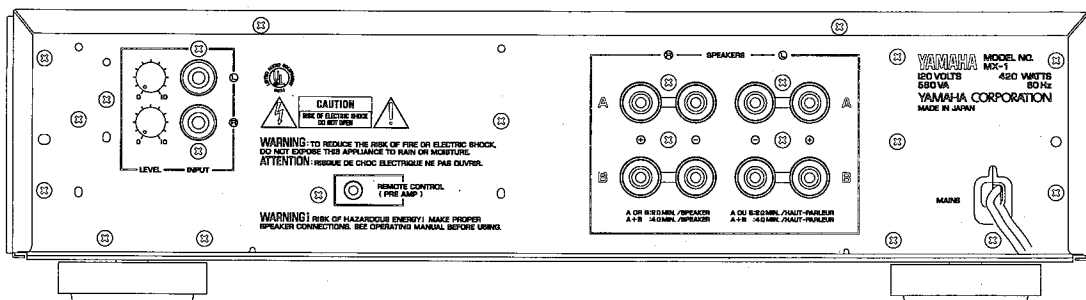
● MX-2



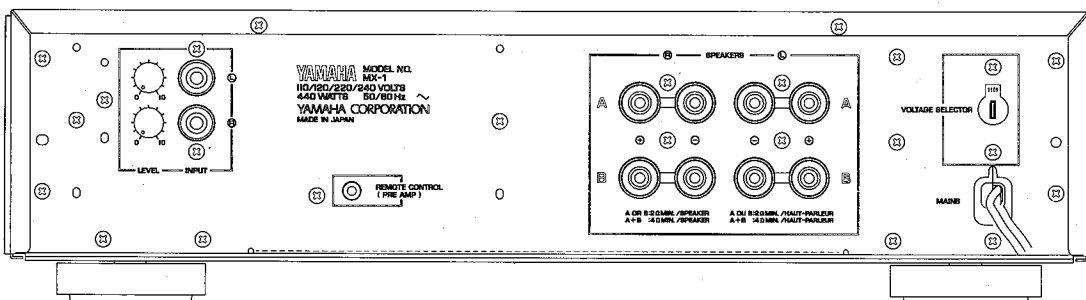
MX-1

■ MX-1 REAR PANELS

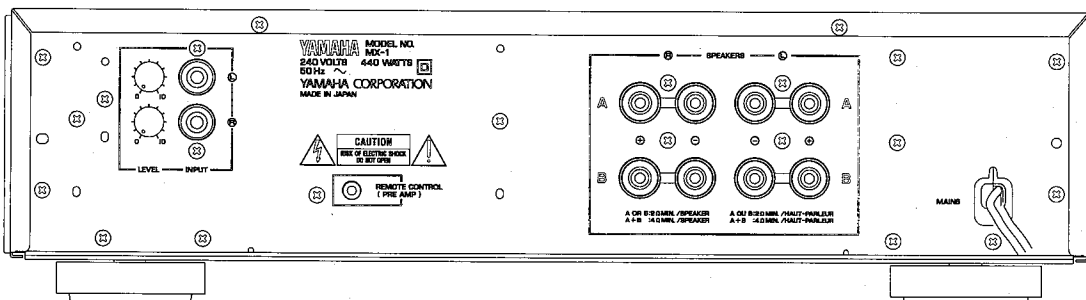
▼ U, C models



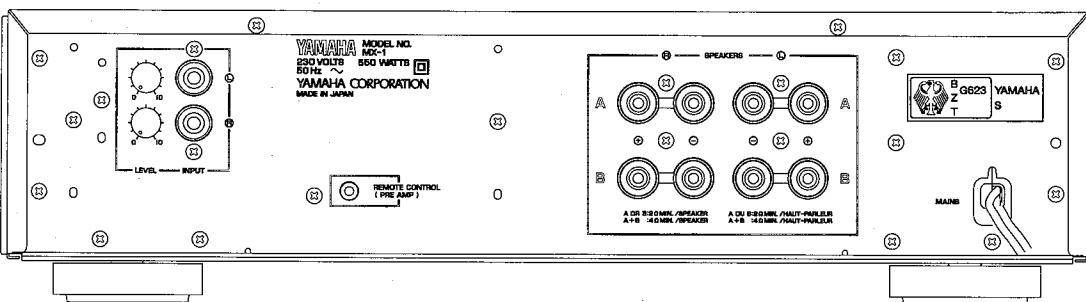
▼ R model



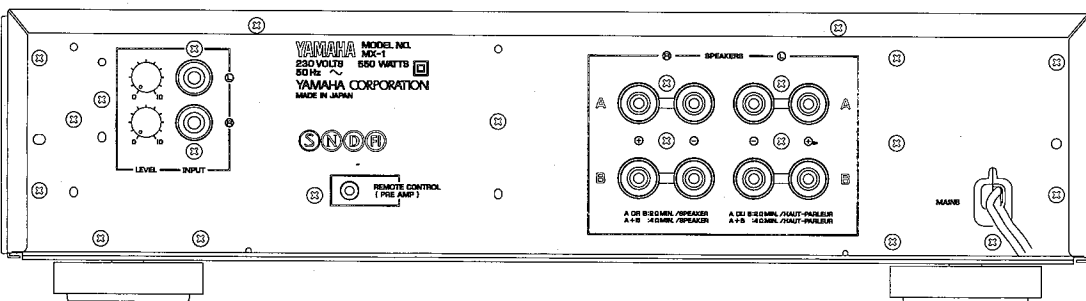
▼ A, B models



▼ W model



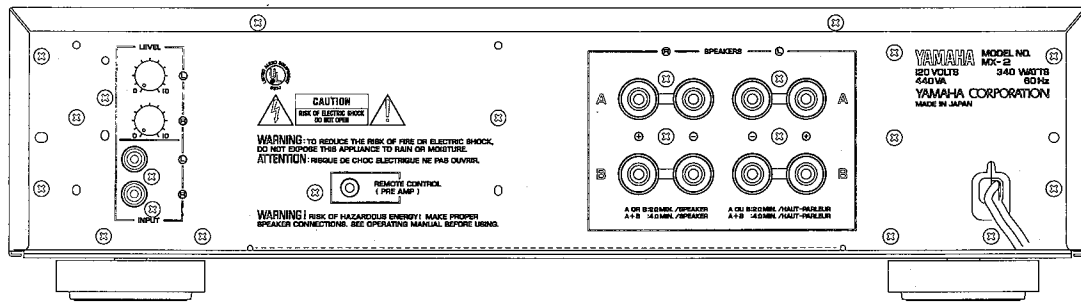
▼ H model



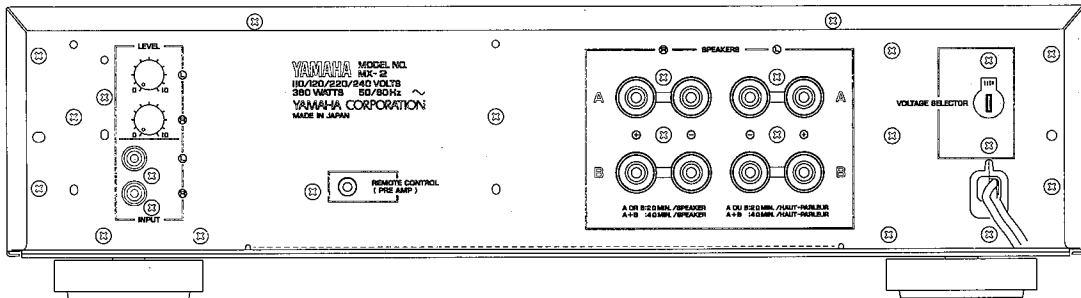
MX-1/MX-2

■ MX-2 REAR PANELS

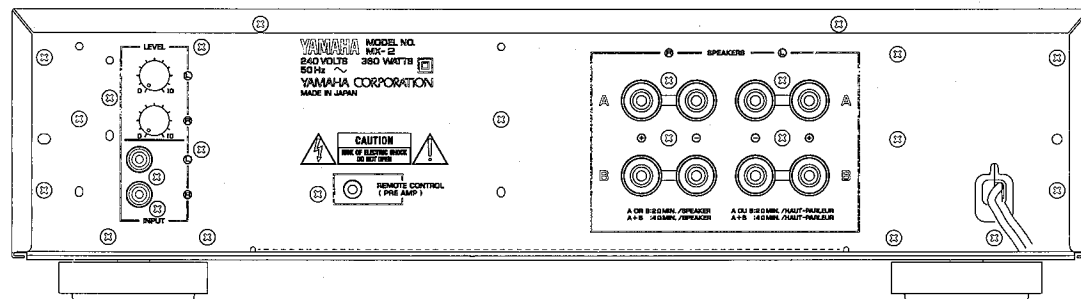
▼ U, C models



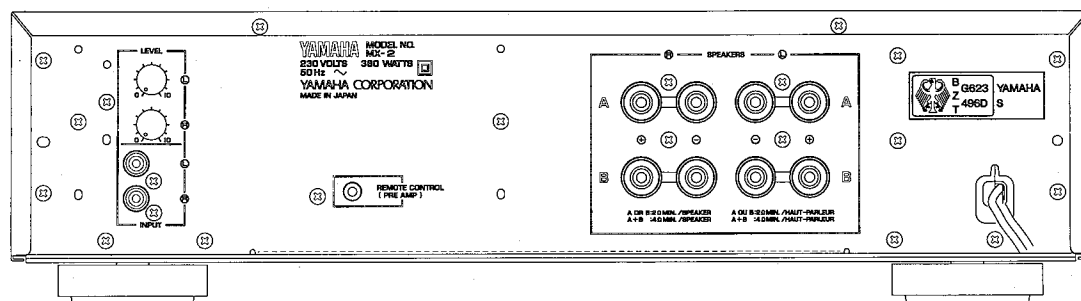
▼ R model



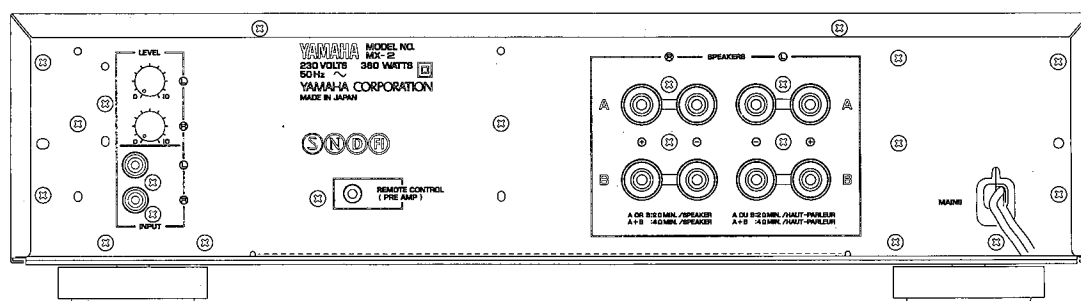
▼ A, B models



▼ W model



▼ H model

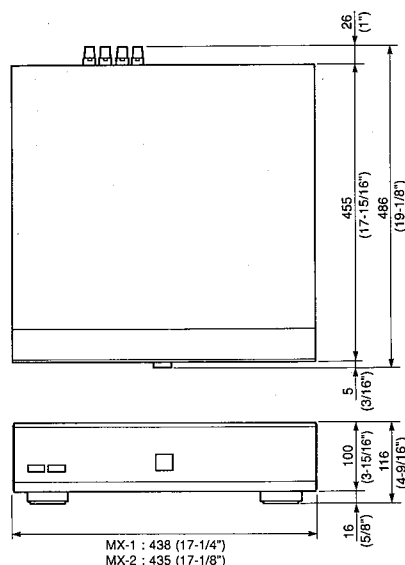


■ SPECIFICATIONS

MX-1

Minimum RMS Output Power per Channel (20Hz ~ 20kHz)	
0.008% THD, 8Ω	200W
0.03% THD, 4Ω	260W
0.09% THD, 2Ω	320W
Dynamic Power per Channel (by IHF Dynamic Headroom measuring method)	
8/4/2Ω	280/460/630W
DIN Standard Output Power per Channel	
1kHz, 0.5% THD, 4Ω	300W (H, W)
Dynamic Headroom	
8/4/2Ω	1.46/2.48/2.94dB
IEC Power (1kHz, 0.01% THD)	
8Ω	225W (H, W)
Power Band Width	
0.03% THD, 100W, 8Ω	10Hz ~ 60kHz
Damping Factor	
8Ω, 1kHz	250
Input Sensitivity/Impedance	
INPUT	1.46V/20kΩ
Frequency Response (20Hz ~ 20kHz)	
INPUT	0±0.5dB
Signal to Noise Ratio (IHF-A Network)	
INPUT (Shorted)	125dB
Residual Noise (IHF-A Network)	
.....	20μV
Channel Separation (Vol. -30dB)	
INPUT (5.1kΩ terminated)	80dB/60dB
Power Supply	
U, C models	AC120V, 60Hz
R model	AC110/120/220/240V, 60/50Hz
H, W models	AC230V, 50Hz
A, B models	AC240V, 50Hz
Power Consumption	
U, C models	560VA/420W
R, A, B models	440W
H, W models	550W
Dimensions (WxHxD)	
.....	438 x 116 x 486mm (17-1/4" x 4-9/16" x 19-1/8")
Weight	
.....	24.0kg (52 lbs 14 oz)

● DIMENSIONS (MX-1/MX-2)



Units : mm (inch)

MX-2

Minimum RMS Output Power per Channel (20Hz ~ 20kHz)	
0.008% THD, 8Ω	150W
0.03% THD, 4Ω	190W
0.09% THD, 2Ω	230W
Dynamic Power per Channel (by IHF Dynamic Headroom measuring method)	
8/4/2Ω	190/310/410W
DIN Standard Output Power per Channel	
1kHz, 0.5% THD, 4Ω	210W(H, W)
Dynamic Headroom	
8/4/2Ω	1.03/2.12/2.51dB
IEC Power (1kHz, 0.01% THD)	
8Ω	175W(H, W)
Power Band Width	
0.03% THD, 75W, 8Ω	10Hz ~ 60kHz
Damping Factor	
8Ω, 1kHz	250
Input Sensitivity/Impedance	
INPUT	1.26V/20kΩ
Frequency Response (20Hz ~ 20kHz)	
INPUT	0±0.5dB
Signal to Noise Ratio (IHF-A Network)	
INPUT (Shorted)	123dB
Residual Noise (IHF-A Network)	
.....	20μV
Channel Separation (Vol. -30dB)	
INPUT (5.1kΩ terminated)	80dB/60dB
Power Supply	
U, C models	AC120V, 60Hz
R model	AC110/120/220/240V, 60/50Hz
H, W models	AC230V, 50Hz
A, B models	AC240V, 50Hz
Power Consumption	
U, C models	440VA/340W
R, A, B, H, W models	360W
Dimensions (WxHxD)	
.....	435 x 116 x 486mm (17-1/8" x 4-9/16" x 19-1/8")
Weight	
.....	19.5kg (42 lbs 1.5 oz)

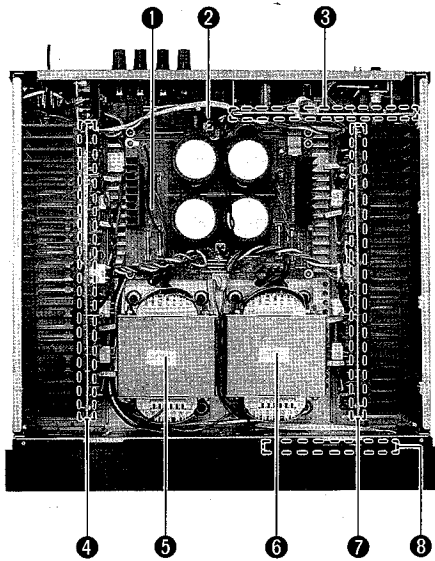
* Specifications are subject to change Without notice.

U USA model
C Canadian model
A Australian model
B British model
H European model
W German model
R General model

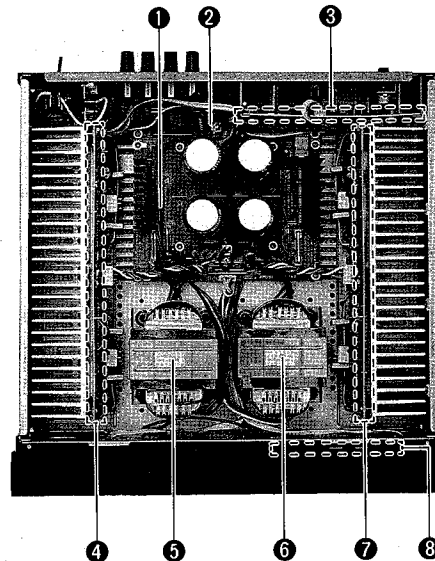
MX-1

MX-2

■ INTERNAL VIEW



- ① SUB P. C. B. ASS'Y (1)
- ② MAIN P. C. B. ASS'Y (1)
- ③ SUB P. C. B. ASS'Y (2)
- ④ MAIN P. C. B. ASS'Y (2).....Lch



- ⑤ POWER TRANSFORMER
- ⑥ POWER TRANSFORMER
- ⑦ MAIN P. C. B. ASS'Y (3).....Rch
- ⑧ SUB P. C. B. ASS'Y (3)

■ DISASSEMBLY PROCEDURES

1. Removal of Top Cover

- a. Remove 8 screws (①) and then remove the Side Cover L/R in Fig. 1.(MX-1 only)
- b. Remove 6 screws (②) in Fig. 1.

2. Removal of Front Panel

Remove 8 screws (③) and 1 plastic rivet (④) in Fig. 1.

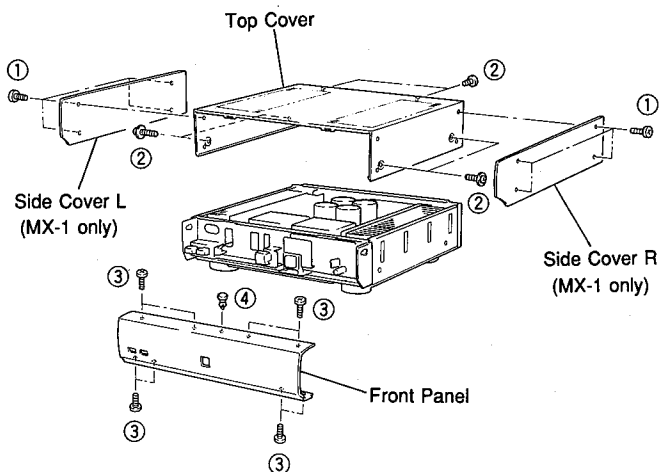


Fig. 1

3. Removal of Main P.C.B. (2) & Main P.C.B. (3)

- a. Remove 4 screws (⑤) in Fig. 2, and pull the Heat Sink (Lch) with the Main P.C.B. (2).
- b. Remove 4 screws (⑥) in Fig. 2, and pull the Heat Sink (Rch) with the Main P.C.B. (3).

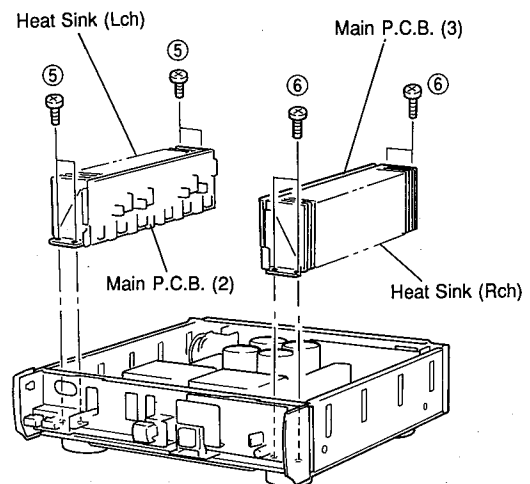


Fig. 2

4. Removal of SUB P.C.B. (1) MX-1

Remove 8 screws (7) and 4 screws (8) in Fig. 3-A.

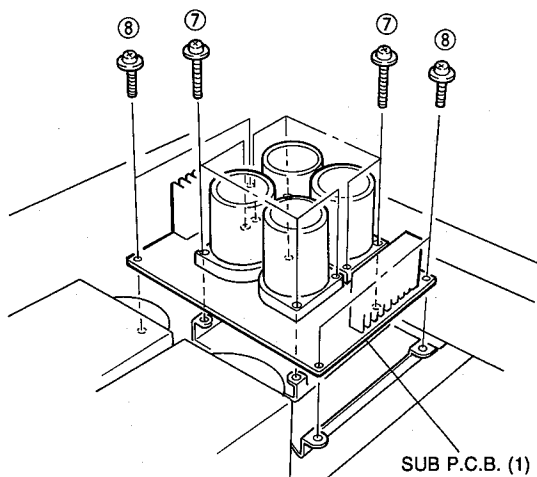


Fig. 3-A

4. Removal of SUB P.C.B. (1) MX-2

Remove 8 screws (7) in Fig. 3-B.

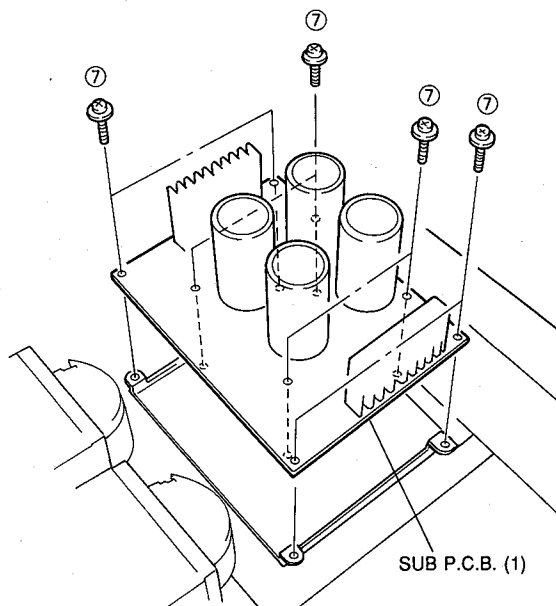


Fig. 3-B

5. Removal of SUB P.C.B. (2) MX-1

- Remove 2 knobs.
- Remove 5 screws (9) in Fig. 4-A, and remove the SUB P.C.B. (2) with the SUB P.C.B. (9) and SUB P.C.B.(10).

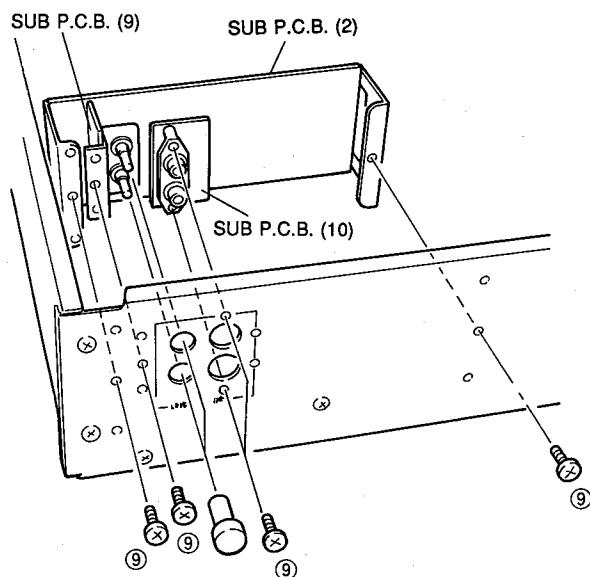


Fig. 4-A

5. Removal of SUB P.C.B. (2) MX-2

- Remove 2 knobs.
- Remove 5 screws (9) in Fig. 4-B, and remove the SUB P.C.B. (2) with the SUB P.C.B. (9).

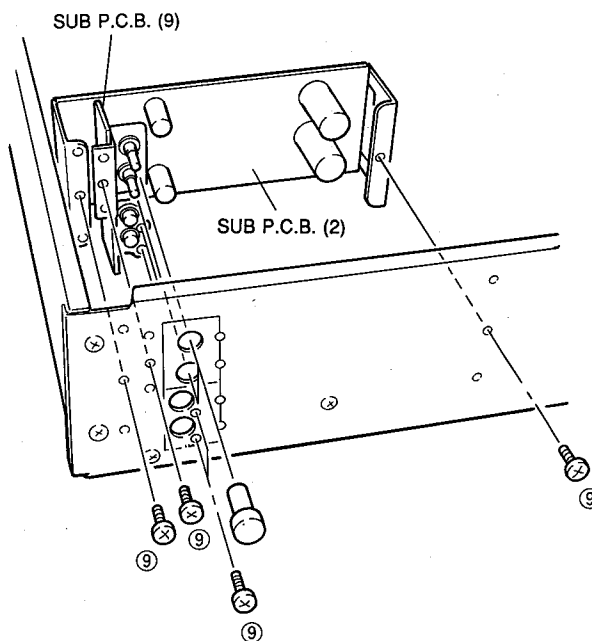


Fig. 4-B

MX-1

MX-2

■ ADJUSTMENT IN POWER AMPLIFIER SECTION

IDLING CURRENT ADJUSTMENT

- When replacing the power and drive transistors, adjust idling current.
- After the power has been turned on, age about 10 minutes in non loaded condition.

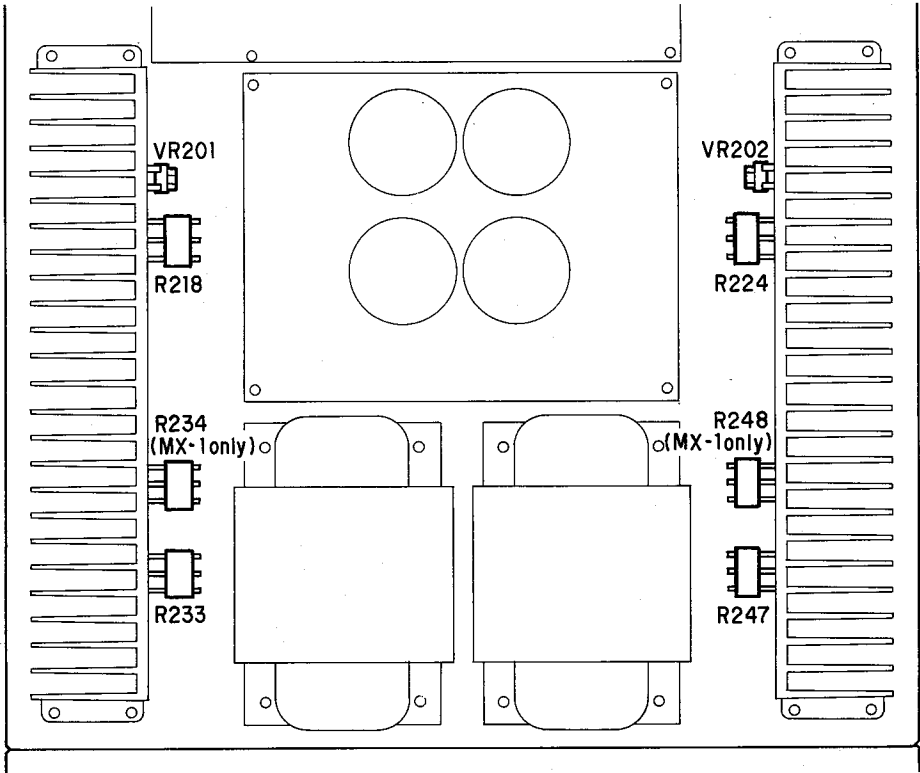
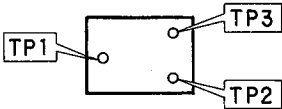
MX-1

Test points		Adjustment point	Rating
Lch	Across the terminals of R218, R233 or R234 (TP1↔TP2 or TP1↔TP3)	VR201	14mV ± 1mV DC
Rch	Across the terminals of R224, R247 or R248 (TP1↔TP2 or TP1↔TP3)	VR202	14mV ± 1mV DC

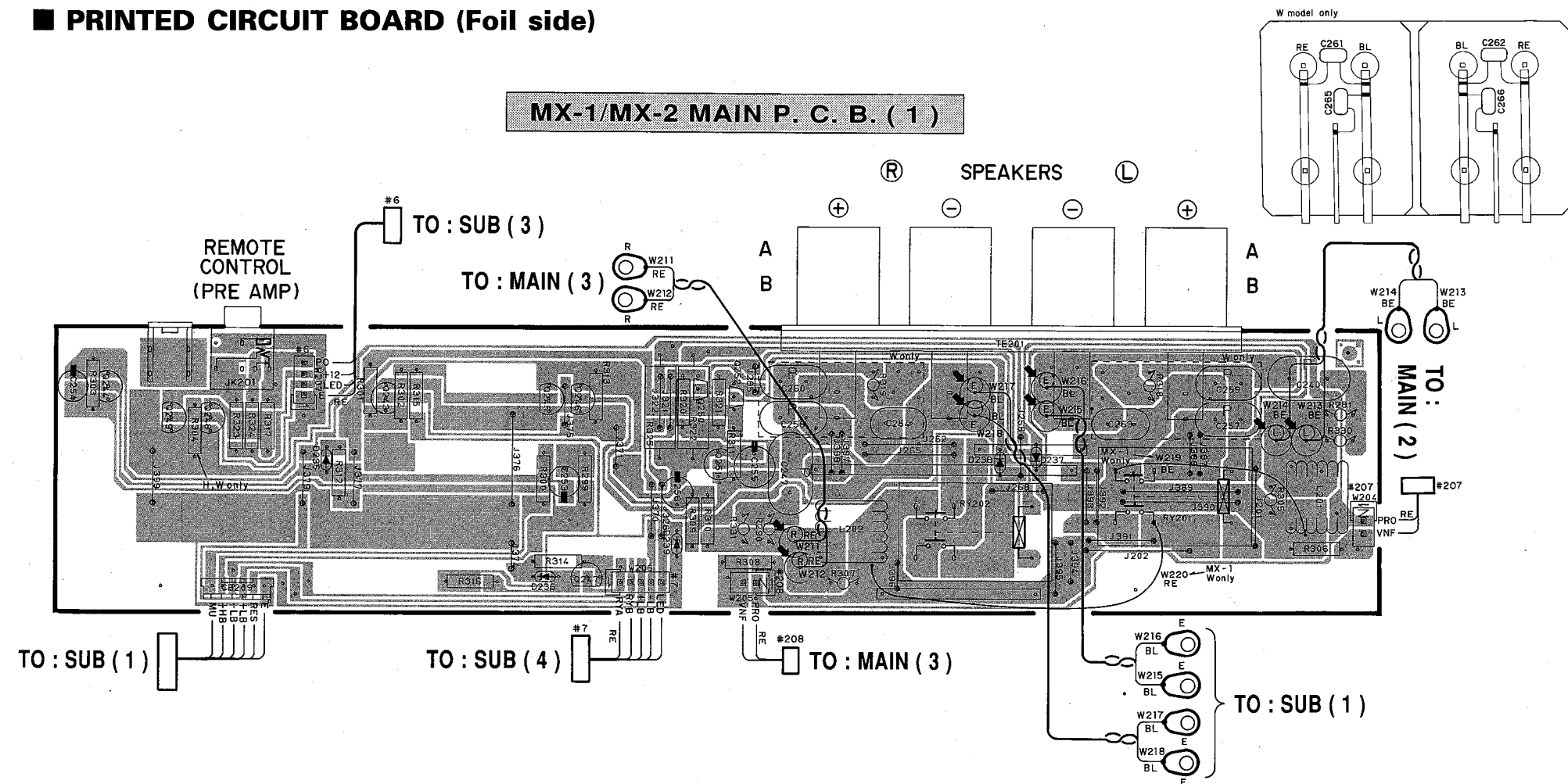
MX-2

Test points		Adjustment point	Rating
Lch	Across the terminals of R218 or R233 (TP1↔TP2 or TP1↔TP3)	VR201	14mV ± 1mV DC
Rch	Across the terminals of R224 or R247 (TP1↔TP2 or TP1↔TP3)	VR202	14mV ± 1mV DC

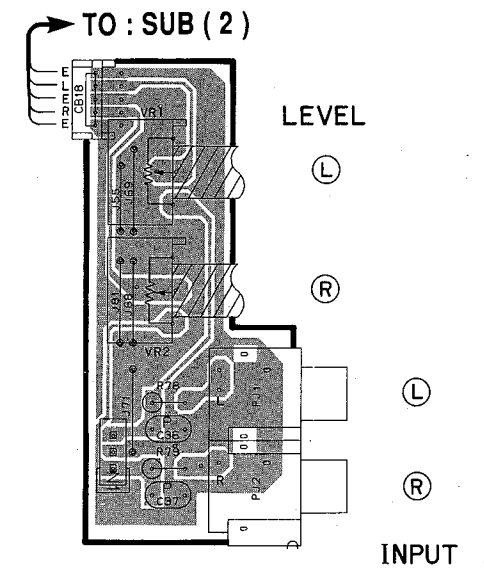
R218, R224 etc



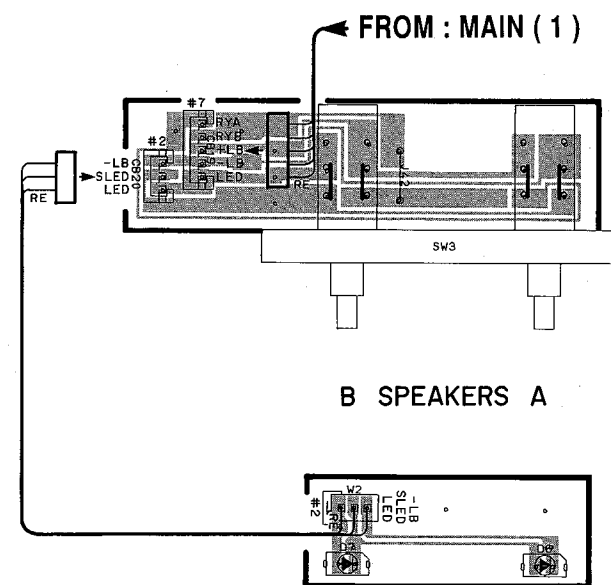
■ PRINTED CIRCUIT BOARD (Foil side)



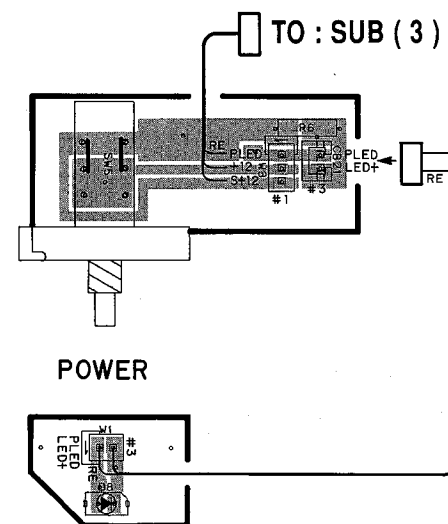
MX-2 SUB P. C. B. (9)



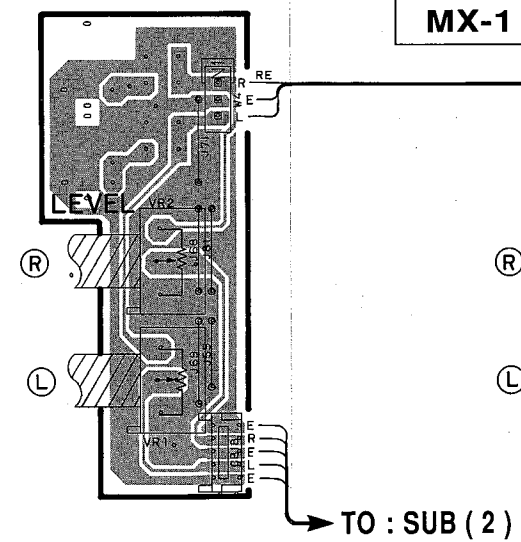
MX-1/MX-2 SUB P. C. B. (4)



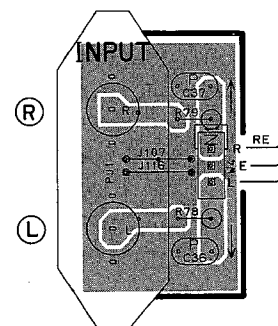
MX-1/MX-2 SUB P. C. B. (5)



MX-1 SUB P. C. B. (9)

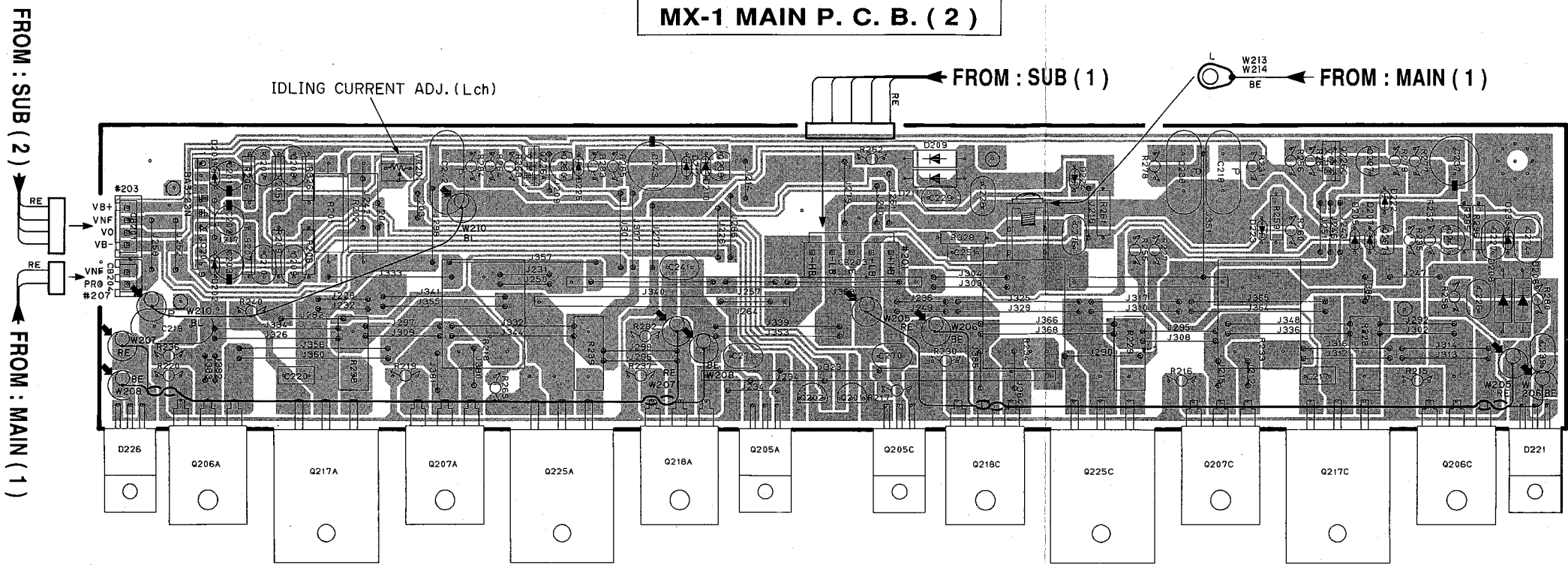


MX-1 SUB P. C. B. (10)

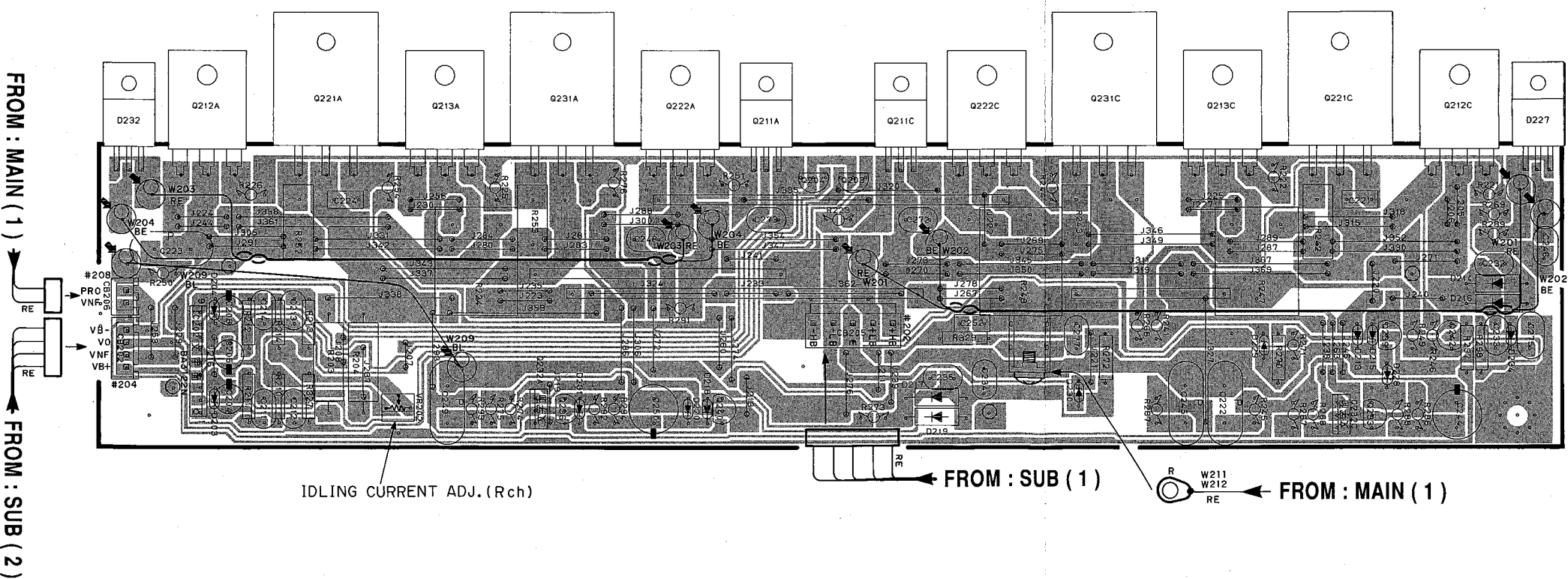


PRINTED CIRCUIT BOARD (Foil side)

MX-1 MAIN P. C. B. (2)



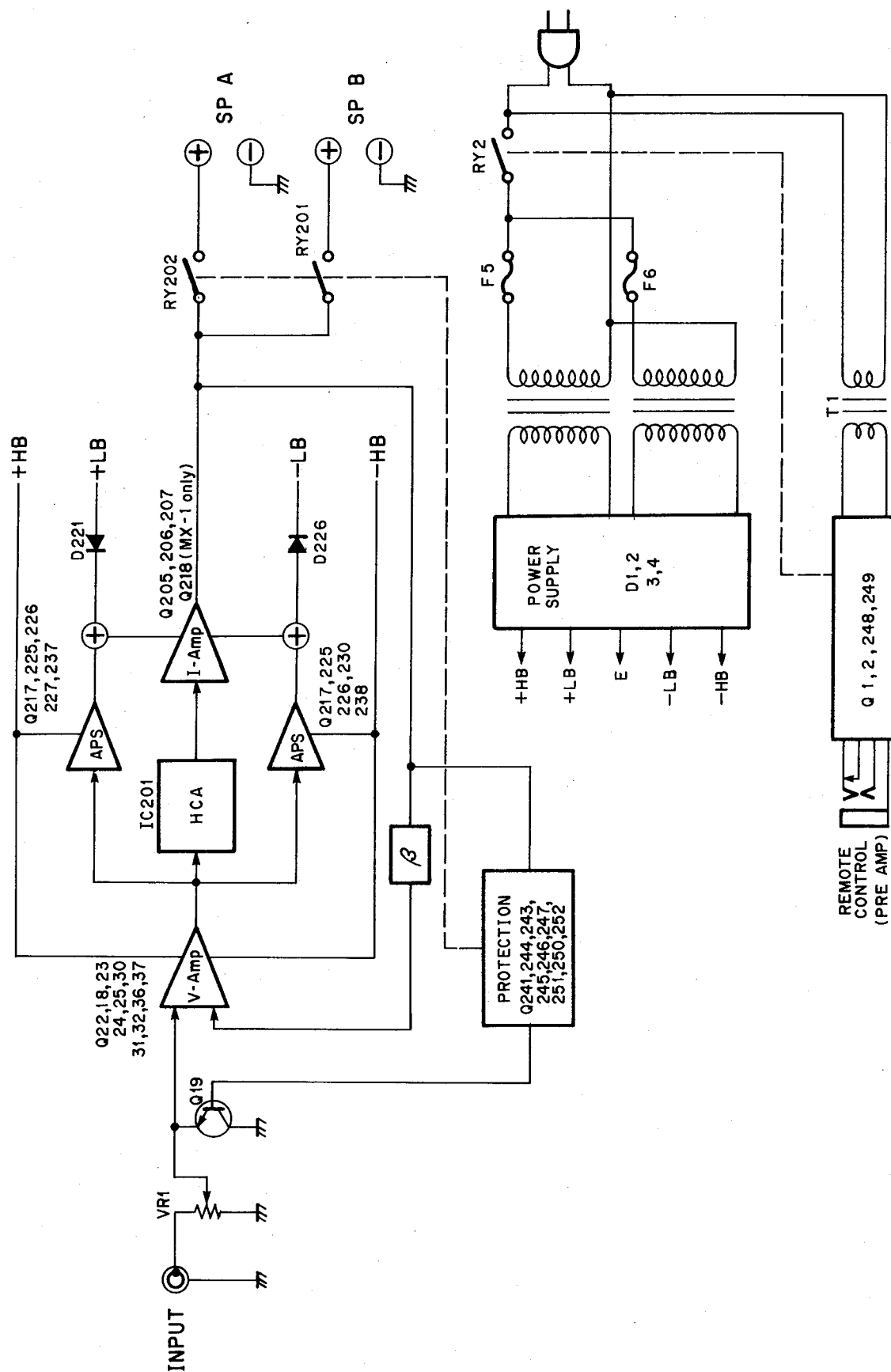
MX-1 MAIN P. C. B. (3)



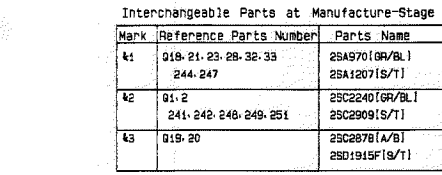
● Semiconductor Location

Ref. No.	Location	Ref. No.	Location
Q201	D3	IC201	A2
Q202	D3	IC202	A5
Q203	D4	D201	B2
Q204	D4	D202	B2
Q205A	C3	D203	B5
Q205C	D3	D204	B5
Q206A	A3	D205	F2
Q206C	F3	D206	F2
Q207A	A3	D207	F2
Q207C	E3	D208	F2
Q211A	C4	D209	D2
Q211C	D4	D210	C2
Q212A	B4	D211	D2
Q212C	F4	D212	C2
Q213A	B4	D213	F5
Q213C	E4	D214	F5
Q217A	A3	D215	F5
Q217C	E3	D216	F5
Q218A	C3	D217	D5
Q218C	D3	D218	C5
Q221A	B4	D219	D5
Q221C	E4	D220	C5
Q222A	C4	D221	F3
Q222C	D4	D222	F2
Q225A	C3	D223	E2
Q225C	E3	D224	E2
Q226A	C2	D225	C2
Q226C	E2	D226	A3
Q227	F2	D227	F4
Q230	C2	D228	F5
Q231A	C4	D229	E5
Q231C	E4	D230	E5
Q232A	C5	D231	C5
Q232C	F5	D232	A4
Q233	F5	D233	F2
Q236	C5	D234	F5
Q237	F2		
Q238	C2		
Q239	F5		
Q240	C5		
Q241	F2		
Q242	F5		

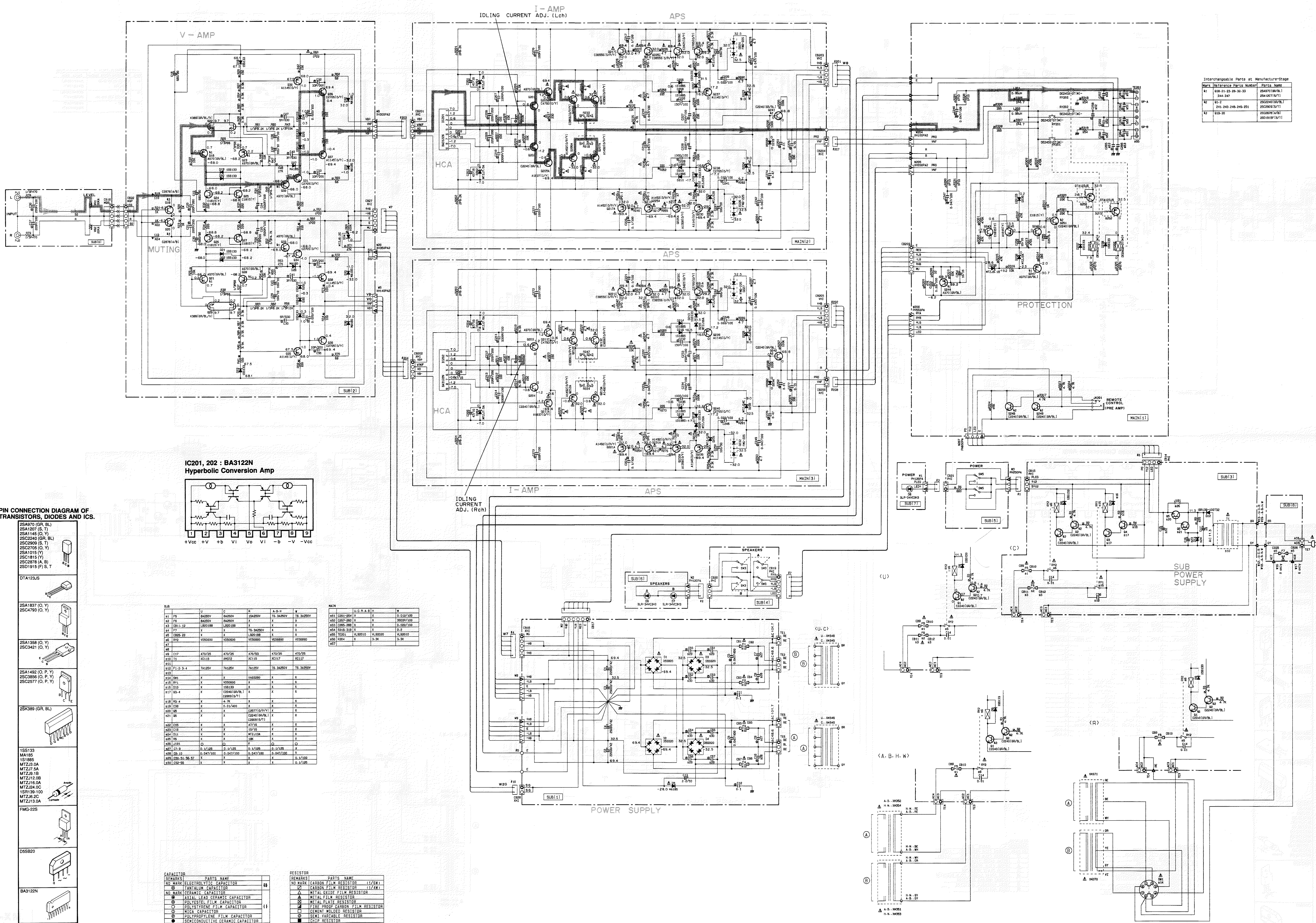
■ BLOCK DIAGRAM



MX-1



- * All voltage are measured with a 10M Ω /V DC electric volt meter.
- * Components having special characteristics are marked $\triangle$ and must be replaced with parts having specifications equal to those originally installed.
- * Schematic diagram is subject to change without notice.



- * All voltage are measured with a 10M Ω /V DC electric volt meter.
- * Components having special characteristics are marked  and must be replaced with parts having specifications equal to those originally installed.
- * Schematic diagram is subject to change without notice.

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 resistors, refer to last page.

MX-1/MX-2

ABBREVIATIONS IN THIS LIST ARE AS FOLLOWS :

C.A.EL.CHP	: CHIP ALUMI. ELECTROLYTIC CAP	L.EMIT	: LIGHT EMITTING MODULE
C.CE	: CERAMIC CAP	LED.DSPLY	: LED DISPLAY
C.CE.ARRAY	: CERAMIC CAP ARRAY	LED.INFRD	: LED, INFRARED
C.CE.CHP	: CHIP CERAMIC CAP	MODUL.RF	: MODULATOR, RF
C.CE.ML	: MULTILAYER CERAMIC CAP	PHOT.CPL	: PHOTO COUPLER
C.CE.M.CHP	: CHIP MULTILAYER CERAMIC CAP	PHOT.INTR	: PHOTO INTERRUPTER
C.CE.SAFTY	: RECOGNIZED CERAMIC CAP	PHOT.RFLCT	: PHOTO REFLECTOR
C.CE.TUBLR	: CERAMIC TUBULAR CAP	PIN.TEST	: PIN, TEST POINT
C.CE.SMI	: SEMI CONDUCTIVE CERAMIC CAP	PLST.RIVET	: PLASTIC RIVET
C.EL	: ELECTROLYTIC CAP	R.ARRAY	: RESISTOR ARRAY
C.MICA	: MICA CAP	R.CAR	: CARBON RESISTOR
C.ML.FLM	: MULTILAYER FILM CAP	R.CAR.CHP	: CHIP RESISTOR
C.MP	: METALLIZED PAPER CAP	R.CAR.FP	: FLAME PROOF CARBON RESISTOR
C.MYLAR	: MYLAR FILM CAP	R.FUS	: FUSABLE RESISTOR
C.MYLAR.ML	: MULTILAYER MYLAR FILM CAP	R.MTL.CHP	: CHIP METAL FILM RESISTOR
C.PAPER	: PAPER CAPACITOR	R.MTL.FLM	: METAL FILM RESISTOR
C.PLS	: POLYSTYRENE FILM CAP	R.MTL.OXD	: METAL OXIDE FILM RESISTOR
C.POL	: POLYESTER FILM CAP	R.MTL.PLAT	: METAL PLATE RESISTOR
C.POLY	: POLYETHYLENE FILM CAP	RSNR.CE	: CERAMIC RESONATOR
C.PP	: POLYPROPYLENE FILM CAP	RSNR.CRYS	: CRYSTAL RESONATOR
C.TNTL	: TANTALUM CAP	R.TW.CEM	: TWIN CEMENT FIXED RESISTOR
C.TNTL.CHP	: CHIP TANTALUM CAP	R.WW	: WIRE WOUND RESISTOR
C.TRIM	: TRIMMER CAP	SCR.BND.HD	: BIND HEAD B-TITE SCREW
CN	: CONNECTOR	SCR.BW.HD	: BW HEAD TAPPING SCREW
CN.BS.PIN	: CONNECTOR, BASE PIN	SCR.CUP	: CUP TITE SCREW
CN.CANNON	: CONNECTOR, CANNON	SCR.TERM	: SCREW TERMINAL
CN.DIN	: CONNECTOR, DIN	SCR.TR	: SCREW, TRANSISTOR
CN.FLAT	: CONNECTOR, FLAT CABLE	SUPRT.PCB	: SUPPORT, P.C.B.
CN.POST	: CONNECTOR, BASE POST	SURG.PRTCT	: SURGE PROTECTOR
COIL.MX.AM	: COIL, AM MIX	SW.TACT	: TACT SWITCH
COIL.AT.FM	: COIL, FM ANTENNA	SW.LEAF	: LEAF SWITCH
COIL.DT.FM	: COIL, FM DETECT	SW.LEVER	: LEVER SWITCH
COIL.MX.FM	: COIL, FM MIX	SW.MICRO	: MICRO SWITCH
COIL.OUTPT	: OUTPUT COIL	SW.PUSH	: PUSH SWITCH
DIOD.ARRAY	: DIODE ARRAY	SW.RT.ENC	: ROTARY ENCODER
DIODE.BRG	: DIODE BRIDGE	SW.RT.MTR	: ROTARY SWITCH WITH MOTOR
DIODE.CHP	: CHIP DIODE	SW.RT	: ROTARY SWITCH
DIODE.VAR	: VARACTOR DIODE	SW.SLIDE	: SLIDE SWITCH
DIOD.Z.CHP	: CHIP ZENER DIODE	TERM.SP	: SPEAKER TERMINAL
DIODE.ZENR	: ZENER DIODE	TERM.WRAP	: WRAPPING TERMINAL
DSCR.CE	: CERAMIC DISCRIMINATOR	THRMST.CHP	: CHIP THERMISTOR
FER.BEAD	: FERRITE BEADS	TR.CHP	: CHIP TRANSISTOR
FER.CORE	: FERRITE CORE	TR.DGT	: DIGITAL TRANSISTOR
FET.CHP	: CHIP FET	TR.DGT.CHP	: CHIP DIGITAL TRANSISTOR
FL.DSPLY	: FLUORESCENT DISPLAY	TRANS	: TRANSFORMER
FLTR.CE	: CERAMIC FILTER	TRANS.PULS	: PULSE TRANSFORMER
FLTR.COMB	: COMB FILTER MODULE	TRANS.PWR	: POWER TRANSFORMER ASS'y
FLTR.LC.RF	: LC FILTER, EMI	TUNER.AM	: TUNER PACK, AM
GND.MTL	: GROUND PLATE	TUNER.FM	: TUNER PACK, FM
GND.TERM	: GROUND TERMINAL	TUNER.PK	: FRONT-END TUNER PACK
HOLDER.FUS	: FUSE HOLDER	VR	: ROTARY POTENTIOMETER
IC.PRTCT	: IC PROTECTOR	VR.MTR	: POTENTIOMETER WITH MOTOR
JUMPER.CN	: JUMPER CONNECTOR	VR.SW	: POTENTIOMETER WITH ROTARY SW
JUMPER.TST	: JUMPER, TEST POINT	VR.SLIDE	: SLIDE POTENTIOMETER
L.DTCT	: LIGHT DETECTING MODULE	VR.TRIM	: TRIMMER POTENTIOMETER

Note) Those parts marked with "#" are not included in the P.C.B. ass'y.

SUB P.C.B.

Schm Ref.	PART NO.	Description
*	VQ129500	P.C.B. SUB (MX-1:U)
*	VQ129600	P.C.B. SUB (MX-1:C)
*	VQ129700	P.C.B. SUB (MX-1:R)
*	VQ129800	P.C.B. SUB (MX-1:ABH)
*	VQ458100	P.C.B. SUB (MX-1:W)
*	VQ136400	P.C.B. SUB (MX-2:U)
*	VQ136500	P.C.B. SUB (MX-2:C)
*	VQ136600	P.C.B. SUB (MX-2:R)
*	VQ136700	P.C.B. SUB (MX-2:ABH)
*	VQ458200	P.C.B. SUB (MX-2:W)
CB1	LB201880	HOLDER.FUS PC-FH1
CB2	LB201880	HOLDER.FUS PC-FH1
CB3	LB201880	HOLDER.FUS PC-FH1
CB4	LB201880	HOLDER.FUS PC-FH1
CB5	LB201880	HOLDER.FUS PC-FH1
CB6	LB201880	HOLDER.FUS PC-FH1
CB7	LB201880	HOLDER.FUS PC-FH1
CB8	LB201880	HOLDER.FUS PC-FH1
CB9	LB201880	HOLDER.FUS PC-FH1
CB10	LB201880	HOLDER.FUS PC-FH1
CB11	LB201880	HOLDER.FUS PC-FH1 (UC)
CB12	LB201880	HOLDER.FUS PC-FH1 (UC)
CB14	VD004700	CN.BS.PIN PH i-TYPE 4P TE
CB15	VD004600	CN.BS.PIN PH i-TYPE 3P TE
CB16	VL844900	CN.BS.PIN XH i-TYPE 5P TE
CB19	VD004800	CN.BS.PIN PH i-TYPE 5P TE
CB20	VD004600	CN.BS.PIN PH i-TYPE 3P TE
CB21	VD004500	CN.BS.PIN PH i-TYPE 2P TE
CB22	VA252300	CN MQ 5P
CB25	LB201880	HOLDER.FUS PC-FH1 (R)
CB26	LB201880	HOLDER.FUS PC-FH1 (R)
CB27	VL844900	CN.BS.PIN XH i-TYPE 5P TE
CB28	LB918020	CN.BS.PIN XH i-TYPE 2P TE
C1	VQ191700	C.EL 22000uF 42V
C2	VQ191700	C.EL 22000uF 42V
C3	VQ191800	C.EL 25000uF 42V
C4	VQ191800	C.EL 25000uF 42V
C5	FZ000670	C.MYLAR 0.047uF 400V
C6	FZ000670	C.MYLAR 0.047uF 400V
C7	UT454470	C.PP 0.047uF100V(UCRABH)
C8	UT465100	C.PP 0.1uF 100V(UCRABH)
C9	UT454470	C.PP 0.047uF100V(UCRABH)
C10	UT465100	C.PP 0.1uF 100V(UCRABH)
C11	VQ322200	C.MYLAR 0.1uF 50V
C12	VQ322200	C.MYLAR 0.1uF 50V
C13	VE019900	C.EL 2.2uF 50V
C14	Fi384100	C.CE.SAFTY 0.01uF 400V
C15	VJ837200	C.EL 47uF 16V(R)
C16	VJ836900	C.EL 10uF 16V(R)
C17	VG289200	C.EL 470uF 25V(UCABHW)
C17	VK347900	C.EL 470uF 63V(R)
C18	VQ246000	C.EL 680uF 80V(MX-2)
C18	VQ246100	C.EL 1000uF 100V(MX-1)

* New Parts

Schm Ref.	PART NO.	Description
*	C19	VQ173200 C.EL 1000uF 100V(MX-1)
C19	VQ246000	C.EL 680uF 80V(MX-2)
C20	VK984200	C.MYLAR 220pF 50V
C21	VK984200	C.MYLAR 220pF 50V
C24	VP917900	C.PP 1500pF 100V
C25	VP917900	C.PP 1500pF 100V
C26	VE875900	C.PP 0.022uF 100V
C27	VQ282400	C.PP 5pF 630V
C28	VE017200	C.EL 100uF 10V
C29	VE017200	C.EL 100uF 10V
C30	VQ282400	C.PP 5pF 630V
C31	VE875900	C.PP 0.022uF 100V
C32	VQ245400	C.PP 33pF 200V
C33	VQ245400	C.PP 33pF 200V
C34	VQ245400	C.PP 33pF 200V
C35	VQ245400	C.PP 33pF 200V
C36	VP917600	C.PP 220pF 100V
C37	VP917600	C.PP 220pF 100V
C38	Fi384100	C.CE.SAFTY 0.01uF 400V(C)
* C39	VQ173200	C.EL 1000uF 100V(MX-1)
C39	VQ246000	C.EL 680uF 80V(MX-2)
C40	VQ322400	C.PP 3pF 630V
C41	VQ322400	C.PP 3pF 630V
C42	VE017200	C.EL 100uF 10V
C43	VE017200	C.EL 100uF 10V
C50	UT465100	C.PP 0.1uF 100V(MX-2:W)
C50	VK534500	C.PP 0.1uF 100V(MX-1:W)
C51	UT465100	C.PP 0.1uF 100V(MX-2:W)
C51	VK534500	C.PP 0.1uF 100V(MX-1:W)
C52	UT465100	C.PP 0.1uF 100V(MX-2:W)
C52	VP907300	C.PP 0.1uF 125V(MX-1:W)
C53	UT465100	C.PP 0.1uF 100V(MX-2:W)
C53	VP907300	C.PP 0.1uF 125V(MX-1:W)
C54	UT465100	C.PP 0.1uF 100V(MX-2:W)
C54	VP907300	C.PP 0.1uF 125V(MX-1:W)
C55	UT465100	C.PP 0.1uF 100V(MX-2:W)
C55	VP907300	C.PP 0.1uF 125V(MX-1:W)
C56	UT465100	C.PP 0.1uF 100V(MX-2:W)
C56	VK534500	C.PP 0.1uF 100V(MX-1:W)
C57	UT465100	C.PP 0.1uF 100V(MX-2:W)
C57	VK534500	C.PP 0.1uF 100V(MX-1:W)
△ *	D1	VQ163000 DIODE.BRG D5SB20 5.0A 200V
△ *	D2	VQ163000 DIODE.BRG D5SB20 5.0A 200V
△ *	D3	VQ163000 DIODE.BRG D5SB20 5.0A 200V
△ *	D4	VQ163000 DIODE.BRG D5SB20 5.0A 200V
△	D5	VC398400 DIODE MA185
D6	Vi013600	LED(re) SLR-34VC3H3
D7	Vi013600	LED(re) SLR-34VC3H3
D8	Vi013600	LED(re) SLR-34VC3H3
D9	iF004600	DIODE 1SS133
D10	iF004600	DIODE 1SS133(C)
D11	VG440400	DIODE.ZENR MTZJ13A 13V(R)
D12	VH770800	DIODE 1SR139-100 T-32

* New Parts

SUB P.C.B.

Schm Ref.	PART NO.	Description
D18	iF004600	DIODE 1SS133
D19	iF004600	DIODE 1SS133
D20	iF004600	DIODE 1SS133
D21	iF004600	DIODE 1SS133
D22	iF004600	DIODE 1SS133
D23	iF004600	DIODE 1SS133
D24	iF004600	DIODE 1SS133
D25	iF004600	DIODE 1SS133
D26	iF004600	DIODE 1SS133
D27	VC398400	DIODE MA185
D28	VC398400	DIODE MA185
D29	iF004600	DIODE 1SS133
D30	iF004600	DIODE 1SS133
D31	iF004600	DIODE 1SS133
D32	VC398400	DIODE MA185
D33	VC398400	DIODE MA185
D34	VG438100	DIODE.ZENR MTZJ6.2C 6.2V
D35	VC398400	DIODE MA185
D36	VC398400	DIODE MA185
△ F1	KB001520	FUSE 7.0A 125V(UCR)
△ F1	KB001760	FUSE 6.3A 250V(ABHW)
△ F2	KB001520	FUSE 7.0A 125V(UCR)
△ F2	KB001760	FUSE 6.3A 250V(ABHW)
△ F3	KB001520	FUSE 7.0A 125V(UCR)
△ F3	KB001760	FUSE 6.3A 250V(ABHW)
△ F4	KB001520	FUSE 7.0A 125V(UCR)
△ F4	KB001760	FUSE 6.3A 250V(ABHW)
△ F5	KB001760	FUSE 6.3A 250V(ABHW)
△ F5	VD370900	FUSE 10A 250V(MX-1:UC)
△ F5	VE876300	FUSE T20A 250V(MX-1:R)
△ F5	VF600500	FUSE 15A 250A(MX-2:R)
△ F5	Vi721000	FUSE 8A 250V(MX-2:UC)
△ F6	VD370900	FUSE 10A 250V(MX-1:UC)
△ F6	Vi721000	FUSE 8A 250V(MX-2:UC)
△ F7	KB001760	FUSE 6.3A 250V(R)
PJ1	VL552500	JACK.PIN 1P(MX-2)
* PJ1	VP917200	JACK.PIN 2P(MX-1)
PJ2	VL552500	JACK.PIN 1P(MX-2)
Q1	iC224030	TR 2SC2240 GR,BL
Q2	iC224030	TR 2SC2240 GR,BL
Q3	iC224030	TR 2SC2240 GR,BL(C)
Q4	iC224030	TR 2SC2240 GR,BL(C)
Q5	iC257700	TR 2SC2577 O,P,Y(R)
Q6	iC224030	TR 2SC2240 GR,BL(R)
Q18	iA097000	TR 2SA970 GR,BL
Q19	iC287820	TR 2SC2878 A,B
Q20	iC287820	TR 2SC2878 A,B
Q21	iA097000	TR 2SA970 GR,BL
Q22	iE104500	FET 2SK389 GR,BL
Q23	iA097000	TR 2SA970 GR,BL
Q24	iC1815C0	TR 2SC1815 Y
Q25	iC1815C0	TR 2SC1815 Y
Q26	iC1815C0	TR 2SC1815 Y

* New Parts

Schm Ref.	PART NO.	Description
Q27	iC1815C0	TR 2SC1815 Y
Q28	iA097000	TR 2SA970 GR,BL
Q29	iE104500	FET 2SK389 GR,BL
Q30	iA135200	TR 2SA1352 DEF(MX-1)
Q30	VE198700	TR 2SA1145 O,Y(MX-2)
Q31	iC341600	TR 2SC3416 DEF(MX-1)
Q31	VE198800	TR 2SC2705 O,Y(MX-2)
Q32	iA097000	TR 2SA970 GR,BL
Q33	iA097000	TR 2SA970 GR,BL
Q34	iC341600	TR 2SC3416 DEF(MX-1)
Q34	VE198800	TR 2SC2705 O,Y(MX-2)
Q35	iA135200	TR 2SA1352 DEF(MX-1)
Q35	VE198700	TR 2SA1145 O,Y(MX-2)
Q36	iC341600	TR 2SC3416 DEF(MX-1)
Q36	VE198800	TR 2SC2705 O,Y(MX-2)
Q37	iA135200	TR 2SA1352 DEF(MX-1)
Q37	VE198700	TR 2SA1145 O,Y(MX-2)
Q38	iA135200	TR 2SA1352 DEF(MX-1)
Q38	VE198700	TR 2SA1145 O,Y(MX-2)
Q39	iC341600	TR 2SC3416 DEF(MX-1)
Q39	VE198800	TR 2SC2705 O,Y(MX-2)
R26	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R26	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
R32	HU575220	R.MTL.FLM 220Ω 1/4W
R33	HU575220	R.MTL.FLM 220Ω 1/4W
R34	HU575220	R.MTL.FLM 220Ω 1/4W
R35	HU575220	R.MTL.FLM 220Ω 1/4W
R41	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R41	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
R42	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R42	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
R50	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R50	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
R51	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R51	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
R59	HV455120	R.CAR.FP 120Ω 1/4W(MX-1)
R59	HV455150	R.CAR.FP 150Ω 1/4W(MX-2)
△ R60	HL314220	R.MTL.OXD 22Ω 1W
R61	HL314220	R.MTL.OXD 22Ω 1W
R63	HV455100	R.CAR.FP 100Ω 1/4W
R64	HV455100	R.CAR.FP 100Ω 1/4W
R66	HL314220	R.MTL.OXD 22Ω 1W
R73	HV455100	R.CAR.FP 100Ω 1/4W
R74	HV455100	R.CAR.FP 100Ω 1/4W
△ RY1	VD506000	RELAY DG12D1-OM(MX-2:C)
△ RY1	VK539200	RELAY DH12D1-OM(MX-1:C)
△ RY2	VD506000	RELAY DG12D1-OM(MX-2:UC)
△ RY2	VE568900	RELAY DH12D1(MX-2:RABHW)
△ RY2	VK539200	RELAY DH12D1-OM(MX-1)
* SW3	VQ121100	SW.PUSH SPUL 2
* SW5	VQ121000	SW.PUSH SPUL
△ T1	XC115A00	TRANS.PWR (R)
△ T1	XC116A00	TRANS.PWR (U)

* New Parts

SUB & MAIN P.C.B.

Schm Ref.	PART NO.	Description
△ T1	XC117A00	TRANS.PWR (ABHW)
△ * T1	XM372A00	TRANS.PWR (C)
TE1	LA002000	TERM.WRAP 2P i-TYPE P=7.5
TE2	LA002150	TERM.WRAP 3P i-TYPE P=10
TE3	LA002140	TERM.WRAP 2P i-TYPE P=10
TE4	LA002140	TERM.WRAP 2P (UCABHW)
TE5	LA002000	TERM.WRAP 2P i-TYPE P=7.5
TE6	LA002150	TERM.WRAP 3P i-TYPE P=10
TE7	LA003870	TERM.WRAP 2P L-TYPE P=10
* VR1	VQ121200	VR A20KΩ
* VR2	VQ121200	VR A20KΩ
	VB966900	CN IMSA-6024
	VQ465400	BIND.TIE AB-200
*	VQ625400	DAMPER H.SINK
	BB071360	SCR.TERM 8.3x13
	BB069510	GND.MTL No.6951
	BB070700	GND.MTL
*	VQ139000	HEAT.SINK OSH-7050
	VE808500	SCR.TERM Ø4
	EP630280	SCR.BND.HD 3x10 FCRM3-BL
*	VQ129200	P.C.B. MAIN (MX-1:URAB)
*	VQ129300	P.C.B. MAIN (MX-1:H)
*	VQ129400	P.C.B. MAIN (MX-1:W)
*	VQ731100	P.C.B. MAIN (MX-1:C)
*	VQ136100	P.C.B. MAIN (MX-2:UCRAB)
*	VQ136200	P.C.B. MAIN (MX-2:H)
*	VQ136300	P.C.B. MAIN (MX-2:W)
CB201	VL844800	CN.BS.PIN XH 4P TE
CB202	VL844800	CN.BS.PIN XH 4P TE
CB203	LB932050	CN.POST VH 5P TE
CB204	LB918020	CN.BS.PIN XH i-TYPE 2P TE
CB205	LB932050	CN.POST VH 5P TE
CB206	LB918020	CN.BS.PIN XH i-TYPE 2P TE
C201	VE742600	C.EL 47uF 25V
C202	VE742600	C.EL 47uF 25V
C203	VE742600	C.EL 47uF 25V
C204	VE742600	C.EL 47uF 25V
C205	VE742600	C.EL 47uF 25V
C206	VE742600	C.EL 47uF 25V
C207	VP918000	C.PP 3300pF 100V
C208	VK534000	C.PP 220pF 200V
C209	VK534000	C.PP 220pF 200V
C210	VP918000	C.PP 3300pF 100V
C211	VP918000	C.PP 3300pF 100V
C212	VK534000	C.PP 220pF 200V
C213	VK534000	C.PP 220pF 200V
C214	VP918000	C.PP 3300pF 100V
C217	Vi862200	C.POLY 0.1uF 100V
C218	VK534400	C.PP 0.047uF 100V
C219	VK534400	C.PP 0.047uF 100V
C220	Vi862200	C.POLY 0.1uF 100V
C221	Vi862200	C.POLY 0.1uF 100V

* New Parts

Schm Ref.	PART NO.	Description
C222	VK534400	C.PP 0.047uF 100V
C223	VK534400	C.PP 0.047uF 100V
C224	Vi862200	C.POLY 0.1uF 100V
C226	UT452150	C.PP 150pF 100V
C227	UT452150	C.PP 150pF 100V
C228	UT452150	C.PP 150pF 100V
C229	UT452100	C.PP 100pF 100V
C232	UT452150	C.PP 150pF 100V
C233	UT452150	C.PP 150pF 100V
C234	UT452150	C.PP 150pF 100V
C235	UT452100	C.PP 100pF 100V
C237	VN396800	C.EL 100uF 50V
C238	VK534400	C.PP 0.047uF 100V
C239	VK534200	C.PP 0.022uF 100V
C240	UT454470	C.PP 0.047uF 100V (MX-2)
C240	VK534400	C.PP 0.047uF 100V (MX-1)
C241	VK534200	C.PP 0.022uF 100V
C242	VK534400	C.PP 0.047uF 100V
C243	VN396800	C.EL 100uF 50V
C244	VN396800	C.EL 100uF 50V
C245	VK534400	C.PP 0.047uF 100V
C246	VK534200	C.PP 0.022uF 100V
C247	UT454470	C.PP 0.047uF 100V (MX-2)
C247	VK534400	C.PP 0.047uF 100V (MX-1)
C248	VK534200	C.PP 0.022uF 100V
C249	VK534400	C.PP 0.047uF 100V
C250	VN396800	C.EL 100uF 50V
C251	UA654100	C.MYLAR 0.01uF 50V
C252	UA654100	C.MYLAR 0.01uF 50V
C253	UJ895220	C.EL 0.22uF 100V
C254	VE742700	C.EL 10uF 50V
C255	VE016600	C.EL 220uF 6.3V
C256	VE742700	C.EL 10uF 50V
C257	UT453390	C.PP 3900pF 100V (W)
C258	UT453390	C.PP 3900pF 100V (W)
C259	UT453390	C.PP 3900pF 100V (W)
C260	UT453390	C.PP 3900pF 100V (W)
C261	UT454130	C.PP 0.013uF100V (MX-2W)
C261	VM707200	C.PP 0.012uF100V (MX-1W)
C262	UT454130	C.PP 0.013uF100V (MX-2W)
C262	VM707200	C.PP 0.012uF100V (MX-1W)
C263	UT454130	C.PP 0.013uF100V (MX-2W)
C263	VM707200	C.PP 0.012uF100V (MX-1W)
C264	UT454130	C.PP 0.013uF100V (MX-2W)
C264	VM707200	C.PP 0.012uF100V (MX-1W)
C265	UT454220	C.PP 0.022uF100V (MX-2W)
C265	VK534200	C.PP 0.022uF100V (MX-1W)
C266	UT454220	C.PP 0.022uF100V (MX-2W)
C266	VK534200	C.PP 0.022uF100V (MX-1W)
C270	UT452100	C.PP 100pF 100V
C271	UT452100	C.PP 100pF 100V
C272	UT452100	C.PP 100pF 100V
C273	UT452100	C.PP 100pF 100V

* New Parts

Schm Ref.	PART NO.	Description
C274	UA655470	C.MYLAR 0.47uF 50V
C275	UA655470	C.MYLAR 0.47uF 50V
C276	VE326200	C.MYLAR.ML 0.15uF 50V
C277	VE326200	C.MYLAR.ML 0.15uF 50V
D201	VG438500	DIODE.ZENR MTZJ7.5A 7.5V
D202	VG438500	DIODE.ZENR MTZJ7.5A 7.5V
D203	VG438500	DIODE.ZENR MTZJ7.5A 7.5V
D204	VG438500	DIODE.ZENR MTZJ7.5A 7.5V
D205	IF004600	DIODE 1SS133
D206	VF514000	DIODE 1S1885
D207	VG441000	DIODE.ZENR MTZJ16A 16V
D208	VF514000	DIODE 1S1885
D209	VF514000	DIODE 1S1885
D210	IF004600	DIODE 1SS133
D211	VF514000	DIODE 1S1885
D212	VG441000	DIODE.ZENR MTZJ16A 16V
D213	IF004600	DIODE 1SS133
D214	VF514000	DIODE 1S1885
D215	VG441000	DIODE.ZENR MTZJ16A 16V
D216	VF514000	DIODE 1S1885
D217	VF514000	DIODE 1S1885
D218	IF004600	DIODE 1SS133
D219	VF514000	DIODE 1S1885
D220	VG441000	DIODE.ZENR MTZJ16A 16V
* D221	VQ116700	DIOD.ARRAY FMG-22Sx2 10A
D222	VG440200	DIODE.ZENR MTZJ12B 12V
D223	VG442600	DIODE.ZENR MTZJ24C 24V
D224	VG442600	DIODE.ZENR MTZJ24C 24V
D225	VG440200	DIODE.ZENR MTZJ12B 12V
* D226	VQ116700	DIOD.ARRAY FMG-22Sx2 10A
* D227	VQ116700	DIOD.ARRAY FMG-22Sx2 10A
D228	VG440200	DIODE.ZENR MTZJ12B 12V
D229	VG442600	DIODE.ZENR MTZJ24C 24V
D230	VG442600	DIODE.ZENR MTZJ24C 24V
D231	VG440200	DIODE.ZENR MTZJ12B 12V
* D232	VQ116700	DIOD.ARRAY FMG-22Sx2 10A
D233	VQ469600	DIODE HSS82
D234	VQ469600	DIODE HSS82
D235	IF004600	DIODE 1SS133
D236	VG435800	DIODE.ZENR MTZJ3.0A 3.0V
D237	IF004600	DIODE 1SS133
D238	IF004600	DIODE 1SS133
D239	VG439200	DIODE.ZENR MTZJ9.1B 9.1V
IC201	XG609A00	IC BA3122N
IC202	XG609A00	IC BA3122N
JK201	LB101740	JACK.MNI
L201	VC664100	COIL 0.95uH
L202	VC664100	COIL 0.95uH
Q201	IA097000	TR 2SA970 GR,BL
Q202	IC224000	TR 2SC2240 GR,BL
Q203	IA097000	TR 2SA970 GR,BL
Q204	IC224000	TR 2SC2240 GR,BL
* Q205	IX632610	TR 2SA1837 O,Y

* New Parts

Schm Ref.	PART NO.	Description
* Q205	IX632620	TR 2SC4793 O,Y
* Q206	IX606460	TR 2SA1492 O,P,Y
* Q206	IX606470	TR 2SC3856 O,P,Y
* Q207	IX606460	TR 2SA1492 O,P,Y
* Q207	IX606470	TR 2SC3856 O,P,Y
* Q211	IX632610	TR 2SA1837 O,Y
* Q211	IX632620	TR 2SC4793 O,Y
* Q212	IX606460	TR 2SA1492 O,P,Y
* Q212	IX606470	TR 2SC3856 O,P,Y
* Q213	IX606460	TR 2SA1492 O,P,Y
* Q213	IX606470	TR 2SC3856 O,P,Y
* Q217	IX606460	TR 2SA1492 OPY (MX-2)
* Q217	IX606470	TR 2SC3856 OPY (MX-2)
* Q217	IX801420	TR 2SA1302 O,R (MX-1)
* Q217	IX801430	TR 2SC3281 O,R (MX-1)
* Q218	IX606460	TR 2SA1492 O,P,Y
* Q218	IX606470	TR 2SC3856 O,P,Y
* Q221	IX606460	TR 2SA1492 OPY (MX-2)
* Q221	IX606470	TR 2SC3856 OPY (MX-2)
* Q221	IX801420	TR 2SA1302 O,R (MX-1)
* Q221	IX801430	TR 2SC3281 O,R (MX-1)
* Q222	IX606460	TR 2SA1492 O,P,Y
* Q222	IX606470	TR 2SC3856 O,P,Y
* Q225	IX606460	TR 2SA1492 OPY (MX-2)
* Q225	IX606470	TR 2SC3856 OPY (MX-2)
* Q225	IX801420	TR 2SA1302 O,R (MX-1)
* Q225	IX801430	TR 2SC3281 O,R (MX-1)
* Q226	IX603580	TR 2SA1358
* Q226	IX603590	TR 2SC3421
* Q227	VE198800	TR 2SC2705 O,Y
* Q230	VE198700	TR 2SA1145 O,Y
* Q231	IX606460	TR 2SA1492 OPY (MX-2)
* Q231	IX606470	TR 2SC3856 OPY (MX-2)
* Q231	IX801420	TR 2SA1302 O,R (MX-1)
* Q231	IX801430	TR 2SC3281 O,R (MX-1)
* Q232	IX603580	TR 2SA1358
* Q232	IX603590	TR 2SC3421
* Q233	VE198800	TR 2SC2705 O,Y
* Q236	VE198700	TR 2SA1145 O,Y
* Q237	VE198700	TR 2SA1145 O,Y
* Q238	VE198800	TR 2SC2705 O,Y
* Q239	VE198700	TR 2SA1145 O,Y
* Q240	VE198800	TR 2SC2705 O,Y
* Q241	IC224030	TR 2SC2240 GR,BL
* Q242	IC224030	TR 2SC2240 GR,BL
* Q243	IC1815C0	TR 2SC1815 Y
* Q244	IA097000	TR 2SA970 GR,BL
* Q245	IA101521	TR 2SA1015 Y
* Q246	IC1815C0	TR 2SC1815 Y
* Q247	IA097000	TR 2SA970 GR,BL
* Q248	IC224030	TR 2SC2240 GR,BL
* Q249	IC224030	TR 2SC2240 GR,BL
* Q250	VL542700	TR.DGT DTA123JS

* New Parts

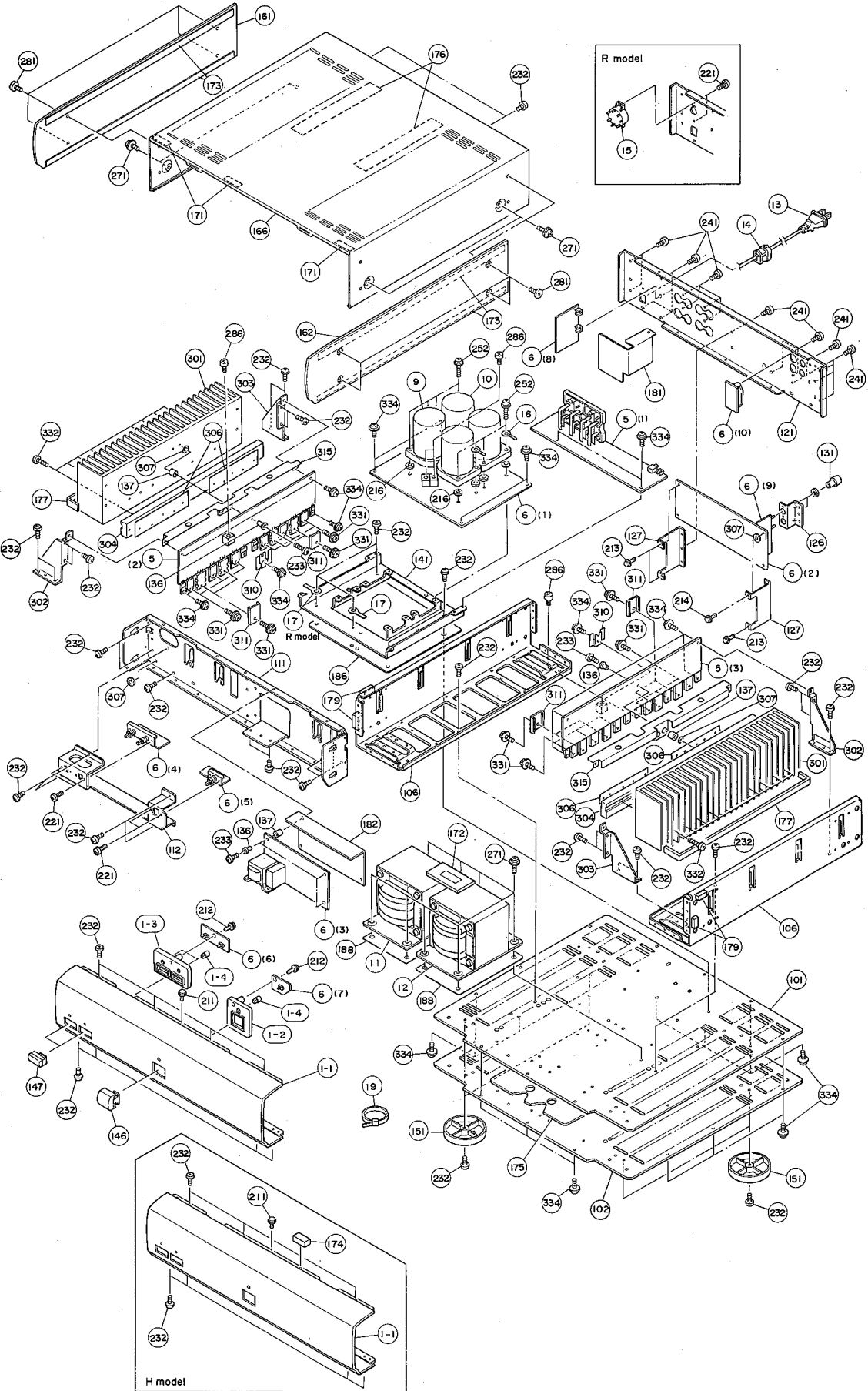
Schm Ref.	PART NO.	Description
Q251	IC224030	TR 2SC2240 GR,BL
Q252	VL542700	TR.DGT DTA123JS
R201	HL326820	R.MTL.OXD 8.2KΩ 2W
R202	HL326820	R.MTL.OXD 8.2KΩ 2W
R203	HL326820	R.MTL.OXD 8.2KΩ 2W
R204	HL326820	R.MTL.OXD 8.2KΩ 2W
* R215	HV453470	R.CAR.FP 4.7Ω 1/4W
* R216	HV453470	R.CAR.FP 4.7Ω 1/4W
* R217	HV455330	R.CAR.FP 330Ω 1/4W
* R218	VJ695500	R.WW 0.22Ωx2 5W
* R219	HV453470	R.CAR.FP 4.7Ω 1/4W
* R220	HV453470	R.CAR.FP 4.7Ω 1/4W
* R221	HV453470	R.CAR.FP 4.7Ω 1/4W
* R222	HV453470	R.CAR.FP 4.7Ω 1/4W
* R223	HV455330	R.CAR.FP 330Ω 1/4W
* R224	VJ695500	R.WW 0.22Ωx2 5W
* R225	HV453470	R.CAR.FP 4.7Ω 1/4W
* R226	HV453470	R.CAR.FP 4.7Ω 1/4W
* R227	HV453470	R.CAR.FP 4.7Ω 1/4W
* R228	VN368600	R.WW 0.1Ω 5W
* R229	VN368600	R.WW 0.1Ω 5W
* R230	HV453470	R.CAR.FP 4.7Ω 1/4W (MX-1)
* R231	HV453470	R.CAR.FP 4.7Ω 1/4W
* R232	HV456470	R.CAR.FP 4.7KΩ 1/4W (MX-2)
* R232	HV756390	R.CAR.FP 3.9KΩ 1/4W (MX-1)
* R233	VJ695500	R.WW 0.22Ωx2 5W
* R234	VJ695500	R.WW 0.22Ωx2 5W
* R235	HV456470	R.CAR.FP 4.7KΩ 1/4W (MX-2)
* R235	HV456560	R.CAR.FP 5.6KΩ 1/4W (MX-1)
* R236	HV453470	R.CAR.FP 4.7Ω 1/4W
* R237	HV453470	R.CAR.FP 4.7Ω 1/4W (MX-1)
* R238	VN368600	R.WW 0.1Ω 5W
* R239	VN368600	R.WW 0.1Ω 5W
* R240	HV453470	R.CAR.FP 4.7Ω 1/4W
* R241	HV453470	R.CAR.FP 4.7Ω 1/4W
* R242	VN368600	R.WW 0.1Ω 5W
* R243	VN368600	R.WW 0.1Ω 5W
* R244	HV453470	R.CAR.FP 4.7Ω 1/4W (MX-1)
* R245	HV453470	R.CAR.FP 4.7Ω 1/4W
* R246	HV456470	R.CAR.FP 4.7KΩ 1/4W (MX-2)
* R246	HV756390	R.CAR.FP 3.9KΩ 1/4W (MX-1)
* R247	VJ695500	R.WW 0.22Ωx2 5W
* R248	VJ695500	R.WW 0.22Ωx2 5W (MX-1)
* R249	HV456470	R.CAR.FP 4.7KΩ 1/4W (MX-2)
* R249	HV456560	R.CAR.FP 5.6KΩ 1/4W (MX-1)
* R250	HV453470	R.CAR.FP 4.7Ω 1/4W
* R251	HV453470	R.CAR.FP 4.7Ω 1/4W (MX-1)
* R252	VN368600	R.WW 0.1Ω 5W
* R253	VN368600	R.WW 0.1Ω 5W
* R254	HV453470	R.CAR.FP 4.7Ω 1/4W
* R255	HV453470	R.CAR.FP 4.7Ω 1/4W
* R256	HV454470	R.CAR.FP 47Ω 1/4W
* R257	HV456100	R.CAR.FP 1KΩ 1/4W

* New Parts

Schm Ref.	PART NO.	Description
R258	HV455220	R.CAR.FP 220Ω 1/4W
R260	HV457220	R.CAR.FP 22KΩ 1/4W
R262	HV455220	R.CAR.FP 220Ω 1/4W
* R263	HV454470	R.CAR.FP 47Ω 1/4W
* R264	HV456100	R.CAR.FP 1KΩ 1/4W
* R265	HV453470	R.CAR.FP 4.7Ω 1/4W
* R266	HV453470	R.CAR.FP 4.7Ω 1/4W
* R267	HV454470	R.CAR.FP 47Ω 1/4W
* R268	HV456100	R.CAR.FP 1KΩ 1/4W
R269	HV455220	R.CAR.FP 220Ω 1/4W
R271	HV457220	R.CAR.FP 22KΩ 1/4W
R273	HV455220	R.CAR.FP 220Ω 1/4W
* R274	HV454470	R.CAR.FP 47Ω 1/4W
* R275	HV456100	R.CAR.FP 1KΩ 1/4W
* R276	HV453470	R.CAR.FP 4.7Ω 1/4W
R277	HV456330	R.CAR.FP 3.3KΩ 1/4W
R278	HV453470	R.CAR.FP 4.7Ω 1/4W
R279	HV456330	R.CAR.FP 3.3KΩ 1/4W
R280	HV453470	R.CAR.FP 4.7Ω 1/4W
R281	HL314100	R.MTL.OXD 10Ω 1W
R282	HV453470	R.CAR.FP 4.7Ω 1/4W
R283	HV456330	R.CAR.FP 3.3KΩ 1/4W
R284	HV453470	R.CAR.FP 4.7Ω 1/4W
R285	HV456330	R.CAR.FP 3.3KΩ 1/4W
R286	HV456330	R.CAR.FP 3.3KΩ 1/4W
R287	HV453470	R.CAR.FP 4.7Ω 1/4W
R288	HV456330	R.CAR.FP 3.3KΩ 1/4W
R289	HV453470	R.CAR.FP 4.7Ω 1/4W
R290	HL314100	R.MTL.OXD 10Ω 1W
R291	HV453470	R.CAR.FP 4.7Ω 1/4W
R292	HV456330	R.CAR.FP 3.3KΩ 1/4W
R293	HV453470	R.CAR.FP 4.7Ω 1/4W
R294	HV456330	R.CAR.FP 3.3KΩ 1/4W
R305	VP939700	R.MTL.FLM 4.7Ω 1W
R307	VP939700	R.MTL.FLM 4.7Ω 1W
R318	HV453220	R.CAR.FP 2.2Ω 1/4W (W)
R319	HV453220	R.CAR.FP 2.2Ω 1/4W (W)
R322	HL325270	R.MTL.OXD 270Ω 2W
R325	HL325270	R.MTL.OXD 270Ω 2W
R330	HL314100	R.MTL.OXD 10Ω 1W
R331	HL314100	R.MTL.OXD 10Ω 1W
RY201	VK879300	RELAY DE2TU24VDC
RY202	VK879300	RELAY DE2TU24VDC
TE201	VL920100	TERM.SP 8P (MX-2:UCRABW)
TE201	VL920200	TERM.SP 8P (MX-2:H)
* TE201	VQ173400	TERM.SP 8P (MX-1:UCRABW)
* TE201	VQ173500	TERM.SP 8P (MX-1:H)
VR201	VB859800	VR.TRIM B10KΩ
VR202	VB859800	VR.TRIM B10KΩ
	VB966900	PIN IMSA-6024
	CB069250	BIND.TIE BK-1
	BB071360	SCR.TERM 8.3x13
	VN008600	SCR.TERM 8.3x13

* New Parts

MX-1 EXPLODED VIEW



MX-1 MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1-1	VP969200	FRONT PANEL		
* 1-2	VP969800	BUTTON GUIDE	PWR	
* 1-3	VP970000	BUTTON GUIDE	SP	
1-4	VH897700	LENS		
* 5	VQ129200	P.C.B. ASS'y, MAIN		(URAB)
* 5	VQ129300	P.C.B. ASS'y, MAIN		(H)
* 5	VQ129400	P.C.B. ASS'y, MAIN		(W)
* 5	VQ731100	P.C.B. ASS'y, MAIN		(C)
* 6	VQ129500	P.C.B. ASS'y, SUB		(U)
* 6	VQ129600	P.C.B. ASS'y, SUB		(C)
* 6	VQ129700	P.C.B. ASS'y, SUB		(R)
* 6	VQ129800	P.C.B. ASS'y, SUB		(ABH)
* 6	VQ458100	P.C.B. ASS'y, SUB		(W)
* 9	VQ173000	ELECTROLYTIC CAP	36000uF 40V	
* 10	VQ173100	ELECTROLYTIC CAP	33000uF 50V	
△ * 11	XM341A00	POWER TRANSFORMER		(U)
△ * 11	XM342A00	POWER TRANSFORMER		(C)
△ * 11	XM343A00	POWER TRANSFORMER		(R)
△ * 11	XM344A00	POWER TRANSFORMER		(AB)
△ * 11	XM346A00	POWER TRANSFORMER		(HW)
△ * 12	XM341A00	POWER TRANSFORMER		(U)
△ * 12	XM342A00	POWER TRANSFORMER		(C)
△ * 12	XM345A00	POWER TRANSFORMER		(AB)
△ * 12	XM347A00	POWER TRANSFORMER		(HW)
△ * 12	XM350A00	POWER TRANSFORMER		(R)
△ 13	MG002220	POWER CORD	10A 125V 2.0m	(UC)
△ 13	MG000910	POWER CORD	6A 250V 2.0m	(H)
△ 13	VK815400	POWER CORD	6A 250V	(B)
△ 13	VL948500	POWER CORD	7A 250V 2.0m	(R)
△ 13	VP417900	POWER CORD	7.5A 250V 2.0m	(A)
△ 13	VQ473900	POWER CORD	16A 2.0m	(W)
14	VD375900	CORD STOPPER	No.2271	(UCRABH)
* 14	VQ583400	CORD STOPPER	No.2272	(W)
△ 15	VA932900	VOLTAGE SELECTOR	ESE-37226	(R)
16	CB836200	BINDING TIE	S-70B	
17	CB040540	BINDING TIE	S-72B	
19	CB069250	BINDING TIE	BK-1	
* 101	VP968700	BOTTOM COVER	A	
* 102	VP968800	BOTTOM COVER	B	
* 106	VP967700	FRAME		
* 111	VP967500	SUB CHASSIS		
* 112	VP967600	SUB CHASSIS		
* 121	VP967800	REAR PANEL		(UC)
* 121	VP968000	REAR PANEL		(R)
* 121	VP968100	REAR PANEL		(AB)
* 121	VP968300	REAR PANEL		(W)
* 121	VP968400	REAR PANEL		(H)
* 126	VP970200	SUPPORT, VOL		
* 127	VQ069100	SUPPORT, P.C.B.		
131	VG078900	KNOB	Ø12	
* 136	VQ189600	BUSH	TB-307	
* 137	VQ189700	COLLAR	TA-307	
* 141	VP969000	FRAME	ELE. CAP	

* New Parts

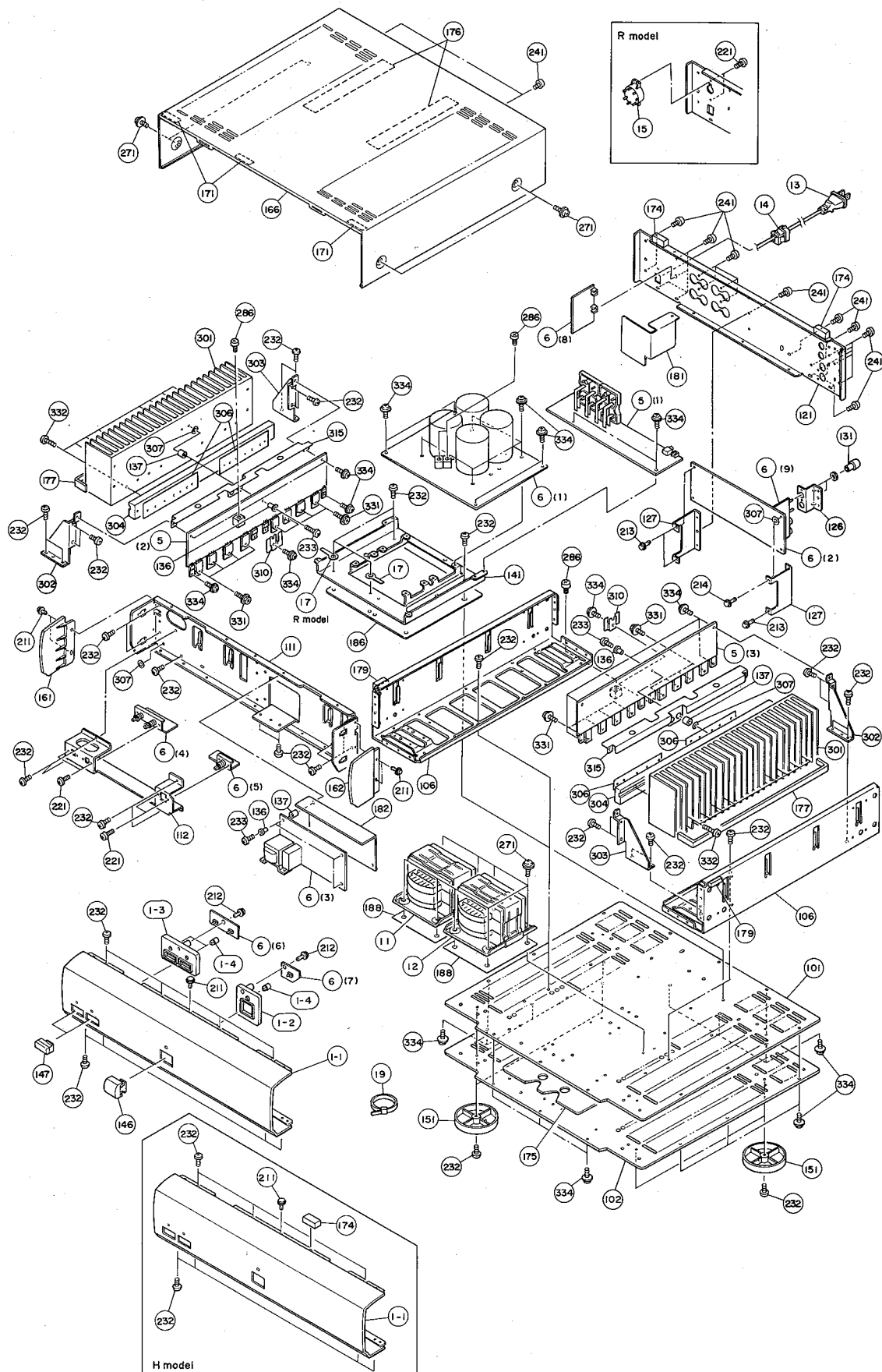
MX-1

Ref. No.	PART NO.	Description	Remarks	Markets
* 146	VP969400	BUTTON, POWER	B	POWER SPEAKERS
147	VL819700	BUTTON	10x25	
151	VK016800	LEG		
* 161	VQ162700	SIDE COVER L		
* 162	VQ162800	SIDE COVER R		
166	VQ069800	TOP COVER	B MX-1	
* 171	VQ356500	DAMPER	FRONT	
172	VK865400	DAMPER, TRANS.		
* 173	VQ188700	DAMPER	SIDE COVER	
* 174	VQ669600	SPACER		(H)
* 175	VQ188800	DAMPER	BOTTOM COVER	
176	VQ199400	DAMPER	TOP	
177	VQ357100	DAMPER	H.SINK	
179	VQ523500	DAMPER	SIDE	
181	VQ356800	SHEILD PLATE	AC MX-1	
* 182	VQ189100	SHEILD PLATE	SUB TRANS.	
186	VQ356700	SHEILD PLATE	EL.CAPACITOR	
* 188	VQ742300	SHEILD PLATE		
211	CB068880	PLASTIC RIVET	No.1027	
212	CB605620	PLASTIC RIVET	No.1781	
213	CB099600	PLASTIC RIVET	No.920	
214	CB603240	PLASTIC RIVET	No.590	
216	VQ356900	SPACER	EL.CAPACITOR	
221	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	
232	EI330086	BIND HEAD TAPPING SCREW	3x8 FCM3	
233	EP600850	BIND HEAD B-TITE SCREW	3x20 FCRM3-BL	
241	EN301010	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	
252	EL300600	BW HEAD TAPPING SCREW	3x18-10 FCRM3-BL	
271	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
281	EX601850	SPECIAL SCREW S-TITE	4x8-10 FCRM3-BL	
286	VE989500	PAN HEAD SEMS SCREW	4x5 AU	
* 301	VP970400	HEAT SINK		
* 302	VP970500	SUPPORT, HEAT SINK	L	
* 303	VP970600	SUPPORT, HEAT SINK	R	
* 304	VP970800	HEAT SINK, SUB		
* 306	VQ194200	SHEET	RADIATOR	
307	VF363400	SPACER		
* 310	VP970700	SUPPORT, TR.		
* 311	VQ587300	SUPPORT, TR.	PWR	
315	VQ357000	SHEILD PLATE	PCB	(UC)
331	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3	
* 332	EP600590	BIND HEAD B-TITE SCREW	3x12 FCRM3-BL	
334	Vi924800	BW HEAD TAPPING SCREW	3x10-8 FCM3	

* New Parts

MX-1/MX-2

■ MX-2 EXPLODED VIEW



■ MX-2 MECHANICAL PARTS

Ref. No.	PART NO.	Description	Remarks	Markets
* 1-1	VQ062600	FRONT PANEL		
* 1-2	VP969800	BUTTON GUIDE	PWR	
* 1-3	VP970000	BUTTON GUIDE	SP	
1-4	VH897700	LENS		
* 5	VQ136100	P.C.B. ASS'y, MAIN		(UCRAB)
* 5	VQ136200	P.C.B. ASS'y, MAIN		(H)
* 5	VQ136300	P.C.B. ASS'y, MAIN		(W)
* 6	VQ136400	P.C.B. ASS'y, SUB		(U)
* 6	VQ136500	P.C.B. ASS'y, SUB		(C)
* 6	VQ136600	P.C.B. ASS'y, SUB		(R)
* 6	VQ136700	P.C.B. ASS'y, SUB		(ABH)
* 6	VQ458200	P.C.B. ASS'y, SUB		(W)
△ * 11	XM348A00	POWER TRANSFORMER		(U)
△ * 11	XM349A00	POWER TRANSFORMER		(C)
△ * 11	XM351A00	POWER TRANSFORMER		(AB)
△ * 11	XM353A00	POWER TRANSFORMER		(HW)
△ * 11	XM370A00	POWER TRANSFORMER		(R)
△ * 12	XM348A00	POWER TRANSFORMER		(U)
△ * 12	XM349A00	POWER TRANSFORMER		(C)
△ * 12	XM352A00	POWER TRANSFORMER		(AB)
△ * 12	XM354A00	POWER TRANSFORMER		(HW)
△ * 12	XM371A00	POWER TRANSFORMER		(R)
△ 13	MG002220	POWER CORD	10A 125V 2.0m	(UC)
△ 13	MG002320	POWER CORD	2.5A 250V 2.0m	(HW)
△ 13	VK815400	POWER CORD	6A 250V	(B)
△ 13	VL948500	POWER CORD	7A 250V 2.0m	(R)
△ 13	VP417900	POWER CORD	7.5A 250V 2.0m	(A)
14	VD375900	CORD STOPPER	No.2271	
△ 15	VA932900	VOLTAGE SELECTOR	EGE-37226	(R)
17	CB040540	BINDING TIE	S-72B	
19	CB069250	BINDING TIE	BK-1	
* 101	VP968700	BOTTOM COVER	A	
* 102	VP968800	BOTTOM COVER	B	
* 106	VP967700	FRAME		
* 111	VP967500	SUB CHASSIS		
* 112	VP967600	SUB CHASSIS		
* 121	VP971500	REAR PANEL		(UC)
* 121	VP971700	REAR PANEL		(R)
* 121	VP971800	REAR PANEL		(ACB)
* 121	VP971900	REAR PANEL		(W)
* 121	VP972000	REAR PANEL		(H)
* 126	VP970200	SUPPORT, VOL		
* 127	VQ069100	SUPPORT, P.C.B.		
131	VG078900	KNOB	Ø12	
* 136	VQ189600	BUSH	TB-307	
* 137	VQ189700	COLLAR	TA-307	
* 141	VP969000	FRAME	ELE. CAP	
* 146	VP969400	BUTTON, POWER	B	POWER
147	VL819700	BUTTON	10x25	SPEAKERS
151	VK016800	LEG		
* 161	VP971100	SIDE COVER L	B	
* 162	VP971200	SIDE COVER R	B	
* 166	VP970900	TOP COVER		

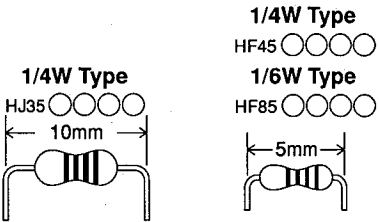
* New Parts

Ref. No.	PART NO.	Description	Remarks	Markets
* 171	VQ356500	DAMPER	FRONT	
* 174	VQ669600	SPACER		
* 175	VQ188800	DAMPER	BOTTOM COVER	
176	VQ199400	DAMPER	TOP	
177	VQ357100	DAMPER	H.SINK	
179	VQ523500	DAMPER	SIDE	
181	VQ356800	SHEILD PLATE	AC	
* 182	VQ189100	SHEILD PLATE	SUB TRANS.	
186	VQ356700	SHEILD PLATE	EL.CAPACITOR	
* 188	VQ742300	SHEILD PLATE		
211	CB068880	PLASTIC RIVET	No.1027	
212	CB605620	PLASTIC RIVET	No.1781	
213	CB099600	PLASTIC RIVET	No.920	
214	CB603240	PLASTIC RIVET	No.590	
221	ED330066	BIND HEAD SCREW	3x6 FCRM3-BL	
232	Ei330086	BIND HEAD TAPPING SCREW	3x8 FCM3	
233	EP600850	BIND HEAD B-TITE SCREW	3x20 FCRM3-BL	
241	EN301010	BIND HEAD BONDING TAP. SCREW	3x8 FCRM3-BL	
271	EL300470	BW HEAD S-TITE SCREW	4x8-10 FCRM3-BL	
286	VE989500	PAN HEAD SEMS SCREW	4x5 AU	
* 301	VQ069200	HEAT SINK		
* 302	VP970500	SUPPORT, HEAT SINK	L	
* 303	VP970600	SUPPORT, HEAT SINK	R	
* 304	VQ201300	HEAT SINK, SUB		
* 306	VQ194300	SHEET	RADIATOR	
307	VF363400	SPACER		
* 310	VP970700	SUPPORT, TR.		
315	VQ357000	SHEILD PLATE	PCB	(UC)
331	VK173200	SCREW, TRANSISTOR	3x15 SP FCM3	
332	EP600590	BIND HEAD B-TITE SCREW	3x12 FCRM3-BL	
334	Vi924800	BW HEAD TAPPING SCREW	3x10-8 FCM3	

* New Parts

Parts List for Carbon Resistors

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	HJ35 3100	HF85 3100	10 kΩ	HF45 7100	HF45 7100
1.8 Ω	HJ35 3180	*	11 kΩ	HF45 7110	HF45 7110
2.2 Ω	HJ35 3220	HF85 3220	12 kΩ	HJ35 7120	HF85 7120
3.3 Ω	HJ35 3330	HF85 3330	13 kΩ	HF45 7130	HF45 7130
4.7 Ω	HJ35 3470	HF85 3470	15 kΩ	HF45 7150	HF45 7150
5.6 Ω	HJ35 3560	HF85 3560	18 kΩ	HF45 7180	HF45 7180
10 Ω	HF45 4100	HF45 4100	22 kΩ	HF45 7220	HF45 7220
15 Ω	HJ35 4150	HF85 4150	24 kΩ	HF45 7240	HF45 7240
22 Ω	HF45 4220	HF45 4220	27 kΩ	HJ35 7270	HF85 7270
27 Ω	HJ35 4270	HF85 4270	30 kΩ	HF45 7300	HF45 7300
33 Ω	HF45 4330	HF45 4330	33 kΩ	HF45 7330	HF45 7330
39 Ω	HJ35 4470	HF85 4390	36 kΩ	HF45 7360	HF45 7360
47 Ω	HF45 4470	HF45 4470	39 kΩ	HF45 7390	HF45 7390
56 Ω	HF45 4560	HF45 4560	47 kΩ	HF45 7470	HF45 7470
68 Ω	HF45 4680	HF45 4680	51 kΩ	HF45 7510	HF45 7510
75 Ω	HF45 4750	HF45 4750	56 kΩ	HF45 7560	HF45 7560
82 Ω	HF45 4820	HF45 4820	62 kΩ	HF45 7620	HF45 7620
91 Ω	HF45 4910	HF45 4910	68 kΩ	HF45 7680	HF45 7680
100 Ω	HF45 5100	HF45 5100	82 kΩ	HF45 7820	HF45 7820
110 Ω	HJ35 5110	HF85 5110	91 kΩ	HF45 7910	HF45 7910
120 Ω	HF45 5120	HF45 5120	100 kΩ	HF45 8100	HF45 8100
150 Ω	HF45 5150	HF45 5150	110 kΩ	HF45 8110	HF45 8110
160 Ω	HJ35 5160	*	120 kΩ	HF45 8120	HF45 8120
180 Ω	HF45 5180	HF45 5180	150 kΩ	HF45 8150	HF45 8150
200 Ω	HF45 5200	HF45 5200	180 kΩ	HF45 8180	HF45 8180
220 Ω	HF45 5220	HF45 5220	220 kΩ	HJ35 8220	HF85 8220
270 Ω	HF45 5270	HF45 5270	270 kΩ	HF45 8270	HF45 8270
330 Ω	HF45 5330	HF45 5330	300 kΩ	HF45 8300	HF45 8300
390 Ω	HF45 5390	HF45 5390	330 kΩ	HF45 8330	HF45 8330
430 Ω	HF45 5430	HF45 5430	390 kΩ	HJ35 8390	HF85 8390
470 Ω	HF45 5470	HF45 5470	470 kΩ	HF45 8470	HF45 8470
510 Ω	HF45 5510	HF45 5510	560 kΩ	HJ35 8560	HF85 8560
560 Ω	HF45 5560	HF45 5560	680 kΩ	HJ35 8680	HF85 8680
680 Ω	HF45 5680	HF45 5680	820 kΩ	HJ35 8820	HF85 8820
820 Ω	HF45 5820	HF45 5820	1.0 MΩ	HF45 9100	HF45 9100
910 Ω	HF45 5910	HF45 5910	1.2 MΩ	HJ35 9120	*
1.0 kΩ	HF45 6100	HF45 6100	1.5 MΩ	HJ35 9150	HF85 9150
1.2 kΩ	HF45 6120	HF45 6120	1.8 MΩ	HJ35 9180	HF85 9180
1.5 kΩ	HF45 6150	HF45 6150	2.2 MΩ	HJ35 9220	HF85 9220
1.8 kΩ	HF45 6180	HF45 6180	3.3 MΩ	HJ35 9330	HF85 9330
2.0 kΩ	HJ35 6200	HF85 6200	3.9 MΩ	HJ35 9390	*
2.2 kΩ	HF45 6220	HF45 6220	4.7 MΩ	HJ35 9470	HF85 9470
2.4 kΩ	HJ35 6240	HF85 6240			
2.7 kΩ	HF45 6270	HF45 6270			
3.0 kΩ	HF45 6300	HF45 6300			
3.3 kΩ	HF45 6330	HF45 6330			
3.6 kΩ	HJ35 6360	HF85 6360			
3.9 kΩ	HF45 6390	HF45 6390			
4.7 kΩ	HF45 6470	HF45 6470			
5.1 kΩ	HF45 6510	HF45 6510			
5.6 kΩ	HF45 6560	HF45 6560			
6.8 kΩ	HF45 6680	HF45 6680			
8.2 kΩ	HF45 6820	HF45 6820			
9.1 kΩ	HF45 6910	HF45 6910			



MX-1/MX-2

YAMAHA