

AIWA®

S/M Code No. 85-010

DATE OF ISSUE 3/1985

SERVICE MANUAL

**STEREO INTEGRATED
AMPLIFIER**

MODEL NO.

MX-80



TYPE. HB, UB, EB, KB, GB, ZB

SPECIFICATIONS

[Power amplifier]
Effective output
power:

MX-80E, G, K, Z

30 W + 30 W (8 ohms, T.H.D.
0.9%, 40 Hz—20 kHz)

MX-80H

45 W + 45 W (8 ohms, EIAJ
5%, 1 kHz)

<FTC Rule U model only >

35 Watts per channel, Min.
RMS at 8 ohms, from 40
Hz—20 kHz, with no more than
0.2% Total Harmonic Distor-
tion.

Total harmonic
distortion:

0.03% (1 kHz)

Output bandwidth:
40 Hz to 50 kHz (less than
0.5%) [Both channels driven,
8 ohms]

Frequency response:

40 Hz to 50 kHz
(+ 0.5 / - 3 dB)

[Preamplifier]
S/N ratio:

IHF A curve short circuited

MX-80E, H, K, G, U

PHONO (MM) 80 dB

TUNER, AUX, TAPE 82 dB

MX-80Z

PHONO (MM) 75 dB

TUNER, AUX, TAPE 82 dB

Input jacks
(Sensitivity/
input impedance):

PHONO (MM)

3 mV/47 kohms

TUNER, AUX, TAPE

150 mV/47 kohms

CD

316 mV/27 kohms

MIC

1 mV/10 kohms

PHONO
overload level:

60 mV (MM)
[1 kHz, THD 0.2%]

Output jacks
(Level/output
impedance):

TAPE 130 mV/47 kohms

Headphones 8 ohms

Speakers 8 ohms

± 0.5 dB (30 Hz to 15 kHz)

RIAA deviation:

[Common]

Power requirements:

MX-80U

AC 120V, 60 Hz

MX-80G, K

AC 240V, 50/60 Hz

MX-80E, Z

AC 220V, 50/60 Hz

MX-80H

AC 120V/220V/240V

switchable, 50/60 Hz

MX-80E, K, G, Z

145 W

MX-80U

65 W

MX-80H

62 W

Dimensions:

Weight:

330 (W) × 71 (H) × 200 (D)mm

3.5 kg

- Design and specifications are subject to change without notice.

ELECTRICAL MAIN PARTS LIST (MX-80)

- +++ mark denotes a component of assembled part which part code is represented by a previously stated component.
- * -mark means less required items and availabilities may be limited.

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
=== IC ===					
	87-020-291	IC,BA3812L	D14	87-020-401	DIODE,1SS176
	87-020-131	IC,LB1433	D15	87-020-401	DIODE,1SS176
	87-027-895	IC,M5218L	D16	87-020-401	DIODE,1SS176
	87-027-925	IC,M5220	D17	87-020-401	DIODE,1SS176
	87-020-145	IC,M54563	D18	87-020-401	DIODE,1SS176
	87-027-986	IC,NJM4560	D20	87-020-364	DIODE,ZENER HZ-283
	87-027-978	IC,TC9152P	D21	87-020-401	DIODE,1SS176
	87-027-897	IC,UPC1225H	D22	87-020-401	DIODE,1SS176
	87-027-787	IC,UPC1237H	D23	87-020-401	DIODE,1SS176
	87-027-554	IC,UPD4066	D24	87-020-401	DIODE,1SS176
			D25	87-027-431	DIODE,ZENER RD-6.2E
			D61	87-020-401	DIODE,1SS176
=== TRANSISTOR ===					
	89-110-155	TRANSISTOR,2SA1015,GR	D62	87-020-401	DIODE,1SS176
	89-206-882	TRANSISTOR,2SB688	D63	87-020-401	DIODE,1SS176
	89-210-153	TRANSISTOR,2SB1015	D64	87-020-401	DIODE,1SS176
	89-318-155	TRANSISTOR,2SC1815,GR	D65	87-020-401	DIODE,1SS176
	89-320-011	TRANSISTOR,2SC2001K	D66	87-020-401	DIODE,1SS176
	89-309-456	TRANSISTOR,2SC945L,P	D92	87-020-400	DIODE,1SR35-200
	89-414-063	TRANSISTOR,2SD1406,OY	D93	87-020-400	DIODE,1SR35-200
	89-407-182	TRANSISTOR,2SD718	D94	87-020-400	DIODE,1SR35-200
=== MAIN CIRCUIT BOARD SECTION ===					
PCB-A	*	MAIN CIRCUIT BOARD	D96	87-020-401	DIODE,1SS176
C1	* 87-018-036	CAP,CERA-SOL S 220P	D97	87-020-401	DIODE,1SS176
C2	* 87-018-036	CAP,CERA-SOL S 220P	D102	87-020-401	DIODE,1SS176
C5	* 87-018-024	CAP,CERA-SOL S 47P	D103	87-027-475	DIODE,ZENER HZ-681
C6	* 87-018-024	CAP,CERA-SOL S 47P	D105	87-020-401	DIODE,1SS176
C7	* 88-333-320	CAP,ELECT 330-10V	D107	87-020-401	DIODE,1SS176
C8	* 88-333-320	CAP,ELECT 330-10V	D108	87-027-509	DIODE,ZENER HZ12B3T2
C51	* 87-018-044	CAP,CERA-SOL S 1000P	D109	87-027-475	DIODE,ZENER HZ-681
C53	* 87-018-042	CAP,CERA-SOL S 680P	D111	87-020-144	DIODE,DBA4DC
C59	* 87-018-032	CAP,CERA-SOL S 100P	D121	87-020-401	DIODE,1SS176
C60	* 87-018-032	CAP,CERA-SOL S 100P	D220	87-020-401	DIODE,1SS176
C113	* 87-018-041	CAP,CERA-SOL S 560P	J1	* 81-740-630	JACK,ASSY (VIDEO SYNC)
C114	* 87-018-041	CAP,CERA-SOL S 560P	J2	+++	JACK,ASSY (CD SYNC)
C117	* 87-018-012	CAP,CERA-SOL S 15P	J3	+++	JACK,ASSY (TUNER)
C118	* 87-018-012	CAP,CERA-SOL S 15P	J4	+++	JACK,ASSY (CONTROL)
C202	* 87-018-044	CAP,CERA-SOL S 1000P	J5	+++	JACK,ASSY (REC/PLAY)
C203	* 87-015-450	CAP,ELECT 220-25V 8P	J6	+++	JACK,ASSY (PLAYER SYNC)
C216	* 87-010-254	CAP,ELECT 6800-50	J7	* 87-049-420	PIN JACK 4P-14 (REC OUT)
C301	* 87-012-110	CAP,BEAD 270P (Z ONLY)	J8	+++	PIN JACK 4P-14 (AUX,AV)
C302	* 87-012-110	CAP,BEAD 270P (Z ONLY)	J9	* 87-049-450	PIN JACK,4P (CD)
C303	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	J10	+++	PIN JACK,4P (PHONO)
C304	* 87-018-024	CAP,CERA-SOL S 47P (Z ONLY)	J13	82-675-661	JACK 6.3 (PHONES,MIC)
C305	* 87-018-024	CAP,CERA-SOL S 47P (Z ONLY)	PTH1	87-026-221	POSISTOR,61-AR 4.7
C306	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R189	* 87-025-393	RES,CEMENT,2W-0.22
C307	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R190	* 87-025-393	RES,CEMENT,2W-0.22
C308	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R197	* 87-025-393	RES,CEMENT,2W-0.22
C309	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R198	* 87-025-393	RES,CEMENT,2W-0.22
C310	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R253	* 87-025-154	RES,MF,1W-270
D1	87-020-401	DIODE,1SS176	R254	* 87-025-154	RES,MF,1W-270
D2	87-027-225	DIODE,ZENER 05Z-5.1 (TP)	R303	* 87-029-066	RES,FUSIBLE,1/2W-1.5
D3	87-020-401	DIODE,1SS176	R304	* 87-029-387	RES,FUSIBLE,1W-15
D4	87-027-393	DIODE,ZENER HZ4C2	R307	* 87-029-019	RES,FUSIBLE,1/2W-1.5
D5	87-020-401	DIODE,1SS176	R312	* 87-025-395	RES,MFO,2W-1.8K
D6	87-020-401	DIODE,1SS176	RY1	* 87-045-201	RELAY G2R 12V
D7	87-020-401	DIODE,1SS176	SW1	81-740-625	PUSH SW 3KEYS (REC OUT,GRAPHIC)
D8	87-020-401	DIODE,1SS176	SW2	+++	PUSH SW 3KEYS (MUTING)
D9	87-020-401	DIODE,1SS176	SW3	+++	PUSH SW 3KEYS (DSL)
D10	87-020-401	DIODE,1SS176	TH1	* 82-304-722	THERMISTOR,42D26
D11	87-020-401	DIODE,1SS176	TH2	* 82-304-722	THERMISTOR,42D26
D12	87-020-401	DIODE,1SS176	VR1	87-021-921	VOLUME 10KB (MIC VOLUME)
D13	87-020-401	DIODE,1SS176	VR5	87-021-922	VOLUME 50KW (BALANCE)

CAPACITORS COILS FUSE
No mark, U, UF: μ F MMH: mH MMA: mA
P, PF : pF UH : μ H

Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
=== CONNECT CIRCUIT BOARD SECTION ===					
PCB-B	*	CONNECT CIRCUIT BOARD			
J12	82-788-624	SP TERMINAL 4P (SPEAKERS)			
R251	* 87-029-083	RES,FUSIBLE 1/2W-10	VR19	87-021-898	SLIDE VR 100KB (GEQ.2.5KHZ)
R252	* 87-029-083	RES,FUSIBLE 1/2W-10	VR20	87-021-898	SLIDE VR 100KB (GEQ.6.3KHZ)
			VR21	87-021-898	SLIDE VR 100KB (GEQ.15KHZ)
=== JACK CIRCUIT BOARD SECTION ===					
PCB-C	*	JACK CIRCUIT BOARD			
J14	87-049-352	JACK 6.3 W/SW (HEAD PHONE)			
=== FRONT CIRCUIT BOARD SECTION ===					
PCB-D	81-740-620	FRONT CIRCUIT BOARD			
C130	* 87-015-698	CAP,ELECT 4.7-50V	PCB-E	*	POWER CIRCUIT BOARD
C141	* 87-015-696	CAP,ELECT 2.2-50		* 82-304-743	1P TERMINAL
C142	* 87-015-696	CAP,ELECT 2.2-50		* 87-033-147	FUSE CLAMP
			F1	87-035-302	FUSE 3.15A (U ONLY)
C145	* 87-015-431	CAP,AL 0.68-25	F1	87-035-224	FUSE 1.6AT (E,K,G,Z ONLY)
C146	* 87-015-431	CAP,AL 0.68-25			
C155	* 87-018-127	CAP,CERA-SOL SS 470P			
C156	* 87-018-127	CAP,CERA-SOL SS 470P			
C159	* 87-018-036	CAP,CERA-SOL S 220P			
C160	* 87-018-036	CAP,CERA-SOL S 220P			
C161	* 87-015-698	CAP,ELECT 4.7-50V			
C162	* 87-015-698	CAP,ELECT 4.7-50V			
C169	* 87-018-127	CAP,CERA-SOL SS 470P			
C170	* 87-018-127	CAP,CERA-SOL SS 470P			
C171	* 87-015-679	CAP,ELECT 33-10V			
C172	* 87-015-679	CAP,ELECT 33-10V			
C173	* 87-015-698	CAP,ELECT 4.7-50V			
C174	* 87-015-698	CAP,ELECT 4.7-50V			
C175	* 87-015-698	CAP,ELECT 4.7-50V			
C177	* 87-015-692	CAP,ELECT 0.22-50V			
C178	* 87-015-692	CAP,ELECT 0.22-50V			
D35	* 87-027-889	LED,LN342GP (TUNER)			
D36	* 87-027-889	LED,LN342GP (AUX)			
D37	* 87-027-889	LED,LN342GP (PHONE)			
D38	* 87-027-889	LED,LN342GP (CD)			
D39	* 87-027-889	LED,LN342GP (TAPE)			
D40	* 87-020-393	LED,TLR-206RPH (REC OUT)			
D41	* 87-020-393	LED,TLR-206RPH (DSL)			
D42	* 87-020-393	LED,TLR-206RPH (MUTING)			
D43	87-020-401	DIODE,1SS176			
D44	87-020-401	DIODE,1SS176			
D45	87-020-401	DIODE,1SS176			
D46	87-020-401	DIODE,1SS176			
D47	87-020-401	DIODE,1SS176			
D70	87-020-401	DIODE,1SS176			
D71	* 87-020-425	LED,LN224RPH (POWER IND1)			
D72	* 87-020-425	LED,LN224RPH (POWER IND1)			
D73	* 87-020-425	LED,LN224RPH (POWER IND1)			
D74	* 87-020-425	LED,LN224RPH (POWER IND1)			
D75	* 87-020-425	LED,LN224RPH (POWER IND1)			
D76	* 87-020-426	LED,LN324GPRH (POWER IND1)			
SW10	87-031-897	PUSH SW,SEA (POWER STANDBY)			
SW17	87-031-771	TACT SW EVQ-QSK04M (TAPE)			
SW18	87-031-771	TACT SW EVQ-QSK04M (PHONE)			
SW19	87-031-771	TACT SW EVQ-QSK04M (TUNER)			
SW20	87-031-771	TACT SW EVQ-QSK04M (AUX)			
SW21	87-031-771	TACT SW EVQ-QSK04M (CD)			
VR10	87-021-874	SLIDE VR 100K-D (VOLUME)			
VR15	87-021-898	SLIDE VR 100KB (GEQ.40HZ)			
VR16	87-021-898	SLIDE VR 100KB (GEQ.125HZ)			
VR17	87-021-898	SLIDE VR 100KB (GEQ.330HZ)			
VR18	87-021-898	SLIDE VR 100KB (GEQ.1KHZ)			

Note; Combination Circuit Board

The parts on the electrical parts list which are indicated by an asterisk (*) are supplied as one single combined circuit board. Therefore, they will no be supplied separately. If this becomes necessary, please order the entire circuit board.

Combination Circuit Board 81-740-610

PCB-A 81-740-611

PCB-B 81-740-612

PCB-C 81-740-613

PCB-E 81-740-614

PCB-F 81-740-615



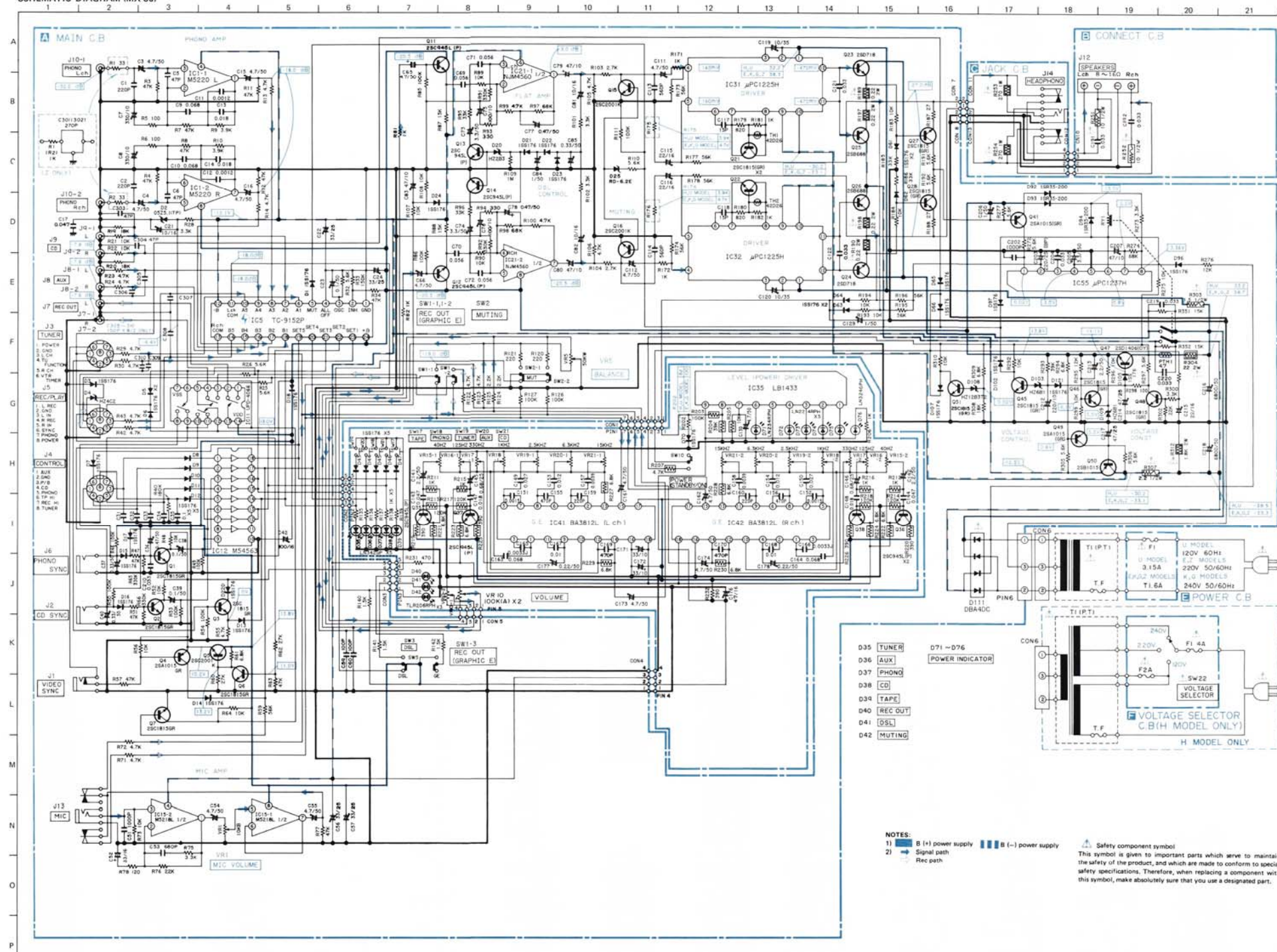
Safety component symbol

This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications. Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.

C-MOS IC handling precaution

The C-MOS IC's construction makes this part susceptible to damage by static electricity and so take sufficient care in regard to following articles.

1. Need to be put on conductive sheet, to be put in a metallic box and to be wrapped by aluminium foil for transportation and deposit.
2. To use solder iron less than 40W (less than 260°C) of power consumption for soldering. But do not overheat more than 10 second.
3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.
4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ().

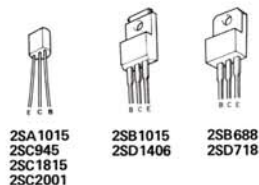




NOTES:

- 1) The voltage is the reference value measured with a tester (20 k-ohms/V DC) when there are no signals.
- 2) Resistors with no designation have a rated power of 1/8W and a tolerance of ±5%.
- 3) Capacitors with no designation have a dielectric strength of less than 50V.
- 4) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
- 5) Ceramic capacitor symbols:
—H—: High dielectric constant system (YV)
—H—: High dielectric constant system (YV, YP, YZ)
—H—: Semiconductor ceramic
- 6) Explanation of symbols
—H—: Mylar capacitor
—H—: Aluminum solid capacitor
—H—: Polypropylene film capacitor
—H—: Bi-polarized capacitor
—H—: Printed resistor
—H—: Fuse resistor
—H—: Nonflammable resistor

⚠ Safety component symbol
This symbol is given to important parts which serve to maintain the safety of the product, and which are made to conform to special safety specifications.
Therefore, when replacing a component with this symbol, make absolutely sure that you use a designated part.
• This schematic diagram is subject to change without notice in the interests of improved performance.

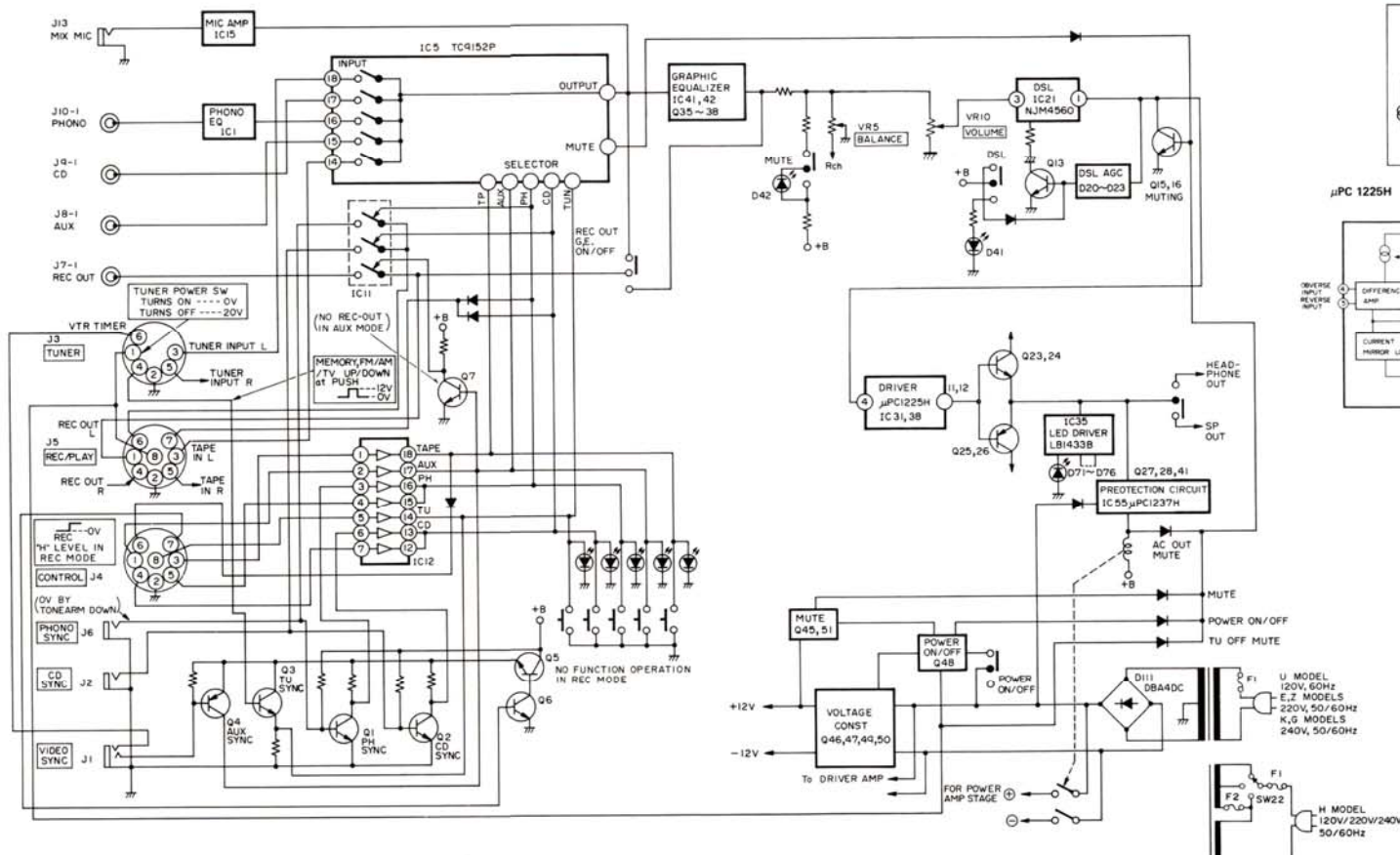


BLOCK DIAGRAM

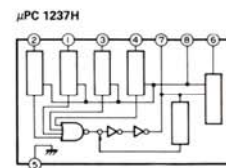
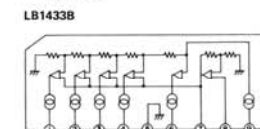
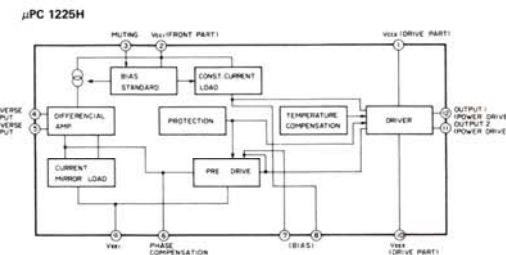
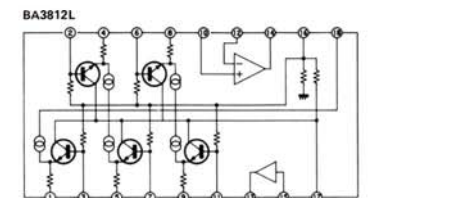
TUNER JACK	
1	POWER CONTROL INPUT
2	GND
3	TU INPUT (L)
4	TU FUNCTION SELECTOR INPUT
5	TU INPUT (R)
6	VTR TIMER CONTROL INPUT
7	—
8	—

REC / PLAY JACK	
1	REC OUT (L)
2	GND
3	PB IN (L)
4	REC OUT (R)
5	PB IN (R)
6	PHONO SYNC
7	"H" INPUT IN PHONO MODE
8	POWER CONTROL

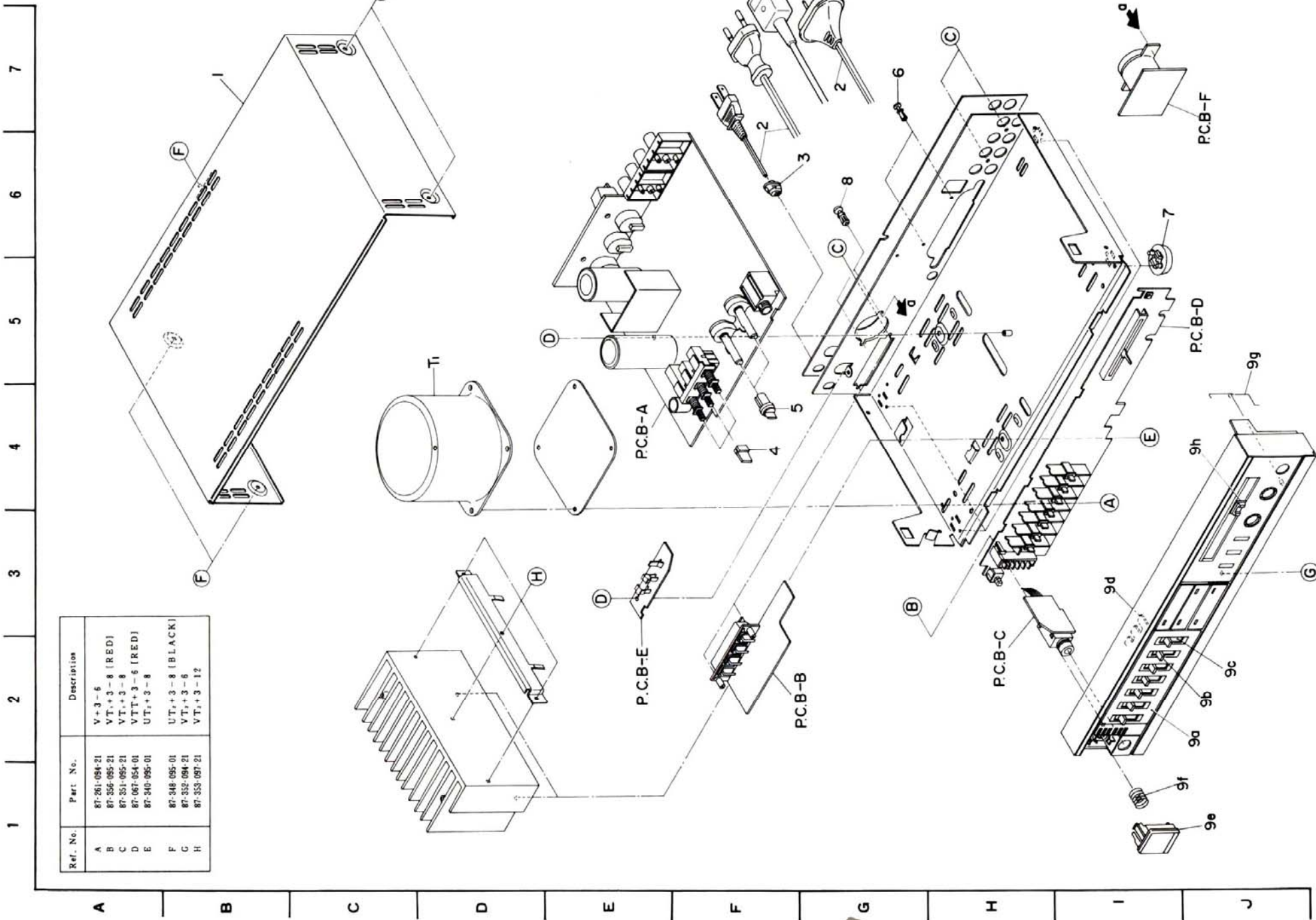
CONTROL JACK	
1	AUX REC INPUT
2	GND
3	TAPE FB (START) INPUT
4	CD REC INPUT
5	PHONO REC INPUT
6	"H" OUTPUT IN FUNCTION (TAPE)
7	"H" OUTPUT IN REC MODE
8	TU REC INPUT



IC BLOCK DIAGRAM



EXPLODED VIEW



PARTS LIST

MECHANICAL PARTS

●※ mark in this part list stows exclusive part.
●★ mark means less required items and availabilities may be limited.

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1	★81-740-049	STEEL CABINET A B		1
	2	★87-034-992	AC POWER CORD (H only)		1
		★87-034-935	AC POWER CORD (U only)		1
		★82-788-674	AC POWER CORD (E, Z only)	MX-100	1
		★82-788-673	AC POWER CORD (K only)	MX-100	1
		★87-034-892	AC POWER CORD (G only)		1
	3	★87-085-184	CORD BUSHING (H, U only)		1
	4	★87-085-185	CORD BUSHING (E, K, G, Z only)		1
	5	★82-798-023	PUSH-BUTTON, MUT	MX-90	3
	6	82-192-040	KNOB B	FX-30	2
	7	★87-085-102	NYLON RIVET 3.5-5.5		2
	8	★87-055-057	FOOT B		4
		★87-085-090	NYLON RIVET 3-6.5 (H only)		2
	9	★81-741-008	FRONT CABINET Ass'y	※	1
	9 a	★81-740-007	PLATE G		1
	9 b	★81-740-020	KNOB G		7
	9 c	★81-740-021	SHEET G		7
	9 d	★81-740-022	GUIDE G		1
	9 e	★81-740-050	PUSH-KEY POWER B Ass'y		1
	9 f	★81-740-208	C-SPRING, POWER		1
	9 g	★81-740-211	T-SPRING, A		1
	9 h	★82-798-015	KNOB, VOLUME	MX-90	1

■ ACCESSORIES / PACKAGE LIST

Part No. changed to	Ref. No.	Part No.	Description	Common Model	Q'ty
	1	★81-741-901	INSTRUCTION BOOKLET	※	1

AIWA Co., Ltd. Tokyo Japan