

# AIWA®

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# 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:

330(W) × 71(H) × 200(D)mm

Weight:

3.5 kg

- Design and specifications are subject to change without notice.



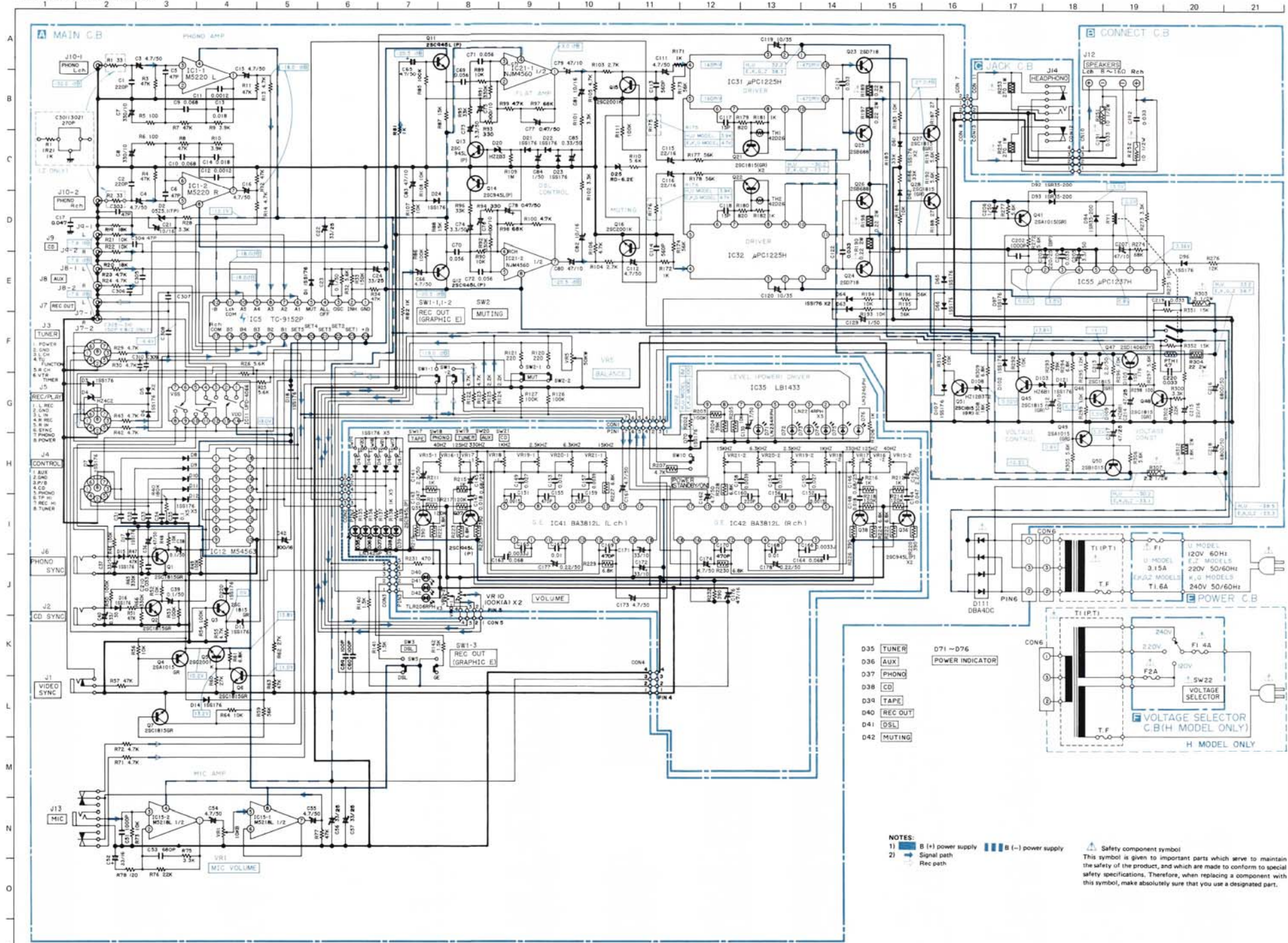
# ELECTRICAL MAIN PARTS LIST (MX-80)

- +++ 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
4	87-027-897	IC,UJC1225H	D22	87-020-401	DIODE,1SS176
	87-027-787	IC,UJC1237H	D23	87-020-401	DIODE,1SS176
	87-027-554	IC,UJPD4066	D24	87-020-401	DIODE,1SS176
			D25	87-027-431	DIODE,ZENER RD-6-2E
			D61	87-020-401	DIODE,1SS176
=== TRANSISTOR ===					
	89-1110-155	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					
C1	* 87-018-036	CAP,CERA-SOL S 220P	D105	87-020-401	DIODE,1SS176
C2	* 87-018-036	CAP,CERA-SOL S 220P	D107	87-020-401	DIODE,1SS176
C5	* 87-018-024	CAP,CERA-SOL S 47P	D108	87-027-509	DIODE,ZENER HZ1283T2
C6	* 87-018-024	CAP,CERA-SOL S 47P	D109	87-027-475	DIODE,ZENER HZ-681
C7	* 88-333-320	CAP,ELECT 330-10V	D111	87-020-144	DIODE,DBA4DC
C8	* 88-333-320	CAP,ELECT 330-10V	D121	87-020-401	DIODE,1SS176
C51	* 87-018-044	CAP,CERA-SOL S 1000P	D220	87-020-401	DIODE,1SS176
C53	* 87-018-042	CAP,CERA-SOL S 680P	J1	* 81-740-630	JACK,ASSY (VIDEO SYNC)
C59	* 87-018-032	CAP,CERA-SOL S 100P	J2	+++	JACK,ASSY (CD SYNC)
C60	* 87-018-032	CAP,CERA-SOL S 100P	J3	+++	JACK,ASSY (TUNER)
C113	* 87-018-041	CAP,CERA-SOL S 560P	J4	+++	JACK,ASSY (CONTROL)
C114	* 87-018-041	CAP,CERA-SOL S 560P	J5	+++	JACK,ASSY (REC/PLAY)
C117	* 87-018-012	CAP,CERA-SOL S 15P	J6	+++	JACK,ASSY (PLAYER SYNC)
C118	* 87-018-012	CAP,CERA-SOL S 15P	J7	* 87-049-420	PIN JACK 4P-14 (REC OUT)
C202	* 87-018-044	CAP,CERA-SOL S 1000P	J8	+++	PIN JACK 4P-14 (AUX,AV)
C203	* 87-015-450	CAP,ELECT 220-25V 8P	J9	* 87-049-450	PIN JACK,4P (CD)
C216	* 87-010-254	CAP,ELECT 6800-50	J10	+++	PIN JACK,4P (PHONO)
C218	* 87-010-254	CAP,ELECT 6800-50	J13	82-675-661	JACK 6.3 (PHONES,MIC)
C301	* 87-012-110	CAP,BEAD 270P (Z ONLY)	PTH1	87-026-221	POSITION,61-AR 4.7
C302	* 87-012-110	CAP,BEAD 270P (Z ONLY)	R189	* 87-025-393	RES,CEMENT,2W-0.22
C303	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R190	* 87-025-393	RES,CEMENT,2W-0.22
C304	* 87-018-024	CAP,CERA-SOL S 47P (Z ONLY)	R197	* 87-025-393	RES,CEMENT,2W-0.22
C305	* 87-018-024	CAP,CERA-SOL S 47P (Z ONLY)	R198	* 87-025-393	RES,CEMENT,2W-0.22
C306	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R253	* 87-025-154	RES,MF,1W-270
C307	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R254	* 87-025-154	RES,MF,1W-270
C308	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R303	* 87-029-066	RES,FUSIBLE,1/2W-1.5
C309	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R304	* 87-029-387	RES,FUSIBLE,1W-15
D1	* 87-018-121	CAP,CERA-SOL S 150P (Z ONLY)	R307	* 87-029-019	RES,FUSIBLE,1/2W-1.5
D2	87-027-225	DIODE,ZENER 05Z-5.1 (TP)	R312	* 87-025-395	RES,MFO,2W-1.8K
D3	87-020-401	DIODE,1SS176	RY1	* 87-045-201	RELAY G2R 12V
D4	87-027-393	DIODE,ZENER HZ4C2	SW1	81-740-625	PUSH SW 3KEYS (REC OUT,GRAPHIC)
D5	87-020-401	DIODE,1SS176	SW2	+++	PUSH SW 3KEYS (MUTING)
D6	87-020-401	DIODE,1SS176	SW3	+++	PUSH SW 3KEYS (DSL)
D7	87-020-401	DIODE,1SS176	TH1	* 82-304-722	THERMISTOR,42D26
D8	87-020-401	DIODE,1SS176	TH2	* 82-304-722	THERMISTOR,42D26
D9	87-020-401	DIODE,1SS176	VR1	87-021-921	VOLUME 10KB (MIC VOLUME)
D10	87-020-401	DIODE,1SS176	VR5	87-021-922	VOLUME 50KW (BALANCE)
D11	87-020-401	DIODE,1SS176			
D12	87-020-401	DIODE,1SS176			
D13	87-020-401	DIODE,1SS176			

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

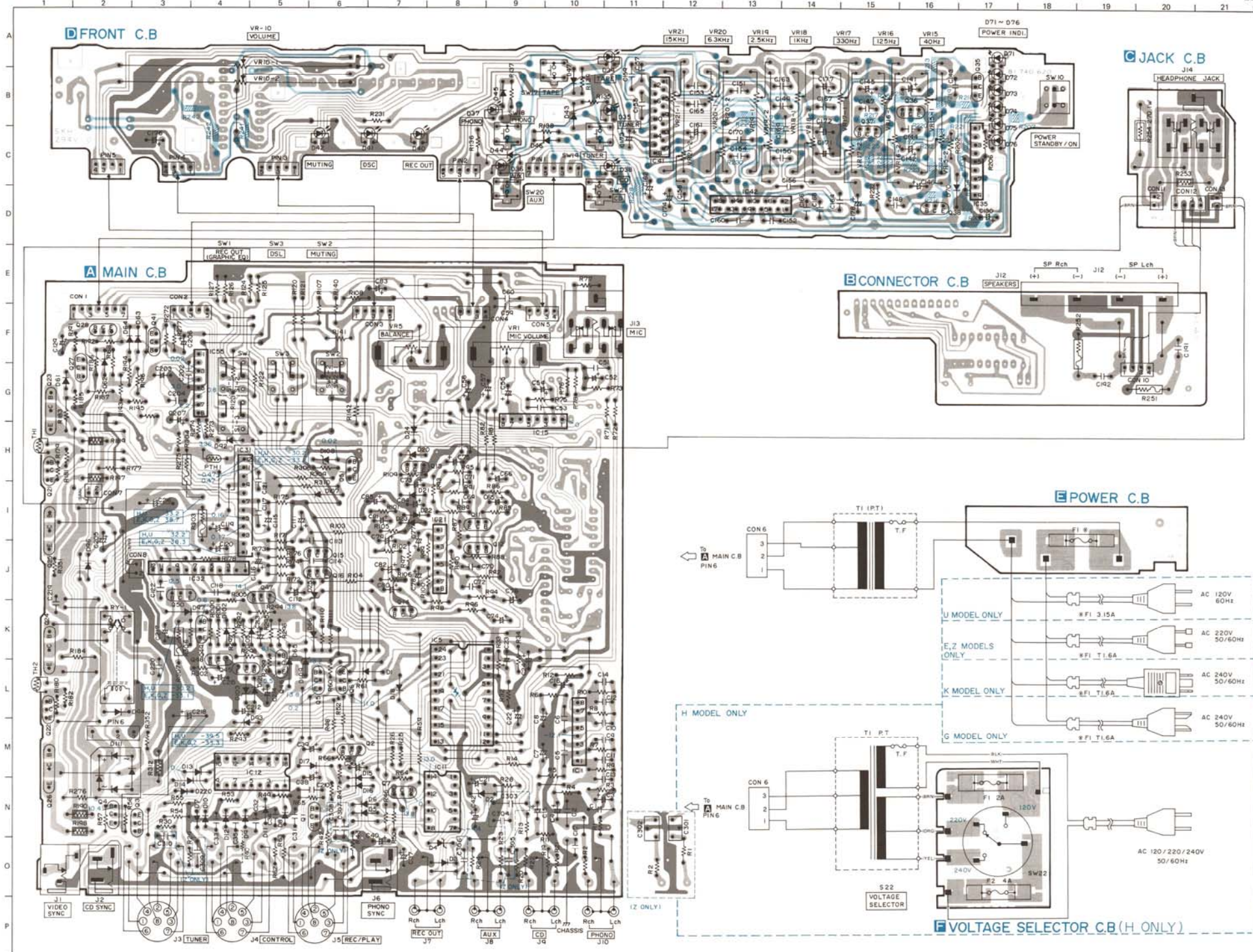
Ref. No.	Part No.	Description	Ref. No.	Part No.	Description
=== CONNECT CIRCUIT BOARD SECTION ===					
PCB-B	*	CONNECT CIRCUIT BOARD	VR19	87-021-898	SLIDE VR 100KB (GEQ.2.5KHZ)
J12	82-788-624	SP TERMINAL 4P (SPEAKERS)	VR20	87-021-898	SLIDE VR 100KB (GEQ.6.3KHZ)
R251	* 87-029-083	RES,FUSIBLE 1/2W-10	VR21	87-021-898	SLIDE VR 100KB (GEQ.15KHZ)
R252	* 87-029-083	RES,FUSIBLE 1/2W-10	=== POWER CIRCUIT BOARD SECTION ===		
=== JACK CIRCUIT BOARD SECTION ===					
PCB-C	*	JACK CIRCUIT BOARD	$\Delta$ PCB-E	*	POWER CIRCUIT BOARD
J14	87-049-352	JACK 6.3 W/SW (HEAD PHONE)	1	* 82-304-743	1P TERMINAL
=== FRONT CIRCUIT BOARD SECTION ===					
PCB-D	81-740-620	FRONT CIRCUIT BOARD	PCB-F	*	VOLTAGE SELECTOR CIRCUIT BOARD
C130	* 87-015-698	CAP,ELECT 4.7-50V	1	SW22	ROTARY SW (VOLTAGE SELECTOR)
C141	* 87-015-696	CAP,ELECT 2.2-50	1	F1	FUSE,4A
C142	* 87-015-696	CAP,ELECT 2.2-50	1	F2	FUSE,2A
C145	* 87-015-431	CAP,AL 0.68-25	=== MISCELLANEOUS ===		
C146	* 87-015-431	CAP,AL 0.68-25	1	87-034-992	AC CORD H (H ONLY)
C155	* 87-018-127	CAP,CERA-SOL SS 470P	1	87-034-578	AC CORD U (U ONLY)
C156	* 87-018-127	CAP,CERA-SOL SS 470P	1	82-788-674	AC CORD E (E,Z ONLY)
C159	* 87-018-036	CAP,CERA-SOL S 220P	1	82-034-706	AC CORD K (K ONLY)
C160	* 87-018-036	CAP,CERA-SOL S 220P	1	87-034-892	AC CORD G (G ONLY)
C161	* 87-015-698	CAP,ELECT 4.7-50V	1	87-085-184	AC CORD BUSHING D (H,U ONLY)
C162	* 87-015-698	CAP,ELECT 4.7-50V	1	87-085-185	AC CORD BUSHING E (E,K,G,Z ONLY)
C169	* 87-018-127	CAP,CERA-SOL SS 470P	1	81-740-606	POWER TRANSFORMER (H ONLY)
C170	* 87-018-127	CAP,CERA-SOL SS 470P	1	81-740-607	POWER TRANSFORMER (U ONLY)
C171	* 87-015-679	CAP,ELECT 33-10V	1	87-740-608	POWER TRANSFORMER (E,Z ONLY)
C172	* 87-015-679	CAP,ELECT 33-10V	1	81-740-609	POWER TRANSFORMER (K,G ONLY)
C173	* 87-015-698	CAP,ELECT 4.7-50V	Note; Combination Circuit Board		
C174	* 87-015-698	CAP,ELECT 4.7-50V	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.		
C175	* 87-015-698	CAP,ELECT 4.7-50V	Combination Circuit Board 81-740-610		
C177	* 87-015-692	CAP,ELECT 0.22-50V	PCB-A	81-740-611	
C178	* 87-015-692	CAP,ELECT 0.22-50V	PCB-B	81-740-612	
D35	* 87-027-889	LED,LN342GP (TUNER)	PCB-C	81-740-613	
D36	* 87-027-889	LED,LN342GP (AUX)	PCB-E	81-740-614	
D37	* 87-027-889	LED,LN342GP (PHONE)	PCB-F	81-740-615	
D38	* 87-027-889	LED,LN342GP (CD)	$\Delta$ Safety component symbol		
D39	* 87-027-889	LED,LN342GP (TAPE)	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.		
D40	* 87-020-393	LED,TLR-206RPH (REC OUT)	C-MOS IC handling precaution		
D41	* 87-020-393	LED,TLR-206RPH (DSL)	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.		
D42	* 87-020-393	LED,TLR-206RPH (MUTTING)	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.		
D43	87-020-401	DIODE,1SS176	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.		
D44	87-020-401	DIODE,1SS176	3. Do not perform a conductivity test with a tester, etc. Refer to the circuit voltages of each part.		
D45	87-020-401	DIODE,1SS176	4. The ICs on the electrical parts which are indicated by an C-MOS IC symbol mark ( $\Delta$ ).		
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 INDI)			
D72	* 87-020-425	LED,LN224RPH (POWER INDI)			
D73	* 87-020-425	LED,LN224RPH (POWER INDI)			
D74	* 87-020-425	LED,LN224RPH (POWER INDI)			
D75	* 87-020-425	LED,LN224RPH (POWER INDI)			
D76	* 87-020-426	LED,LN324GPRH (POWER INDI)			
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)			



- D35 TUNER
- D36 AUX
- D37 PHONO
- D38 CD
- D39 TAPE
- D40 REC OUT
- D41 SSL
- D42 MUTING

NOTES:  
 1) B (+) power supply  
 2) Signal path  
 - Rec path

**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.



FRONT C.B

JACK C.B

MAIN C.B

CONNECTOR C.B

POWER C.B

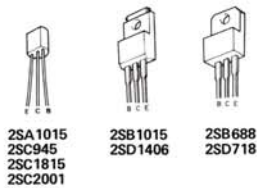
VOLTAGE SELECTOR C.B (H. ONLY)

**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 50WV.
- 4) The only capacitor tolerance indicated are ±5% (J) and ±10% (K).
- 5) Ceramic capacitor symbols:  
 —||— High dielectric constant system (YY)  
 —|— High dielectric constant system (YW, YP, YZ)  
 —|— Semiconductor ceramic
- 6) Explanation of symbols  
 ○ Mylar capacitor  
 △ Aluminum solid capacitor  
 ▽ Polypropylene film capacitor  
 □ Bi-polarized capacitor  
 □ Printed resistor  
 □ Fuse resistor  
 □ 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.

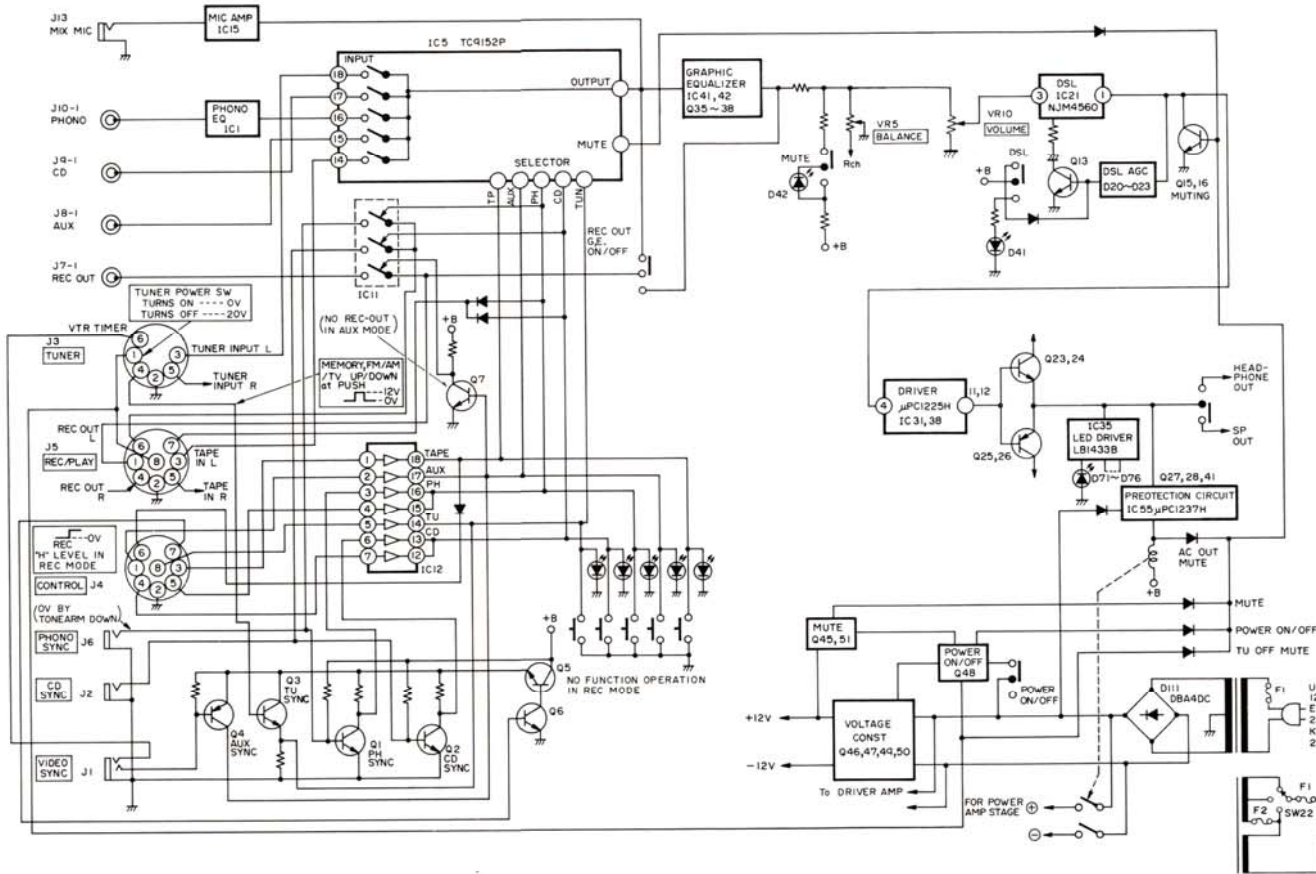


**BLOCK DIAGRAM**

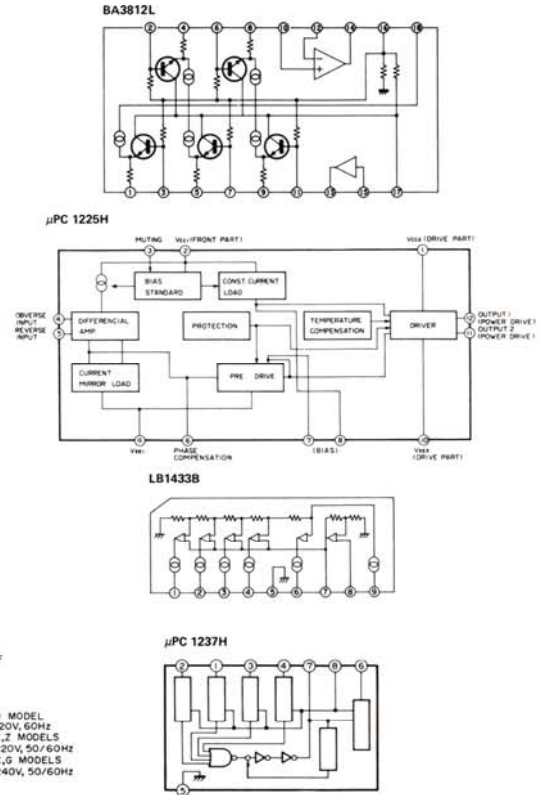
TUNER JACK	
1	POWER CONTROL INPUT
2	GND
3	TU INPUT (L)
4	TU FUNCTION SELECTOR INPUT
5	TU INPUT (R)
6	VTR TIMER CONTROL INPUT
7	—
8	—

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

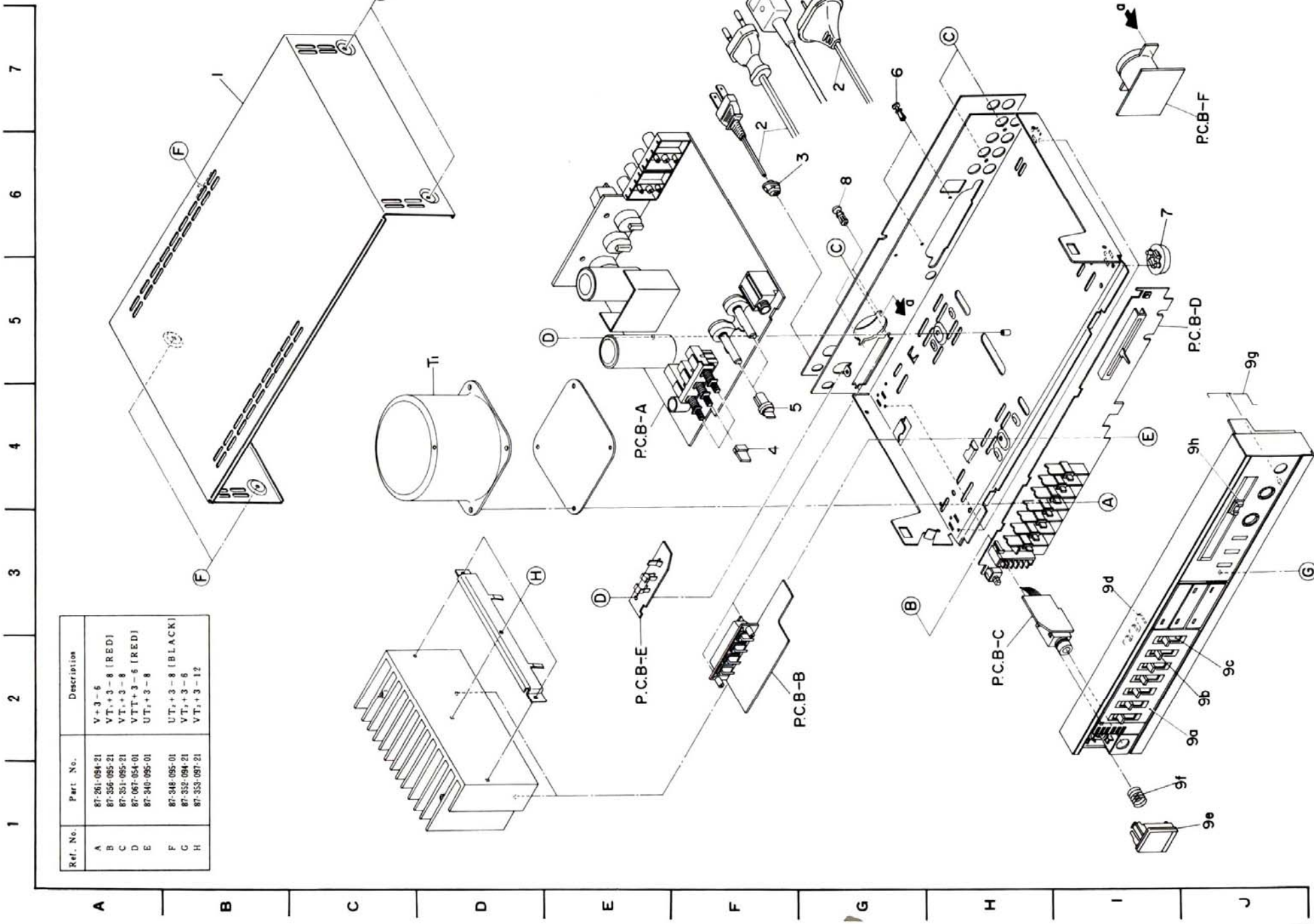
CONTROL JACK	
1	AUX REC INPUT
2	GND
3	TAPE PB (START) INPUT
4	CD REC INPUT
5	PHONO REC INPUT
6	"H" OUTPUT IN FUNCTION (TAPE)
7	"H" OUTPUT IN REC MODE
8	TU REC INPUT



**IC BLOCK DIAGRAM**



# EXPLODED VIEW



Ref. No.	Part No.	Description
A	87-261-094-21	V,+3-6
B	87-356-095-21	VT,+3-8 (RED)
C	87-351-095-21	VT,+3-8
D	87-067-054-01	VTT+3-6 (RED)
E	87-340-095-01	UT,+3-8
F	87-348-095-01	UT,+3-8 (BLACK)
G	87-352-094-21	VT,+3-6
H	87-353-097-21	VT,+3-12



## PARTS LIST

### MECHANICAL PARTS

- ✱ mark in this part list shows 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 AB		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
		★87-085-185	CORD BUSHING (E, K, G, Z only)		1
	4	★82-798-023	PUSH-BUTTON, MUT		3
	5	82-192-040	KNOB B	MX-90	2
	6	★87-085-102	NYLON RIVET 3.5-5.5	FX-30	2
	7	★87-055-057	FOOT B		4
	8	★87-085-090	NYLON RIVET 3-6.5 (H only)		2
	9	★81-741-008	FRONT CABINET Ass'y	✱	1
	9a	★81-740-007	PLATE G		1
	9b	★81-740-020	KNOB G		7
	9c	★81-740-021	SHEET G		7
	9d	★81-740-022	GUIDE G		1
	9e	★81-740-050	PUSH-KEY POWER B Ass'y		1
	9f	★81-740-208	C-SPRING, POWER		1
	9g	★81-740-211	T-SPRING, A		1
	9h	★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**