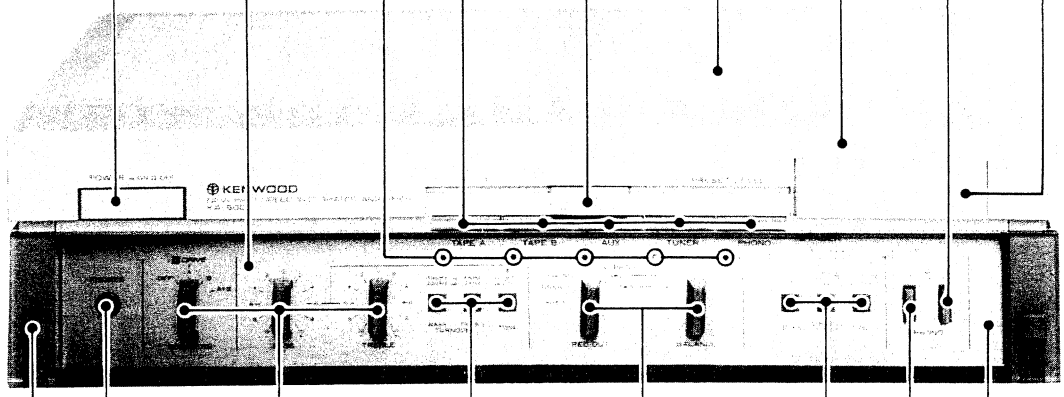
SERVICE MANUAL

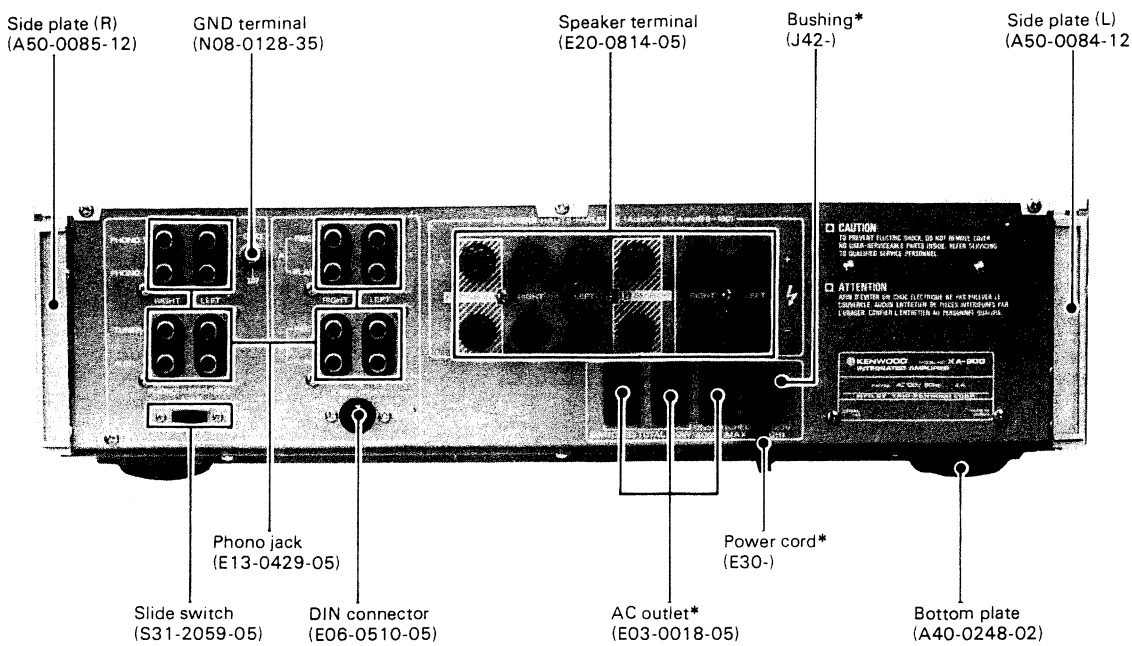
KENWOOD®

KA-900

NEW HIGH SPEED INTEGRATED AMPLIFIER

3261



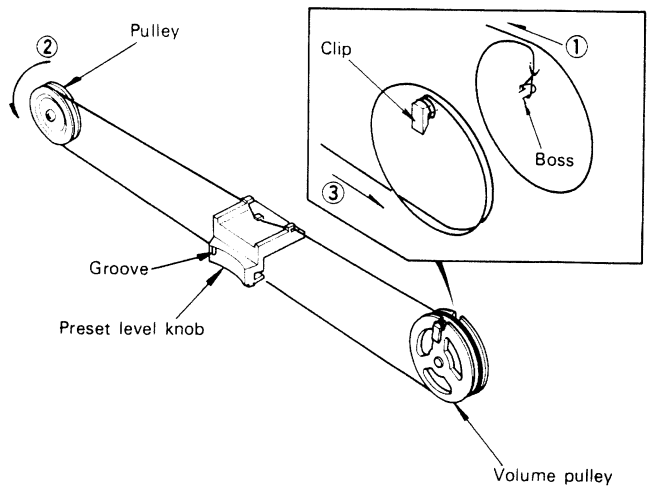


*Refer to Parts List on page 10.

3261

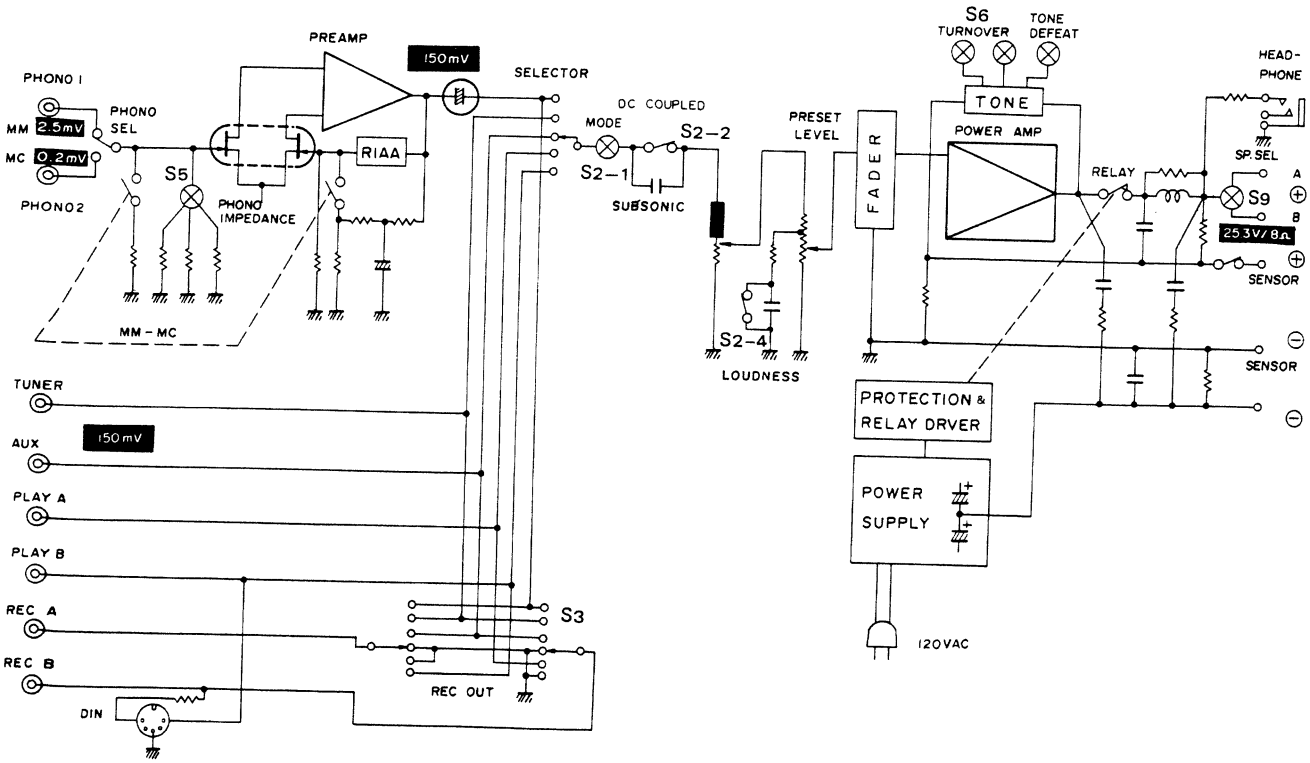
DIAL CORD STRINGING/BLOCK DIAGRAM

DIAL CORD STRINGING



1. Tie the dial cord to the boss of volume pulley.
2. Set volume pulley to the volume shaft and turn it counterclockwise till it stops.
3. Dress the dial cord to volume pulley counterclockwise 1 turn starting from the upper side as shown (①).
4. Stretch and hook the dial cord to the pulley and dress it to the volume pulley from the lower side 1 and a half turn (② ③).
5. Be sure to wind the end of the dial cord firmly to the clip of the volume pulley, so that it is tightly stretched.
6. Make sure that volume pulley is fully turned counterclockwise and fix the preset level knob by adhesive. Check that the groove of the preset level knob aligns with the O mark on the panel.

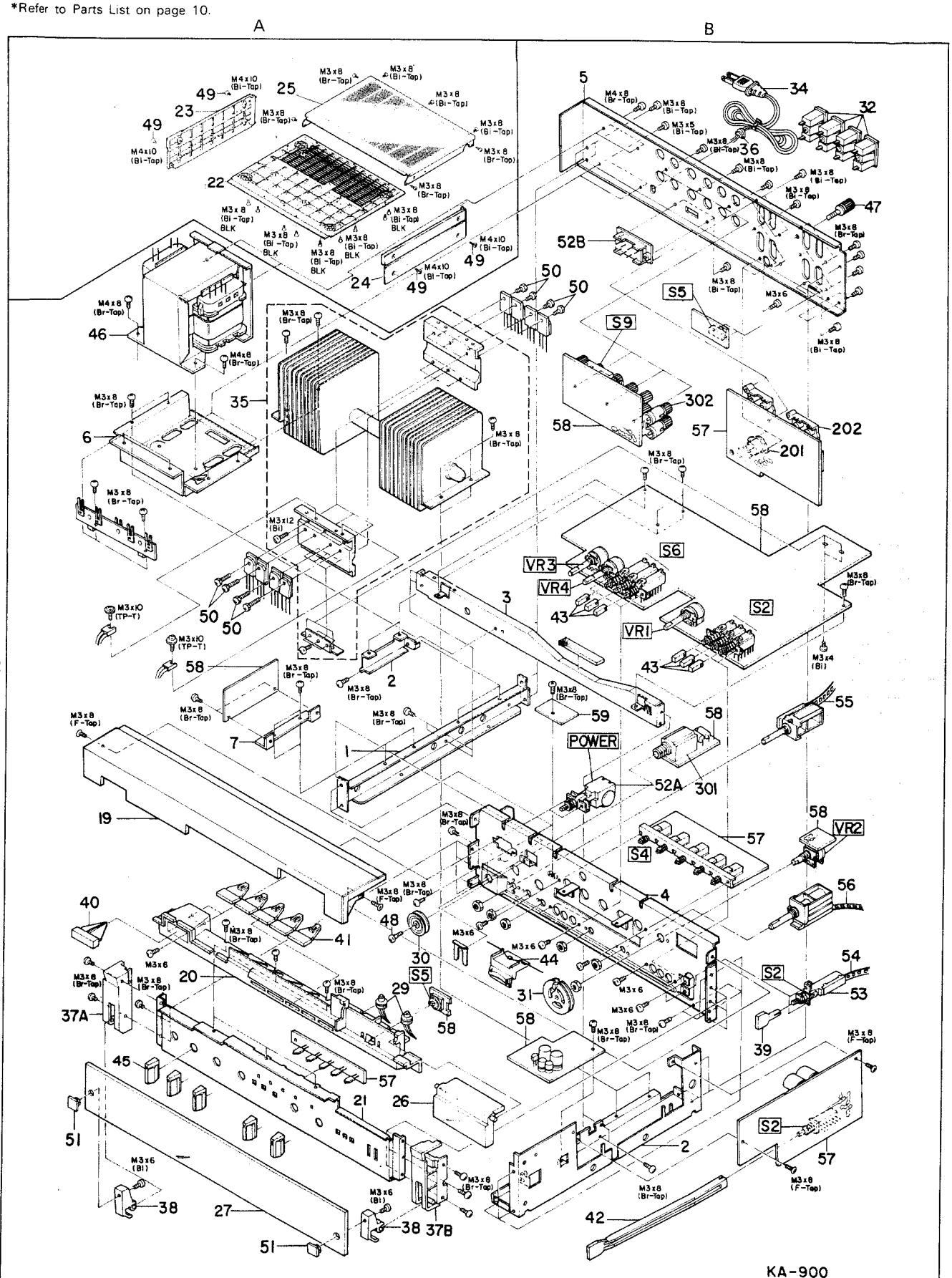
BLOCK DIAGRAM



For circuit description, refer to KA-1000 Service Manual.

EXPLODED VIEW

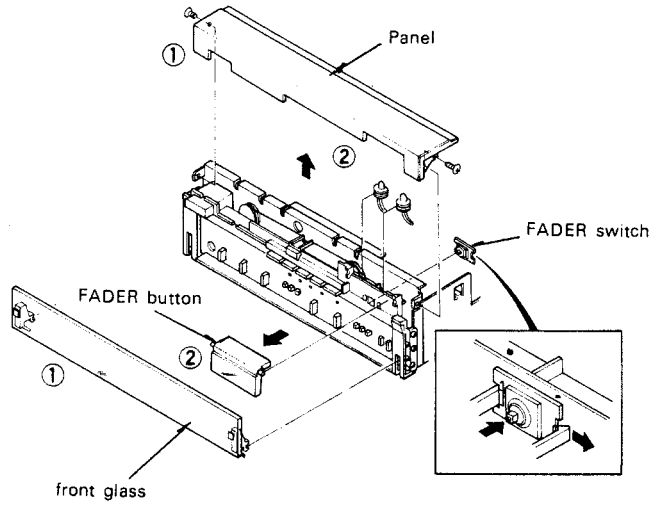
*Refer to Parts List on page 10.



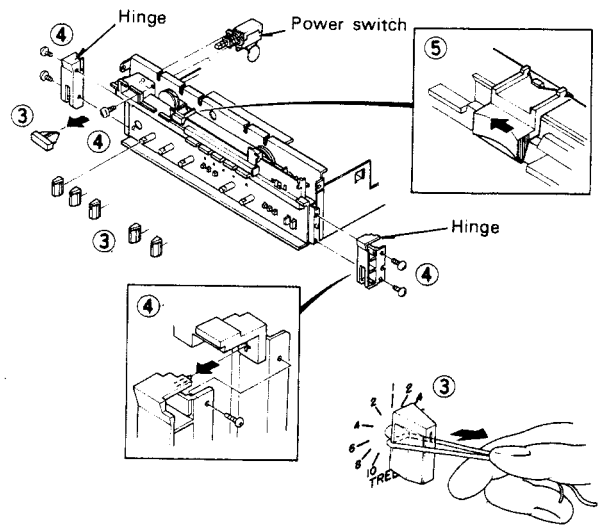
M2.6 × 4	N30-2604-46	M3 × 6 (Bi)	N35-3006-41	M3 × 8 (Br-Tap)	N87-3008-46	M3 × 5 (Bi-Tap)	N89-3005-46	M3 × 10 (Bi-Tap)	N89-3010-46
M3 × 6	N30-3006-46	M3 × 6 (Bi)	N35-3006-46	M4 × 8 (Br-Tap)	N87-4008-46	M3 × 8 (Bi-Tap) BLK	N89-3008-45	M3 × 10 (TP-T)	N91-3010-46
M3 × 4 (Bi)	N35-3004-46	M3 × 10 (Bi)	N35-3010-46	M3 × 8 (F-Tap)	N88-3008-46	M3 × 8 (Bi-Tap)	N89-3008-46		

DISASSEMBLY FOR REPLACEMENT

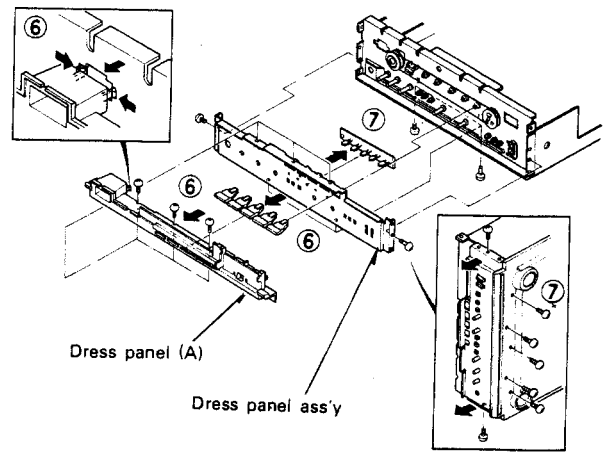
1 Remove side plate, top plate, panel and the front glass.
2 Remove FADER button and FADER lamp. Now, you can remove the FADER switch (S5) pc board by spreading the claws outward and pushing the switch from the front.



3 Remove the power switch button and knobs for BASS, TREBLE, BALANCE etc. by pulling them toward yourself. If they cannot be removed by hand, wind a covered wire around the shaft and pull.
4 Remove screws of the power switch. Remove screws at the side of the hinge and pull it to the direction of the arrow as shown. This hinge serves as a rivet to hold dress panel (A) to the chassis. For this reason, **please proceed after you remove this hinge.**
5 Preset level knob can be removed after the adhesive is taken off and slided to the left.



6 Remove dress panel (A) by pinching the claws inward and pushing it toward the front. Now, INPUT selector button can be removed.
7 Remove 5 screws at the front side of the bottom plate, also 2 screws at sides of dress panel ass'y and pull frontward. Now LED pc board for INPUT selector can be removed.



ADJUSTMENT/REGLAGES/ABGLEICH

ADJUSTMENT

OFFSET AND IDLE CURRENT

— Before adjustments —

This adjustment must be done without dummy load connected.

1. Remove top cover.
2. This amplifier uses heat pipe. For this reason, amplifier must be kept horizontal for accurate adjustment.
3. Before turning the power ON, turn potentiometers VR7 and 8 fully counterclockwise.
4. Set preset level to 0.
5. Follow steps 6 through 10 within 1 minute, after you turn the power ON.

— Adjustment —

6. Connect a DC voltmeter between TP1 and 3 (TP2 and 4 for right channel) of preamp unit (X08-185*-**).
7. Adjust VR1 (VR2) for a 0V reading of the DC voltmeter (PREAMP OFFSET).
8. Connect a DC voltmeter to speaker terminals.
9. Set the SPEAKERS switch to A+B and the PRESET LEVEL to 0.
10. Adjust CENTER ADJ VR5 (VR6) for 0V reading of the DC voltmeter (OFFSET).
11. Connect a DC voltmeter between TP25 and 23 (TP26 and 24) of audio amp unit (X09-160*-**).
12. After 2 minutes adjust IDLE ADJ VR7 (VR8) for 2 ~ 3 mV reading of the DC voltmeter (IDLE CURRENT).
13. Leave the power switch ON for 10 minutes.
14. Check that OFFSET voltages are 0V and voltage between TP25 and 23 (TP26 and 24) is now 4 ~ 5 mV.
15. If necessary, adjust each potentiometers again.
16. Place top cover.
17. After performing these adjustments IDLE current of 30 mA will flow.

REGLAGES

DECALAGE ET COURANT DE POLARISATION

— Avant les réglages —

Ce réglage sera effectué sans connecter l'antenne artificielle.

1. Retirer le couvercle du haut.
2. Cet amplificateur est équipé d'un caloduc. Il faudra donc maintenir l'amplificateur à l'horizontale pour obtenir un réglage précis.
3. Avant avoir placé l'appareil sous tension, tourner les potentiomètres VR7 et 8 à fond dans le sens invers de celui des aiguilles d'une montre.
4. Régler PRESET LEVEL au 0.
5. Procéder aux opérations 6 à 10 dans 1 minute, après avoir placé l'appareil sous tension.

— Réglage —

6. Brancher un voltmètre de C.C. entre TP1 et 3 (TP2 et 4 pour le canal de droite) du bloc préamplificateur (X08-185* **).
7. Régler VR1 (VR2) de façon à ce que le voltmèter de C.C. indique 0V (OFFSET).
8. Brancher un voltmètre de C.C. aux bornes du haut-parleur.
9. Régler SPEAKERS interrupteur au A+B et PRESET LEVEL à 0.
10. Régler CENTER ADJ. VR5 (VR6) de façon à ce que le voltmètre de C.C. indique 0V. (OFFSET).
11. Brancher un voltmètre de C.C. entre TP25 et 23 (TP26 et 24) du bloc amplificateur audio (X09-160*-**).
12. Après 2 minutes, régler IDLE ADJ VR7 (VR8) de façon à ce que le voltmètre de C.C. indique 2 ~ 3 mV (COURANT DE POLARISATION).
13. Maintenir le commutateur d'alimentation en position de marche pendant 10 minutes.
14. Vérifier que les voltages correspondent à 0V et s'assurer que le voltage entre TP25 et 23 corresponde maintenant à 4~5 mV.
15. Si cela s'avère nécessaire, procéder à nouveau au réglage de chaque potentiomètre.
16. Placer le couvercle de haut.
17. A la suite de ces divers réglages, le passage du courant de polarisation de 30 mV sera assuré.

ADJUSTMENT/REGLAGES/ABGLEICH

ABGLEICH

VERSCHIEBUNG UND LEERLAUFSTROM

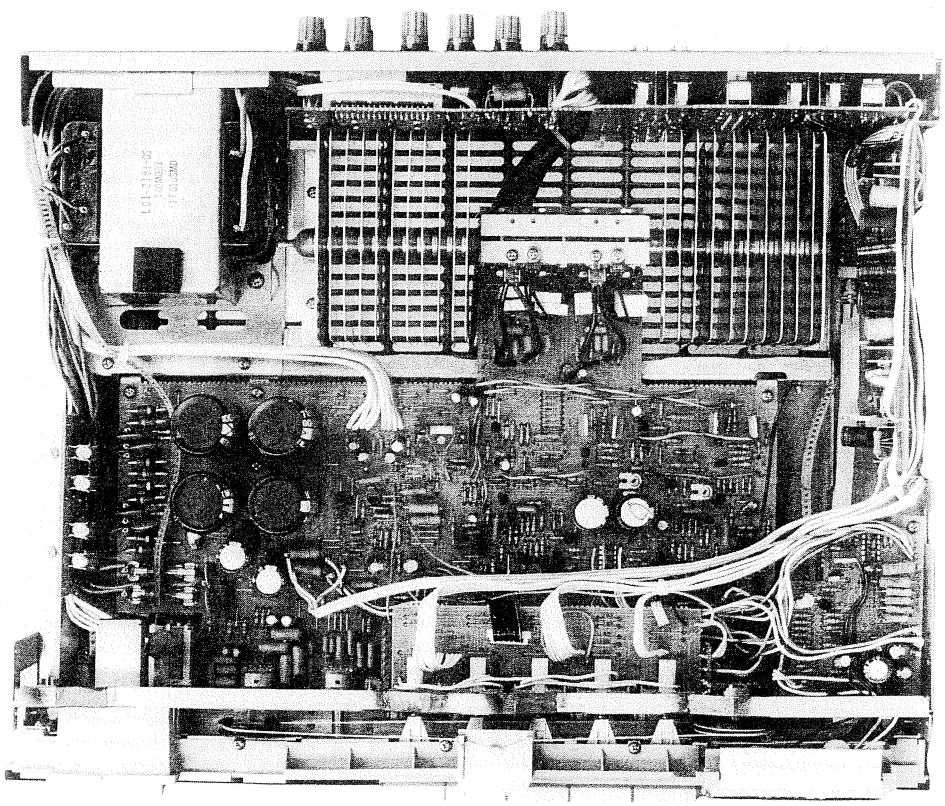
— Vor die Abgleich —

Dieser Abgleich wird ohne die künstliche Antenne anzuschließen ausgeführt.

1. Die obere Abdeckung entfernen.
2. Dieser Verstärker ist mit einem Wärmerohr ausgestattet. Aus diesem Grund soll er in horizontaler Lage bleiben um eine genaue Einstellung zu ermöglichen.
3. Vor Einschalten das Potentiometers VR7 und 8 drehen voll gegen den Uhrzeigersinn.
4. Den PRESEL LEVEL Knopf auf 0.
5. Nach Einschalten die Schritte b6 bis 10 binnen 1 Minuten ausführen.

— Abgleich —

6. Einen Gleichspannungsmesser zwischen TP1 und 3 (TP2 und 4 für den rechten Kanal) des Vorverstärkers (X08-185*-**) anschließen.
7. Den VR1 (VR2) so regulieren, daß die Gleichspannungsmesser-Ablesung 0V ist. (VERSCHIEBUNG).
8. Einen Gleichspannungsmesser an die Lautsprecherklemmen anschließen.
9. Den Schalter SPEAKERS auf A+B und den PRESET VOLUME auf 0 einstellen.
10. Den CENTER ADJ. VR5 (VR6) so regulieren, daß die Gleichspannungsmesser-Ablesung 0V ist.(VERSCHIEBUNG).
11. Einen Gleichspannungsmesser zwischen TP25 und 23 (TP26 und 24) des Tonverstärker (X09-160*-**) anschließen.
12. Nach 2 Minuten, den IDLE ADJ VR7 (VR8) so regulieren, daß die Gleichspannungsmesser-Ablesung 2 ~ 3 mV ist (LEERLAUFSTROM).
13. Den Netzschalter 10 Minuten lang eingeschaltet lassen.
14. Nachprüfen, ob die Verschiebespannungen 0V sind und die Spannung zwischen TP25 und 23 jetzt 4~5 mV beträgt.
15. Die Potentiometer erforderlichenfalls nochmals entsprechend einstellen.
16. Den oberen Deckel anbringen.
17. Nach diesen Einstellungen fließt ein Ruhestrom von 30 mV.

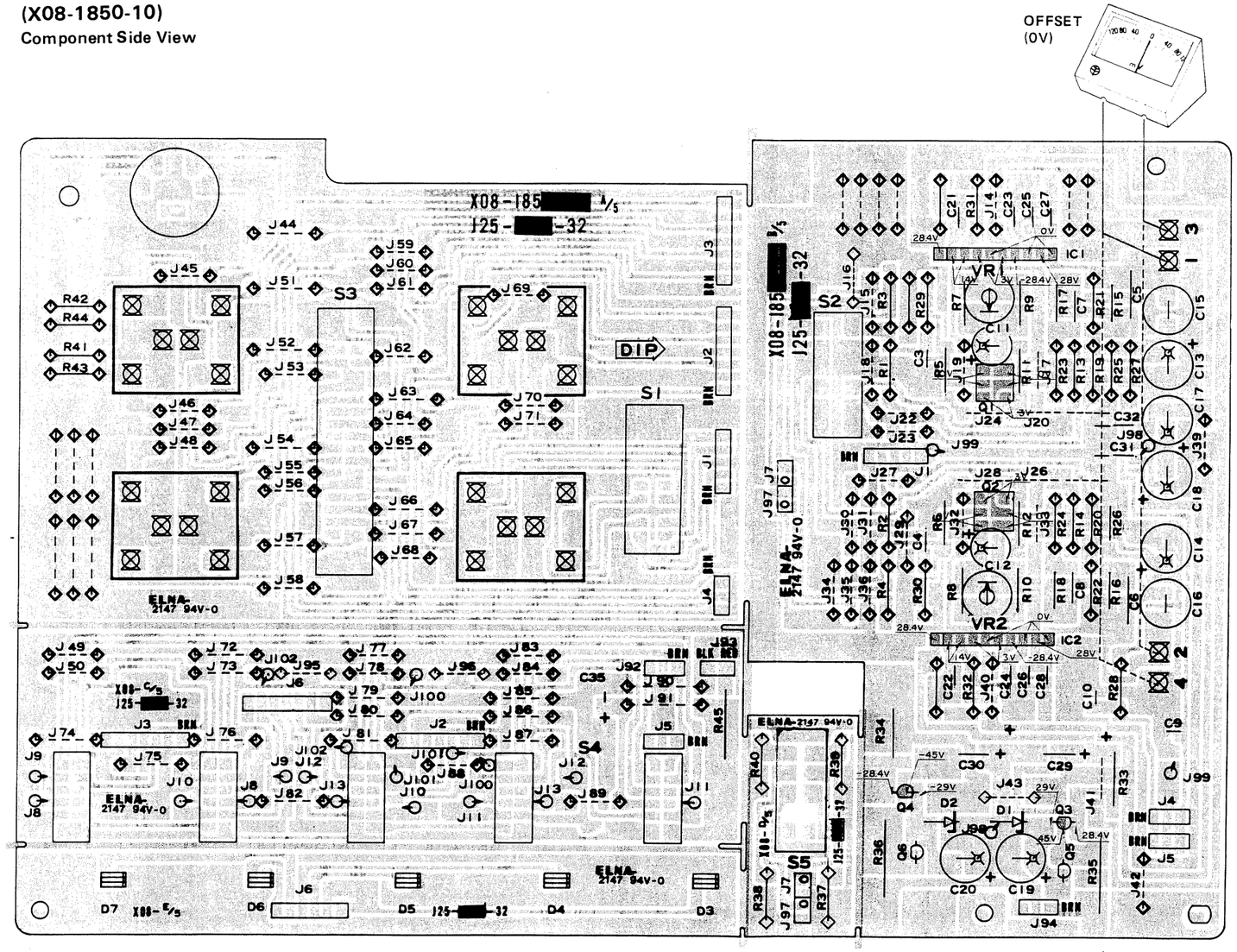


PREAMP	AUDIO AMP	
	L	R
TP3 TP1 VR1 (OFFSET)		
	TP25 TP23	TP26 TP24
TP2 VR2 TP4 (OFFSET)		
	VR7 (IDLE)	VR8 (IDLE)
	VR5 (OFFSET)	VR6 (OFFSET)

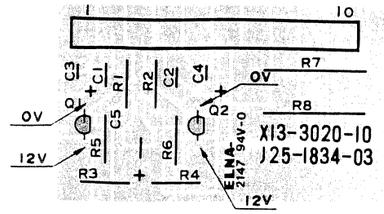
KA-900

PC BOARD

PREAMP
(X08-1850-10)
Component Side View



SUB
(X13-3020-10)
Component Side View

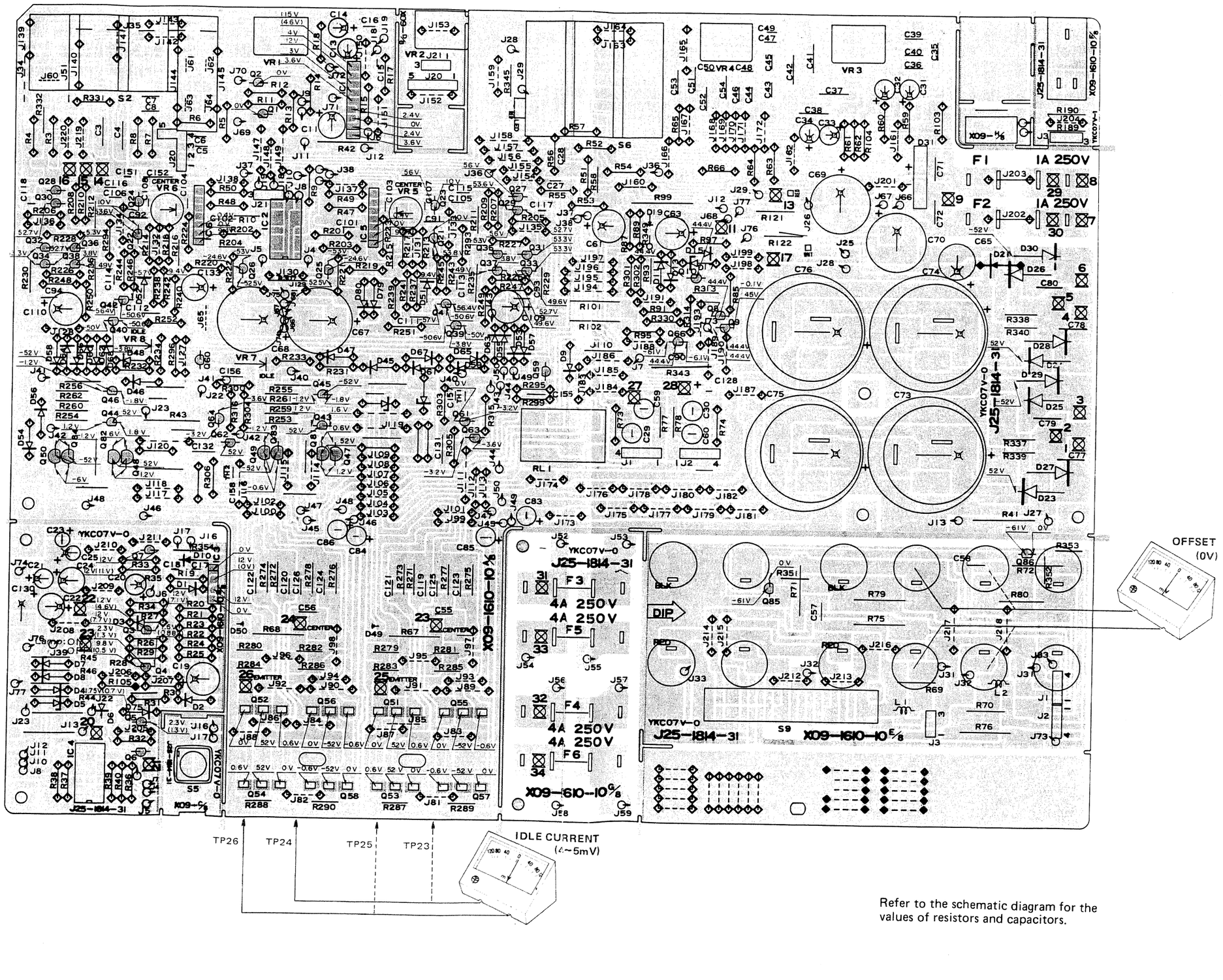


Refer to the schematic diagram for the values of resistors and capacitors.

KA-900 KA-900

PC BOARD

AUDIO AMP (X09-160*-**) Component Side View



Refer to the schematic diagram for the values of resistors and capacitors.

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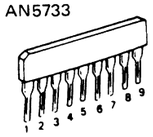
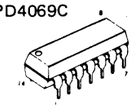
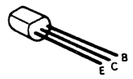
2SA872
2SA912
2SA954
2SA992
2SA999
2SA1123
2SA1127NC
2SC535
2SC945
2SC1674
2SC1775
2SC1845
2SC1885
2SC1923
2SC2320
2SC2631

AN5733

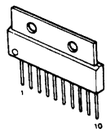


MB84066B
MB84069B
μPD4066C
μPD4069C

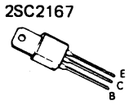




TA2010
TA2010A

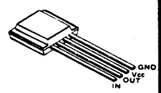


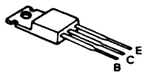
2SA957
2SC2167



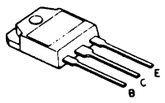
2SA985A
2SA1111
2SB724
2SC2275A
2SC2591
2SD762

DN819

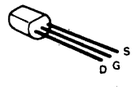




2SA1186
2SC2837

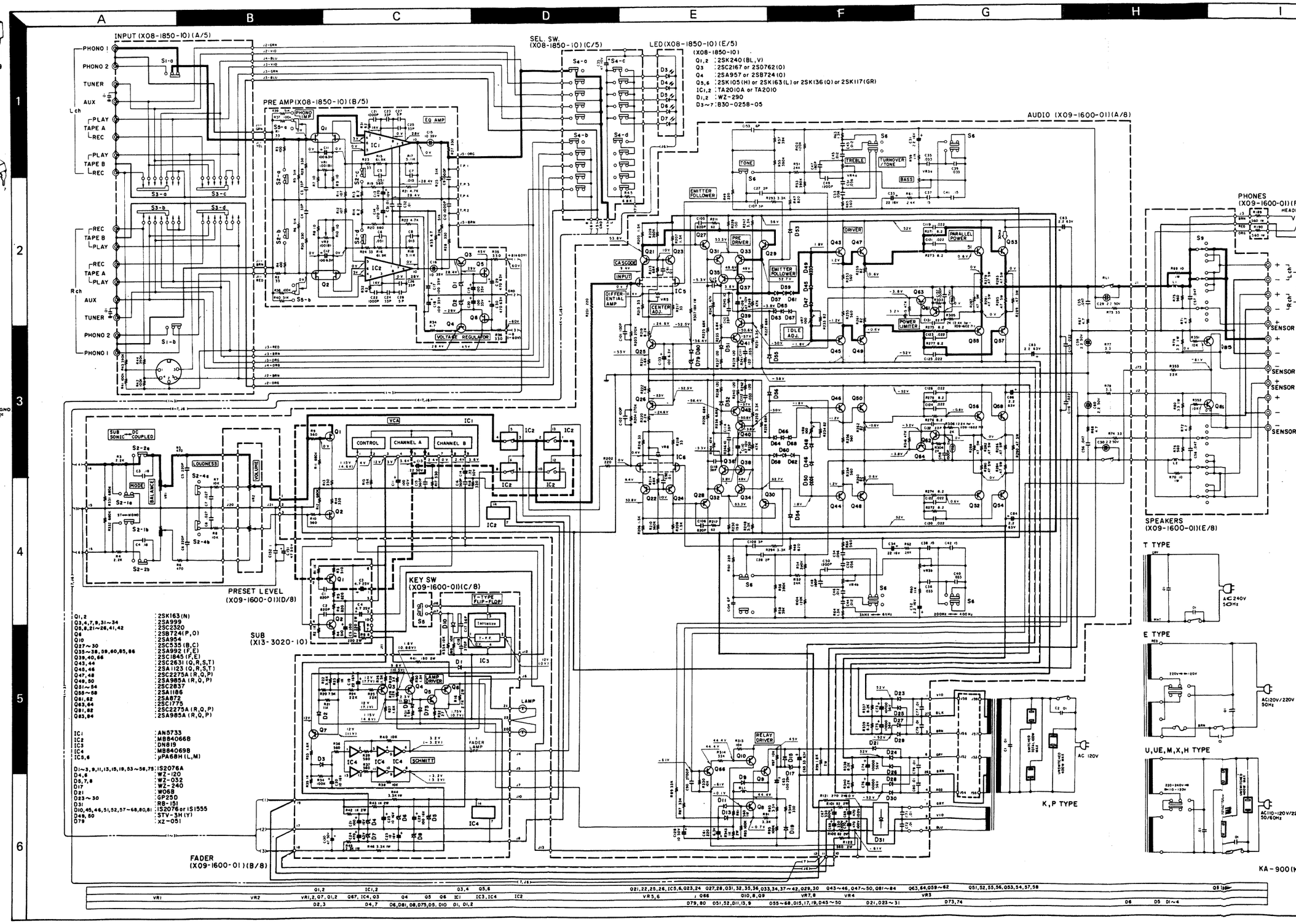


2SK105
2SK117
2SK163
2SK136



μPA68H

2SK240



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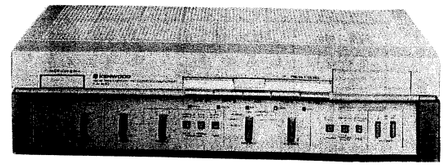


SPECIFICATIONS

PERFORMANCE

Power output

80 watts* per channel minimum RMS, both channels driven, at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.005% total harmonic distortion.

Both Channels Driven	85 + 85 watts 8 ohms at 1,000 Hz
Total Harmonic Distortion	
(20 Hz to 20,000 Hz)	
AUX input to SPEAKER output	0.005% at rated power into 8 ohms 0.005% at 1/2 rated power into 8 ohms
PHONO input to SPEAKER output	0.007% at rated power with VOLUME – 20 dB
Intermodulation Distortion (60 Hz:7 kHz = 4:1)	0.005% at rated power into 8 ohms
Damping Factor	500, at 100 Hz
Transient Response	
Rise Time	0.9 μs
Slew Rate	± 120 V/μs
Frequency Response	
(DC COUPLED at ON)	DC to 400 kHz, – 3 dB
(DC COUPLED at OFF)	18 Hz to 400 kHz, – 3dB
Speaker Impedance	Accept 4 ohms to 16 ohms
Input Sensitivity/Impedance	
Phono (MM)	2.5 mV/33 k ohms, 47k ohms and 100 k ohms
Phono (MC)	0.2 mV/100 ohms
Tuner, AUX, Tape A, B	150 mV/47 k ohms
Signal-to-Noise Ratio (IHF, A)	
Phono (MM)	86 dB for 2.5 mV input 92 dB for 5.0 mV input 98 dB for 10 mV input
Phono (MC)	66 dB for 0.2 mV input 72 dB for 0.4 mV input
Tuner, AUX, Tape A, B	105 dB for 150 mV input
Maximum Input Level	
Phono (MM)	270 mV (RMS), T.H.D. 0.003% at 1,000 Hz
Phono (MC)	15 mV (RMS), T.H.D. 0.003% at 1,000 Hz
Output Level/Impedance	
Tape REC (Pin)	150 mV/330 ohms
(DIN)	30 mV/80 k ohms
Phono Frequency Response	RIAA standard curve ±0.2 dB (20 Hz to 20.000 Hz)
Tone Control	
Bass Turnover Freq.	**200 Hz**..... ± 10 dB at 50 Hz **400 Hz**..... ± 10 dB at 100 Hz
Treble Turnover Freq.	**3 kHz**..... ± 10 dB at 10 kHz **6 kHz**..... ± 10 dB at 20 kHz
Loudness Control	+ 10 dB at 100 Hz (at – 30 dB VOLUME Level)
Subsonic Filter	18 Hz, 6 dB/oct

GENERAL

Power Requirements	60 Hz 120 V (U.S.A. & Canada Model) or 50/60 Hz 110-120 V/220- 240 V
Power Consumption	4 A (UL and CSA) 480 W (IEC)
A.C. Outlet	Switched 2, Unswitched1
Dimensions	W 440 mm (17-5/16") H 123 mm (4-27/32") D 375 mm (14-3/4")
Weight (Net)	10.0 kg (22.0 lbs)

* Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier in U.S.A.

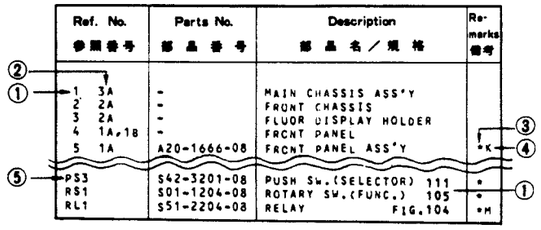
Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

Kenwood poursuit une politique de progrès constants en ce qui concerne le développement. Pour cette raison, les spécifications sont sujettes à modifications sans préavis.

Kenwood strebt ständige Verbesserungen in der Entwicklung an. Daher bleiben Änderungen der technischen Daten jederzeit vorbehalten.

PARTS LIST

INSTRUCTION FOR PARTS LIST



① Exploded view drawing No.
② Position in exploded view.
③ Symbol of new parts
④ Area to which parts are shipped. Example: A20-1390-13 is the part No. of FRONT PANEL ASS'Y for the "K" type products (for U.S.A.). When this column is blank, it means that the same type of parts (same parts No.) are used for the products shipped to all areas.
⑤ Reference No. in schematic diagram.
⑥ Abbreviation of "ceramic capacitor"
All capacitors and resistors are listed using abbreviations.
Abbreviations

* Abbreviations of capacitors (Parts No. with initial letter "C").

ELECTRO	Electrolytic capacitor
LL-ELEC	Low leak electrolytic capacitor
NP-ELEC	Non-pole electrolytic capacitor
MICA	Mica capacitor
POLYSTY	Polystyrene capacitor
MYLAR	Mylar capacitor
CERAMIC	Ceramic capacitor
TANTAL	Tantalum capacitor
MF	Metallized film capacitor
MP	Metallized paper capacitor
OIL	Oil capacitor

The unit "UF" is used in lieu of "μF"

* Abbreviations of resistors (Parts No. with initial letters "R").

RC	Carbon composition resistor
RD	Carbon film resistor
FL-PROOF RD	Flame-proof carbon film resistor
RW	Wire wound power resistor
FL-PROOF RS	Flame-proof metal oxide film resistor
RN	Metal film resistor
FUSE-RESIST	Resistor with fuse function
2B	Rated wattage 1/8W
2E	Rated wattage 1/4W
2H	Rated wattage 1/2W
3A	Rated wattage 1W
3D	Rated wattage 2W
3F	Rated wattage 3W
3G	Rated wattage 4W
3H	Rated wattage 5W

All resistor values are indicated with the unit (Ω) omitted.

* Abbreviations common to capacitors and resistors.

C	±0.25pF (Used for capacitors only)
D	±0.5pF (Used for capacitors only)
F	±1%
G	±2%
J	±5%
K	±10%
M	±20%
Z	+80%, −20%(Used for capacitors only)
P	+100%, −0%(Used for capacitors only)

Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

* Codes in X09-160*-**

K : X09-1600-10
U : X09-1600-81
E : X09-1602-71

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Re-marks 備考
KA-900 UNIT			
1 2A	-	METALLIC FRAME (L)	
2 2A,3B	-	METALLIC FRAME (R)	
3 2B	-	METALLIC FRAME (C)	
4 3B	-	SUB PANEL	
5 1B	-	REAR PANEL	
6 1A	-	MOUNT, HARD,(PWR TRANS)	
7 2A	-	MOUNT, HARD,(FUSE PCB)	
-	041-0401-15	SIGMA CORD	
19 2A	A20-1725-12	FRONT PANEL	*K
19 2A	A20-1725-12	FRONT PANEL	PU
19 2A	A20-1725-12	FRONT PANEL	MH
19 2A	A20-1725-12	FRONT PANEL	UE
19 2A	A20-1725-12	FRONT PANEL	XE
19 2A	A20-1726-12	FRONT PANEL	*T
20 3A	A21-0329-22	DRESSING PANEL (A)	
21 3A	A21-0332-12	DRESSING PANEL (B) ASSY	*
22 1A	A40-0248-02	BOTTOM PLATE	
23 1A	A50-0084-12	SIDE PLATE (L)	
24 1A	A50-0085-12	SIDE PLATE (R)	
25 1A	A52-0038-02	TOP PLATE	
-	B46-0055-30	WARRANTY CARD	P
-	B46-0060-00	WARRANTY CARD	T
-	B46-0061-30	WARRANTY CARD	K
-	B46-0062-30	WARRANTY CARD	UH
-	B46-0062-30	WARRANTY CARD	UE
-	B46-0063-13	WARRANTY CARD	UH
-	B46-0063-13	WARRANTY CARD	UE
-	B46-0064-20	WARRANTY CARD	X
-	B50-3245-00	INSTRUCTION MANUAL	*K
-	B50-3246-00	INSTRUCTION MANUAL	*P
-	B50-3246-00	INSTRUCTION MANUAL	M
-	B50-3247-00	INSTRUCTION MANUAL	*P
-	B50-3247-00	INSTRUCTION MANUAL	UM
-	B50-3247-00	INSTRUCTION MANUAL	HX
-	B50-3247-00	INSTRUCTION MANUAL	UE
-	B50-3248-00	INSTRUCTION MANUAL	*M
-	B50-3249-00	INSTRUCTION MANUAL	*E
-	B50-3263-00	INSTRUCTION MANUAL	*T
-	B59-0018-00	SERVICE STATIONS' LIST	UH
-	B59-0018-00	SERVICE STATIONS' LIST	UE
26 3A	B08-6013-14	FADER BUTTON	
27 3A	B10-0285-04	FRONT GLASS	
29 3A	B30-0270-05	LAMP (FADER) 8V 0.075A	
-	C91-0023-05	CERAMIC 0.01UF AC250V	UM
-	C91-0023-05	CERAMIC 0.01UF AC250V	HX
-	C91-0023-05	CERAMIC 0.01UF AC250V	UE
-	C91-0079-05	CERAMIC 0.01UF AC125V	KP
-	C91-0079-05	CERAMIC 0.01UF AC125V	TE
30 3A	D15-0073-14	PULLEY (SMALL)	
31 3B	D15-0179-03	PULLEY (LARGE)	
32 1B	E03-0018-05	AC OUTLET	KP
32 1B	E03-0018-05	AC OUTLET	UM
32 1B	E03-0018-05	AC OUTLET	HX
32 1B	E03-0018-05	AC OUTLET	UE
34 1B	E30-0181-05	POWER CORD	KP
34 1B	E30-0459-05	POWER CORD	E
34 1B	E30-0515-05	POWER CORD	UM
34 1B	E30-0515-05	POWER CORD	H

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Re-marks 備考
34 1B	E30-0515-05	POWER CORD	UE
34 1B	E30-0587-05	POWER CORD	T
34 1B	E30-0649-05	POWER CORD	X
35 1A	F01-0357-15	HEAT SINK ASSY	*
-	H01-3227-04	CARTON BOX	*U
-	H01-3227-04	CARTON BOX	MH
-	H01-3227-04	CARTON BOX	UE
-	H01-3227-04	CARTON BOX	X
-	H01-3229-04	CARTON BOX	*E
-	H01-3230-04	CARTON BOX	*T
-	H01-3255-04	CARTON BOX	*K
-	H10-1563-02	POLYSTYRENE FIXTURE	
-	H20-0453-04	COVER	
-	H25-0078-04	BAG	KP
-	H25-0078-04	BAG	UH
-	H25-0078-04	BAG	UE
-	H25-0078-04	BAG	XT
36 1B	J42-0083-05	BUSHING	KP
36 1B	J42-0083-05	BUSHING	UM
36 1B	J42-0083-05	BUSHING	HT
36 1B	J42-0083-05	BUSHING	UE
36 1B	J42-0083-05	BUSHING	E
36 1B	J42-0085-05	BUSHING	X
37A 3A	J50-0098-03	HINGE (L)	
37B 3A	J50-0099-03	HINGE (R)	
38 3A	J50-0100-04	HINGE (A)	
39 3B	K27-0188-04	PUSH BTN(PHONO 1-2)	*
40 3A	K27-0189-04	PUSH BTN(POWER)	
41 3A	K27-0190-14	PUSH BTN(INPUT SELECT)	
42 3B	K27-0191-03	PUSH BTN(CART MM-MC)	*
43 2B	K27-0192-14	PUSH BTN(FILTER,ETC)	
44 3B	K29-0381-33	KNOB (PRESET LEVEL)	
45 3A	K29-0382-14	KNOB (SP,TONE,BAL,REC)	
46 1A	L01-2181-05	POWER TRANSFORMER	*K
46 1A	L01-2181-05	POWER TRANSFORMER	P
46 1A	L01-2182-05	POWER TRANSFORMER	*T
46 1A	L01-2185-05	POWER TRANSFORMER	*U
46 1A	L01-2185-05	POWER TRANSFORMER	MH
46 1A	L01-2185-05	POWER TRANSFORMER	UE
46 1A	L01-2185-05	POWER TRANSFORMER	X
46 1A	L01-2186-05	POWER TRANSFORMER	*E
47 1B	N08-0126-35	GND TERMINAL	
48 3A	N09-0100-14	SCREW (PULLEY)	
49 1A	N09-0363-05	SCREW (SIDE PLATE)	
50 1B,2A	N09-0364-05	SCREW (POWER TR)	
51 3A	N14-0127-04	NUT (FRONT GLASS)	
52B 1B	S31-2050-05	SLIDE SW,(VOLTAGE SEL)	UM
52B 1B	S31-2050-05	SLIDE SW,(VOLTAGE SEL)	HX
52B 1B	S31-2050-05	SLIDE SW,(VOLTAGE SEL)	UE
52B 1B	S31-2050-05	SLIDE SW,(VOLTAGE SEL)	E
52A 2B	S40-1014-05	PUSH SWITCH (POWER)	UM
52A 2B	S40-1014-05	PUSH SWITCH (POWER)	HX
52A 2B	S40-1014-05	PUSH SWITCH (POWER)	UE
52A 2B	S40-1015-05	PUSH SWITCH (POWER)	KP
52A 2B	S40-2099-05	PUSH SWITCH (POWER)	TE
53 3B	S90-0039-05	REMOTE SWITCH	*
54 3B	S90-0051-05	REMOTE WIRE	
55 2B	S90-0041-05	REMOTE SWITCH (SP)	*
56 3B	S90-0043-05	REMOTE SWITCH (REC OUT)	

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PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
Q51 -54	V01-1186-10	2SA1186(O,Y)	
Q55 -58	V03-2837-10	2SC2837(O,Y)	
57 2B,3B	X08-1850-10	PRE AMP PCB ASSY	*
58 2B,3B	X09-1600-10	AUDIO AMP PCB ASSY	*K
58 2B,3B	X09-1600-10	AUDIO AMP PCB ASSY	P
58 2B,3B	X09-1600-81	AUDIO AMP PCB ASSY	*U
58 2B,3B	X09-1600-81	AUDIO AMP PCB ASSY	MH
58 2B,3B	X09-1600-81	AUDIO AMP PCB ASSY	UE
58 2B,3B	X09-1600-81	AUDIO AMP PCB ASSY	X
58 2B,3B	X09-1602-71	AUDIO AMP PCB ASSY	*T
58 2B,3B	X09-1602-71	AUDIO AMP PCB ASSY	E
59 2B	X13-3020-10	SUB PCB ASSY	
PRE AMP (X08-1850-10)			
D3 -7	B30-0258-05	LED	
C1 ,2	C52-1756-16	CERAMIC 560PF K	
C3 ,4	C71-1712-16	CERAMIC 120PF J	
C5 ,6	C49-2051-34	MYLAR 0.051UF G	
C7 ,8	C49-2015-35	MYLAR 0.015UF J	
C9 ,10	C48-1710-25	POLYSTY 1000PF J	
C11 ,12	C90-0402-05	ELECTRO 100UF 6.3WV	
C13 ,14	C90-0532-05	ELECTRO 470UF 10WV	
C15 ,16	C90-0404-05	NP-ELEC 10UF 35WV	
C17 -20	C24-6510-71	ELECTRO 100UF 35WV	
C21 ,22	C91-0100-05	POLYSTY 1000PF J	
C23 -26	C71-1733-06	CERAMIC 33PF K	
C27 ,28	C71-1705-01	CERAMIC 5PF C	
C29 ,30	C24-1847-71	ELECTRO 470UF 63WV	
C31 ,32	C49-2010-34	MYLAR 0.01UF G	
C33 ,34	C55-1710-38	CERAMIC 0.01UF Z	
C35	C24-1047-60	ELECTRO 47UF 10WV	
201 1B	E06-0510-05	DIN CONNECTOR	
202 1B	E13-0429-05	PHONO JACK	
R11 ,12	R48-2107-03	RN 107 F 2E	
R13 ,14	R48-6282-95	RN 8,2 J 2E	
R15 ,16	R48-2619-23	RN 61,9K F 2E	
R17 ,18	R48-2511-13	RN 5,11K F 2E	
R23 ,24	R48-6233-05	RN 33 J 2E	
R33 ,34	R43-1247-95	FL-PROOF RD4,7 J 2E	
R35 ,36	R47-5533-15	FL-PROOF RS330 J 3D	
R45	R47-5456-25	FL-PROOF RS5,6K J 3A	
VR1 ,2	R12-0502-05	TRIMMING POT, 100KB	
S1	S90-0045-05	SLIDE SW,(POHNE 1-2)	*
S2	S40-4033-05	PUSH SW,(MM-MC)	
S3	S90-0038-05	SLIDE SW,(REC-OUT)	
S4	S42-5020-05	PUSH SW,(INPUT SEL)	
S5	S31-2059-05	SLIDE SW,(POHNE IMP)	
D1 ,2	V11-4109-20	WZ-290	
IC1 ,2	V30-0520-10	TA2010A	*
Q1 ,2	V09-0153-10	2SK240(BL,V)	*
Q3	V03-2167-10	2SC2167(Y,G)	
Q4	V01-0957-10	2SA957(Y,G)	
Q5 ,6	V09-0127-50	2SK105(H)	
AUDIO AMP (X09-1610*-)**			
C3 ,4	C46-1718-46	MYLAR 0,18UF K	
C5 ,6	C71-1722-15	CERAMIC 220PF J	
C7 ,8	C46-1727-35	MYLAR 0,027UF J	
C11	C24-1010-79	ELECTRO 100UF 10WV	
C13 ,14	C25-1722-47	LL-ELEC 0,22UF 50WV	
C15 ,16	C52-1756-16	CERAMIC 560PF K	

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
C17	C71-1756-06	CERAMIC 56PF J	
C18	C71-1710-02	CERAMIC 10PF D	
C19	C25-1222-67	LL-ELEC 22UF 16WV	
C20	C25-1210-67	LL-ELEC 10UF 16WV	
C21 ,22	C25-1210-77	LL-ELEC 100UF 16WV	
C24	C24-0947-79	ELECTRO 470UF 6.3WV	
C25	C25-1210-67	LL-ELEC 10UF 16WV	
C27 ,28	C71-1702-01	CERAMIC 2PF C	
C29 ,30	C26-1722-57	NP-ELEC 2.2UF 50WV	
C31 ,32	C25-1722-57	LL-ELEC 2.2UF 50WV	
C33 ,34	C25-1222-67	LL-ELEC 22UF 16WV	
C35 ,36	C45-1733-35	MYLAR 0.033UF K	
C37 ,38	C46-1715-46	MYLAR 0.15UF K	
C39 ,40	C45-1733-35	MYLAR 0.033UF K	
C41 ,42	C46-1715-46	MYLAR 0.15UF K	
C43 -46	C46-1712-35	MYLAR 0.012UF J	
C47 ,48	C71-1718-16	CERAMIC 180PF K	
C49 ,50	C46-1712-26	MYLAR 0.0012UF K	
C51 -54	C46-1756-35	MYLAR 0.056UF J	
C55 -58	C46-1747-35	MYLAR 0.047UF J	
C59 ,60	C26-1722-57	NP-ELEC 2.2UF 50WV	
C61	C24-0822-79	ELECTRO 220UF 6.3WV	
C63	C24-1416-71	ELECTRO 100UF 25WV	
C65	C24-1833-61	ELECTRO 33UF 63WV	
C67 ,68	C24-2033-77	ELECTRO 330UF 100WV	
C69 ,70	C24-2047-77	ELECTRO 470UF 100WV	
C71 ,72	C54-2716-39	CERAMIC 0.01UF P	
C73 -76	C90-0492-05	ELECTRO 10000UF 56V	*
C77 -80	C54-2710-39	CERAMIC 0.01UF P	
C83 -86	C24-1822-51	ELECTRO 2.2UF 63WV	
C90	C46-1727-25	MYLAR 0.0027UF K	
C90	C52-1715-26	CERAMIC 0.0015UF K	
C91 ,92	C46-1710-35	MYLAR 0.01UF J	
C101,102	C71-1710-15	CERAMIC 100PF J	
C105,106	C52-1782-16	CERAMIC 820PF K	
C107,108	C71-1702-01	CERAMIC 2PF C	
C109,110	C24-1047-69	ELECTRO 47UF 10WV	
C111,112	C45-1733-35	MYLAR 0.033UF K	
C113,114	C71-1739-06	CERAMIC 39PF J	
C115,116	C55-1722-38	CERAMIC 0.022UF Z	
C117,118	C71-1710-02	CERAMIC 10PF D	
C119-126	C46-1722-35	MYLAR 0.022UF J	
C128	C25-1710-67	LL-ELEC 10UF 50WV	
C130	C24-1747-61	ELECTRO 47UF 50WV	
C133	C24-0810-79	ELECTRO 100UF 6.3WV	
C151	C25-1747-47	LL-ELEC 0.47UF 50WV	
C152	C46-1710-45	MYLAR 0.1UF J	
C153,154	C71-1706-02	CERAMIC 6PF D	
C155,156	C71-1722-15	CERAMIC 220PF J	
C157,158	C52-1715-26	CERAMIC 0.0015UF K	
301 2B	E11-0081-05	PHONE JACK	
302 1B	E20-0814-05	SPEAKER TERMINAL BOARD	
F1 ,2	F05-1021-05	FUSE 1A 250V	K
F1 ,2	F05-1023-05	FUSE 1A 250V	U
F1 ,2	F06-1021-05	FUSE F1A 250V	E
F3 -6	F05-4021-05	FUSE 4A 250V	K
F3 -6	F05-4022-05	FUSE 4A 250V	U
F3 -6	F05-4024-05	FUSE F4A 250V	E
-	J13-0055-05	FUSE HOLDER	
L1 ,2	L39-0085-05	COIL	

PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
R16	R47-5527-25	FL-PROOF RS2.7K J 3D	
R41	R47-5515-15	FL-PROOF RS150 J 3D	
R42 ,43	R47-5510-25	FL-PROOF RS1K J 3D	
R44 -46	R47-5433-25	FL-PROOF RS3.3K J 3A	
R67 ,68	R47-5547-95	FL-PROOF RS4.7 J 3D	
R69 ,70	R47-5410-05	FL-PROOF RS10 J 3A	
R71 ,72	R47-5547-95	FL-PROOF RS4.7 J 3D	
R75 ,76	R47-5556-15	FL-PROOF RS560 J 3D	
R77 ,78	R43-1233-95	FL-PROOF RD3.3 J 2E	
R79 ,80	R47-5433-95	FL-PROOF RS3.3 J 3A	
R99	R47-5518-25	FL-PROOF RS1.8K J 3D	
R101,102	R47-5582-05	FL-PROOF RS82 J 3D	
R121	R47-5527-15	FL-PROOF RS270 J 3D	
R122	R47-5556-15	FL-PROOF RS560 J 3D	
R189,190	R47-5456-15	FL-PROOF RS560 J 3A	
R229,230	R43-1215-15	FL-PROOF RD150 J 2E	
R235,236	R47-5468-25	FL-PROOF RS6.8K J 3A	
R253-256	R43-1256-15	FL-PROOF RD560 J 2E	
R259-262	R43-1282-05	FL-PROOF RD82 J 2E	
R271-278	R43-1282-95	FL-PROOF RD8.2 J 2E	
R279-290	R92-0203-05	FIXED RESISTOR	
R307	R47-5418-35	FL-PROOF RS18K J 3A	
R337-340	R43-1282-25	FL-PROOF RD8.2K J 2E	
R343	R47-5510-25	FL-PROOF RS1K J 3D	
VR1	R06-5062-05	POTENTIOMETER (BAL)	
VR2	R06-5063-05	POTENTIOMETER (VOL)	
VR3 ,4	R06-4051-05	POTENTIOMETER (TONE)	
VR5 ,6	R12-0502-05	TRIMMING POT. 10Ω	
VR7 ,8	R12-0077-05	TRIMMING POT. 10Ω	
RL1	S51-2045-05	RELAY	
S2	S42-3048-05	PUSH Sw (FIL,MODE,LOUD)	*
S5	S40-1012-05	PUSH SWITCH (FADER)	
S6	S42-3047-05	PUSH SWITCH (TURN OVER)	*
S9	S90-0047-05	SLIDE SW (SP SELECTOR)	*
D1 -3	V11-0273-05	1S2076A	
D4	V11-4100-40	WZ-120	
D5	V11-4172-26	WZ-032	
D6	V11-4100-40	WZ-120	
D7 ,8	V11-4172-26	WZ-032	
D9	V11-0273-05	1S2076A	
D10	V11-0271-05	1S2076	
D11	V11-0273-05	1S2076A	
D13	V11-0273-05	1S2076A	
D15	V11-0273-05	1S2076A	
D17	V11-0287-05	WZ-240	
D19	V11-0273-05	1S2076A	
D21	V11-0295-05	W06B	
D23 -30	V11-0465-05	GP25D	
D31	V11-5100-60	RB-151	
D45 -48	V11-0271-05	1S2076	
D49 ,50	V21-0013-05	STV-3H(Y)	
D51 ,52	V11-0271-05	1S2076	
D53 -56	V11-0273-05	1S2076A	
D57 -68	V11-0271-05	1S2076	
D75	V11-0273-05	1S2076A	
D79	V11-4103-60	XZ-051	
D80	V11-0271-05	1S2076	
IC1	V30-0514-10	AN5733	*
IC2	V30-0516-10	MB84066B	*
IC3	V30-0515-10	DN819	*
IC4	V30-0526-10	MB84069B	*
IC5 ,6	V09-0145-30	UPA68H(L,M)	

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名／規格	Remarks 備考
Q1 ,2	V09-0144-40	2SK163(N)	
Q3 ,4	V01-0999-10	2SA999	
Q5	V03-2320-00	2SC2320	
Q6	V02-0724-20	2SB724(P,O)	
Q7	V01-0999-10	2SA999	
Q8	V03-2320-00	2SC2320	
Q9	V01-0999-10	2SA999	
Q10	V01-0954-00	2SA954	
Q21 -26	V03-2320-00	2SC2320	
Q27 -30	V03-0098-05	2SC535 (P)	
Q31 -34	V01-1127-30	2SA1127NC	
Q35 -38	V01-0992-10	2SA992(F,E)	
Q39 ,40	V03-1845-10	2SC1845(F,E)	
Q41 ,42	V03-2320-00	2SC2320	
Q43 ,44	V03-2631-10	2SC2631(Q,R,S)	
Q45 ,46	V01-1123-10	2SA1123(Q,R,S)	
Q47 ,48	V03-2275-10	2SC2275A(R,Q,P)	*
Q49 ,50	V01-0985-10	2SA985A	
Q59 ,60	V01-0992-10	2SA992(F,E)	
Q61 ,62	V01-0198-05	2SA872	
Q63 ,64	V03-1775-00	2SC1775	
Q66	V03-1845-10	2SC1845(F,E)	
Q85 ,86	V01-0992-10	2SA992(F,E)	
TH1 ,2	V22-0027-05	STP-41L	
SUB (X13-3020-10)			
C1 ,2	C52-1747-26	CERAMIC 0.0047UF K	
C3 ,4	C24-1447-57	ELECTRO 4.7UF 25WV	
R7 ,8	R47-5522-15	FL-PROOF RS220 J 3D	
Q1 ,2	V01-0992-00	2SA992	

Semiconductor Substitutions

Name	Substitutions
PRE AMP (X08-1850-10)	
TA2010A	TA2010
2SA957 (Y, G)	2SB724 (O)
2SC2167	2SD762 (O)
2SK105 (H)	2SK163 (L), 2SK136 (Q), 2SK117 (GR)
AUDIO AMP (X09-1610-10)	
MB84066B	μPD4066C
MB84069B	μPD4069C
2SA985A (R,Q,P)	2SA1111 (Q, R)
2SA1123 (Q,R,S)	2SA912 (Q, R, S)
2SC535	2SC1674 (L, K), 2SC1923
2SC2275A (R,Q,P)	2SC2591 (Q, R)
2SC2320	2SC945
2SC2631 (Q,R,S)	2SC1885 (Q, R, S)
2SK163 (N)	2SK105 (H)
1S2076	1S1555
GP25D	U05C (S)

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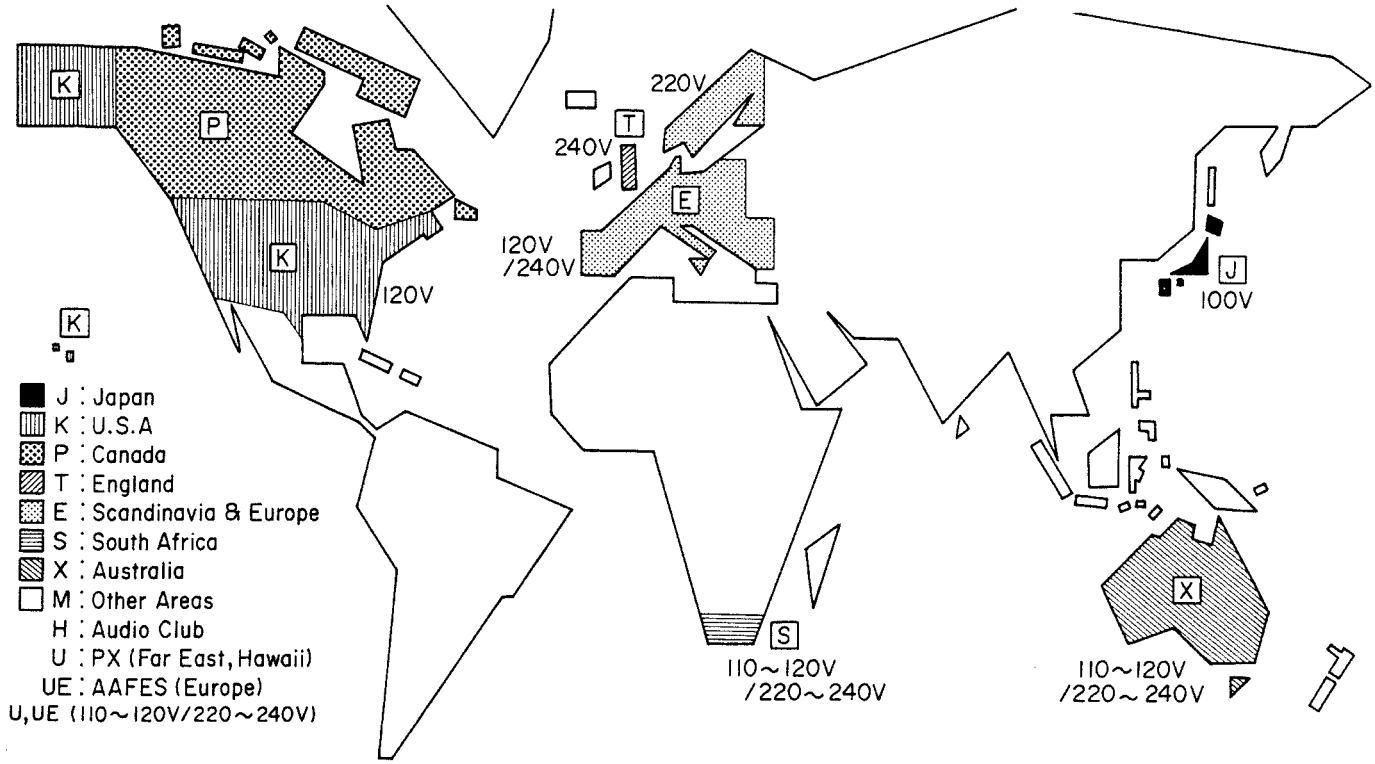
WORLD MAP & AREA CODE



Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations through use of parts list.

There are no plan for producing units of S type.

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