

KENWOOD
HI/FI STEREO COMPONENTS

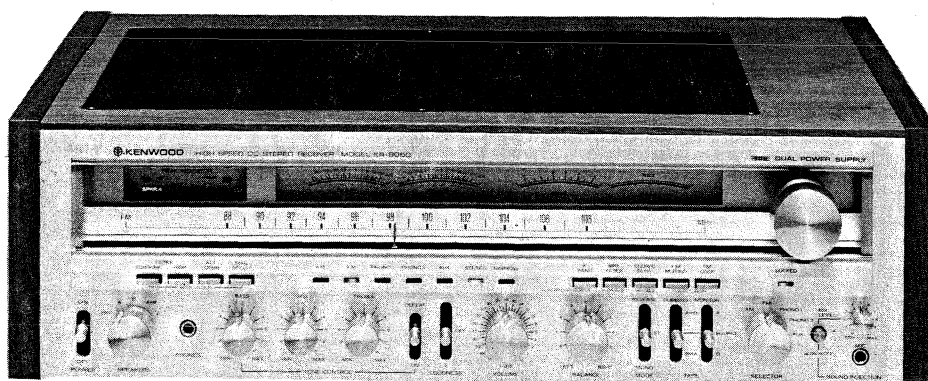
SERVICE MANUAL

KR-9050

An item of adjustment is written in three languages — English, French and German.

Un article sur réglages est écrit en trois langues, Anglais, Français et Allemand.

Ein Artikel der Abgleich wird auf drei Sprachen, Englische, Französisch und Deutsch geschrieben.



HIGH SPEED DC STEREO RECEIVER

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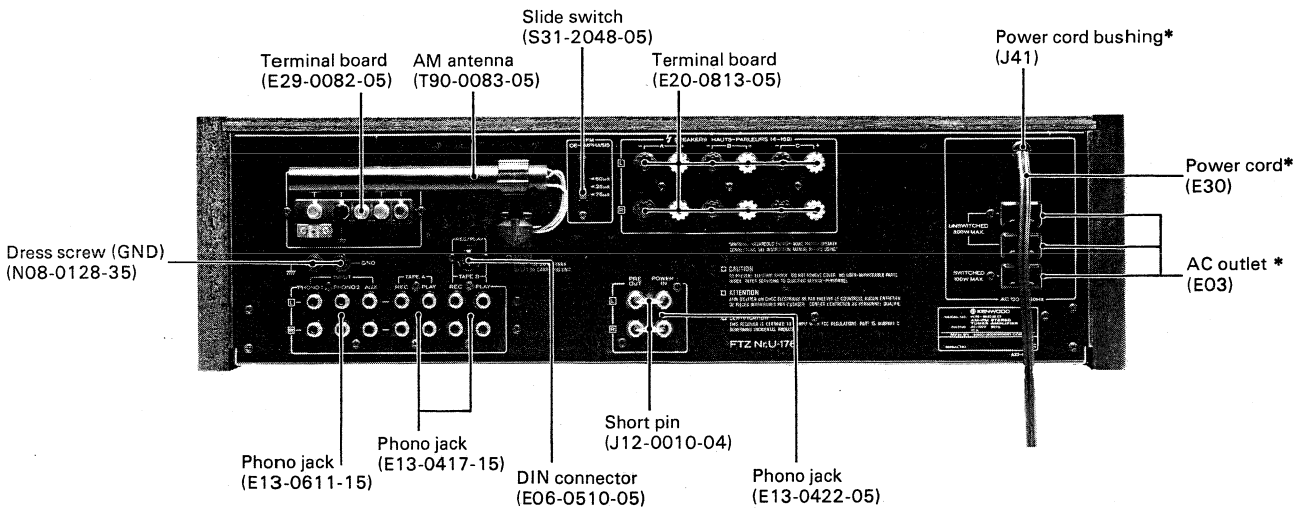
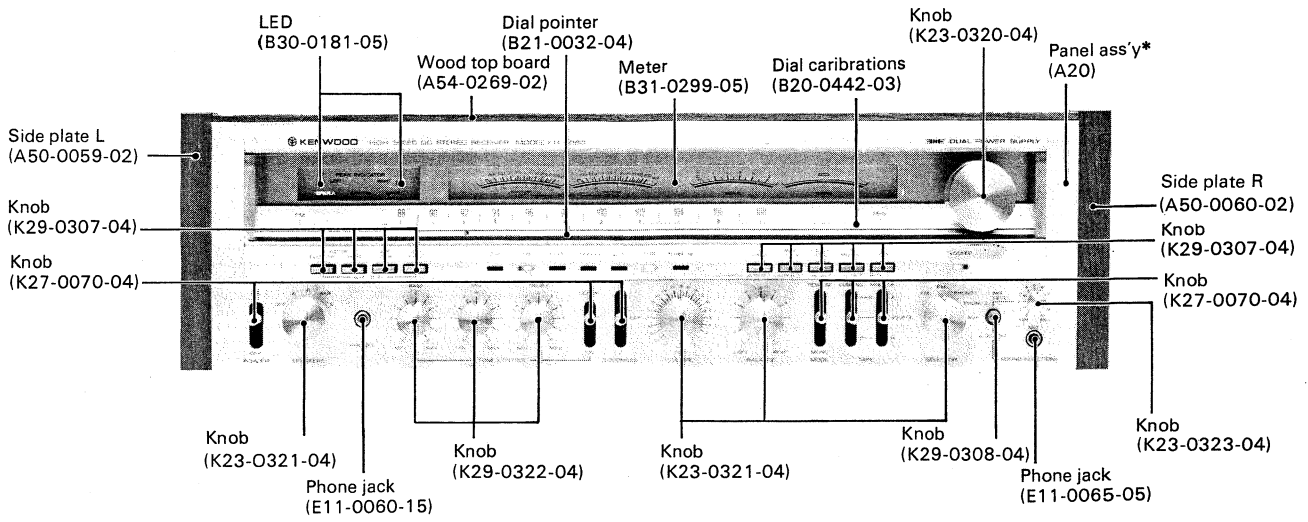
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Note:
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate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

Region	Code
U.S.A.	K
Canada.....	P
PX.....	U
Australia.....	X
Europe.....	W
Scandinavia.....	L
England.....	T
South Africa.....	S
Other Areas.....	M

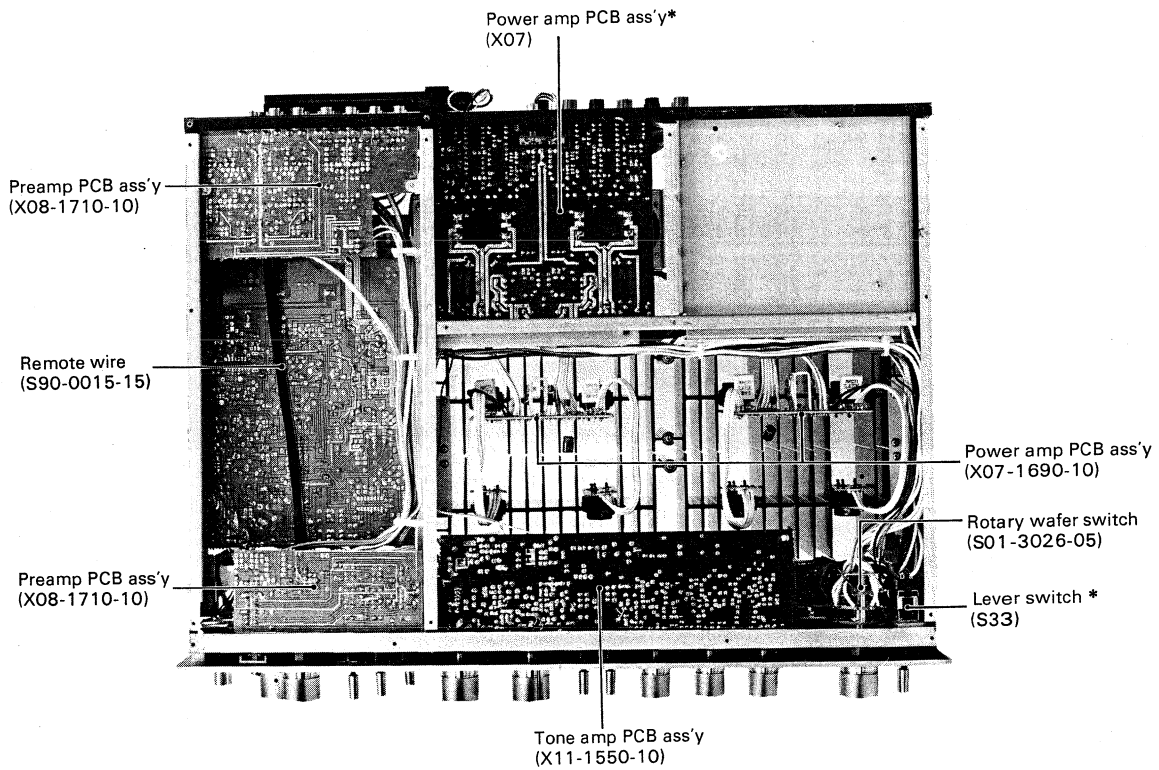
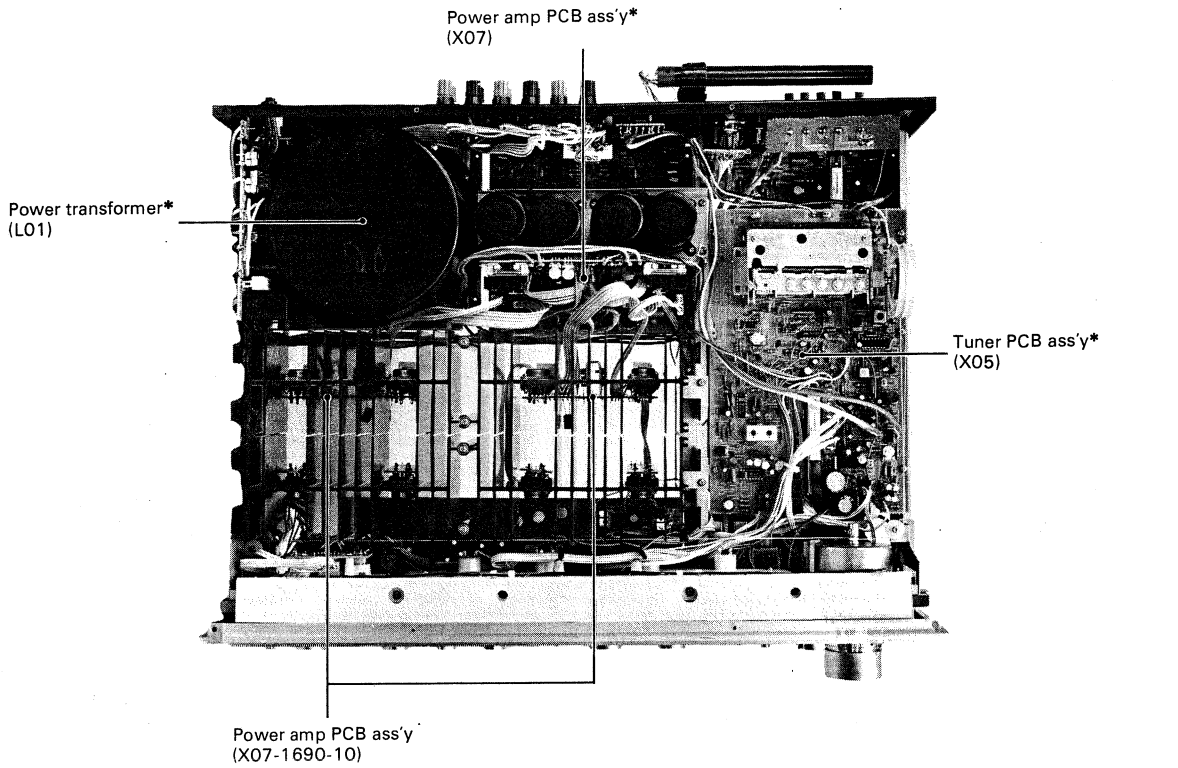
There is no plan for producing units of X and S types.

EXTERNAL VIEW



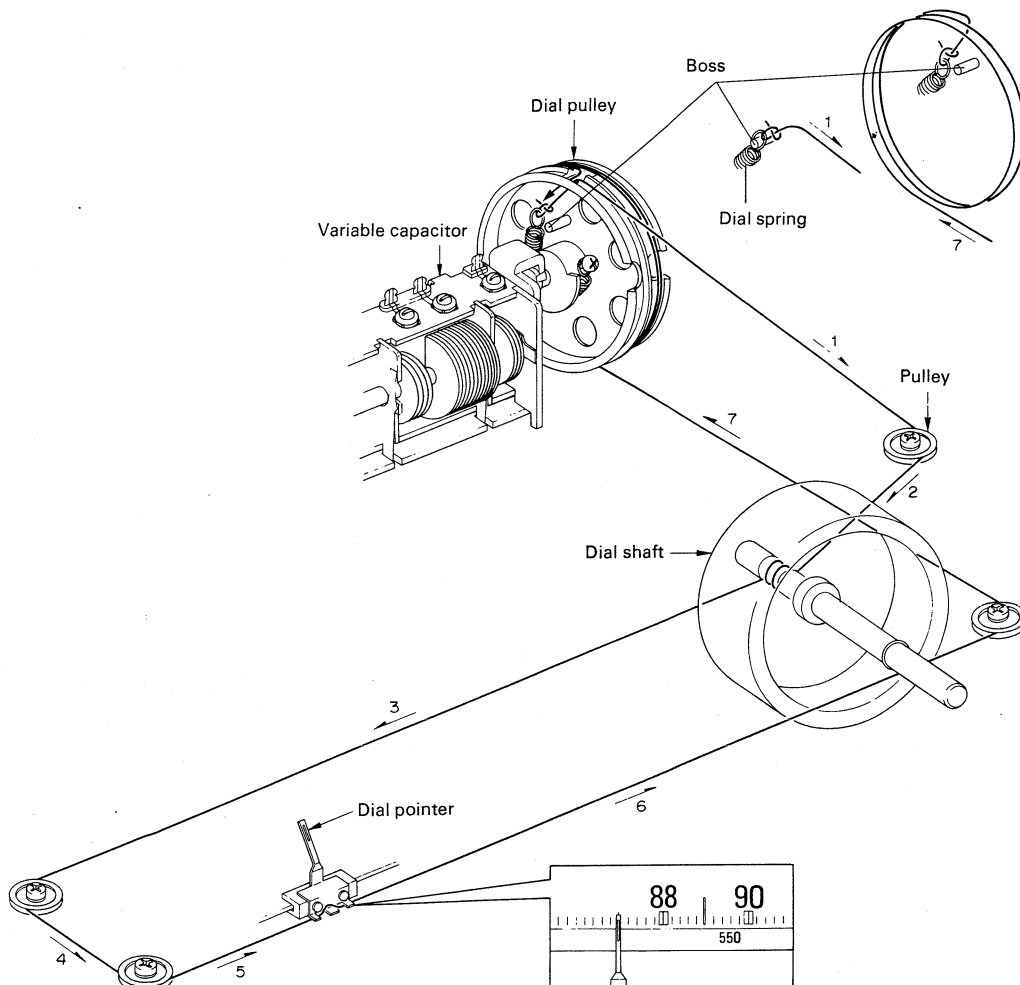
* Refer to parts list.

INTERNAL VIEW



* Refer to parts list.

DIAL CORD STRINGING



DIAL CORD STRINGING

1. Fully open the variable capacitor.
2. Set the dial pulley as illustrated and fix it with a screw.
3. Tie the end of the dial cord at the dial spring, giving a margin of about 10 cm. Hook the spring on the boss.
4. Dress the dial cord in the direction of "1" to "2" and wind 2 turns around the dial shaft starting from its lower side.
5. Dress the dial cord in the direction of "3" through "7" and wind it 2 and a half turns around the dial pulley starting from its lower side.
6. Rigidly tie it with the margin cord and the dial spring (provided as described in 3, above) and release the dial spring from the boss.
7. Fully close the variable capacitor, then mount the dial pointer as illustrated.

CIRCUIT DESCRIPTION

SOUND INJECTION

MIC and SOURCE mixing

If a single tape deck is used in your system it should be connected to the TAPE B jacks; the factory-installed U-shaped jumpers should be in place in the TAPE A jacks.

To mix mic and source signals, proceed as follows.

1. Turn the SOUND INJECTION switch on to activate sound injection. Select the desired source with the SELECTOR switch.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. The sound heard from the speakers will be mic plus source. Adjust mic level for your preference by turning the SOUND INJECTION knob.
4. A recording of the mixed performance can be made with the tape deck connected to the B jacks.

Table 1 gives a summary of audio combinations at speaker and tape REC jacks for all applicable switch settings.

MIC and TAPE mixing

If two tape decks are incorporated into your system, you can mix mic audio with playback signals from tape deck A and record the mix on tape deck B.

For this operation the U-shaped jumpers should have been removed from the jacks marked TAPE A, and the second tape deck connected to these jacks.

1. Turn the SOUND INJECTION switch on to activate sound injection.
2. Set the TAPE DUBBING switch to A ▷ B and the TAPE MONITOR switch to A.
3. Play back the tape on tape deck A. The sound heard in the speakers will be the mic plus tape deck A playback.
4. Adjust mic level for your preference by turning the SOUND INJECTION knob.
5. A recording of the TAPE A playback with your added accompaniment can be recorded on tape deck B.

Table 2 gives a summary of audio combinations at speaker and tape jacks for all applicable switch settings.

Table 1 (With U-shaped jumpers)

SOUND INJECTION SWITCH	TAPE DUBBING SWITCH POSITION	TAPE MONITOR SWITCH POSITION	SPEAKER AUDIO	AUDIO TAPE A "REC" JACKS	AUDIO TAPE B "REC" JACKS	REFERENCE
"ON"	"SOURCE"	"SOURCE"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	MIXING VOLUME INOPERATIVE
		"A"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
	"A ▷ B"	"SOURCE"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	
		"A"	MIC AND SOURCE	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	MIC AND SOURCE	

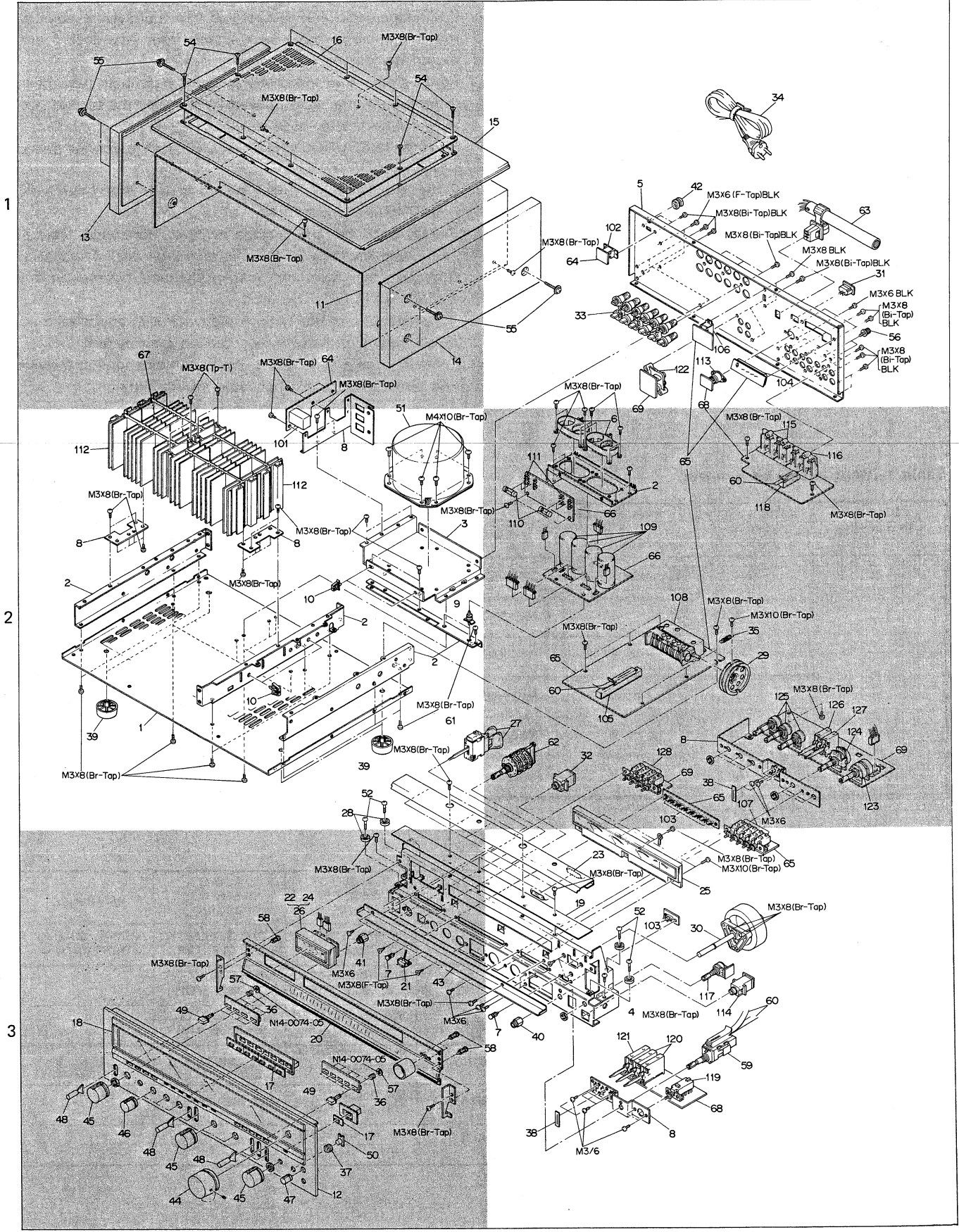
Table 2 (Without U-shaped jumpers)

SOUND INJECTION SWITCH	TAPE DUBBING SWITCH POSITION	TAPE MONITOR SWITCH POSITION	SPEAKER AUDIO	AUDIO TAPE B "REC" JACKS	AUDIO REFERENCE JACKS	REFERENCE
"ON"	"SOURCE"	"SOURCE"	MIC ONLY	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	MIXING VOLUME INOPERATIVE
		"A"	MIC AND TAPE A	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	SOUND SELECTED BY SELECTOR	
	"A ▷ B"	"SOURCE"	MIC ONLY	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	
		"A"	MIC AND TAPE A	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	
		"B"	TAPE B	SOUND SELECTED BY SELECTOR	MIC AND TAPE A	

EXPLODED VIEW

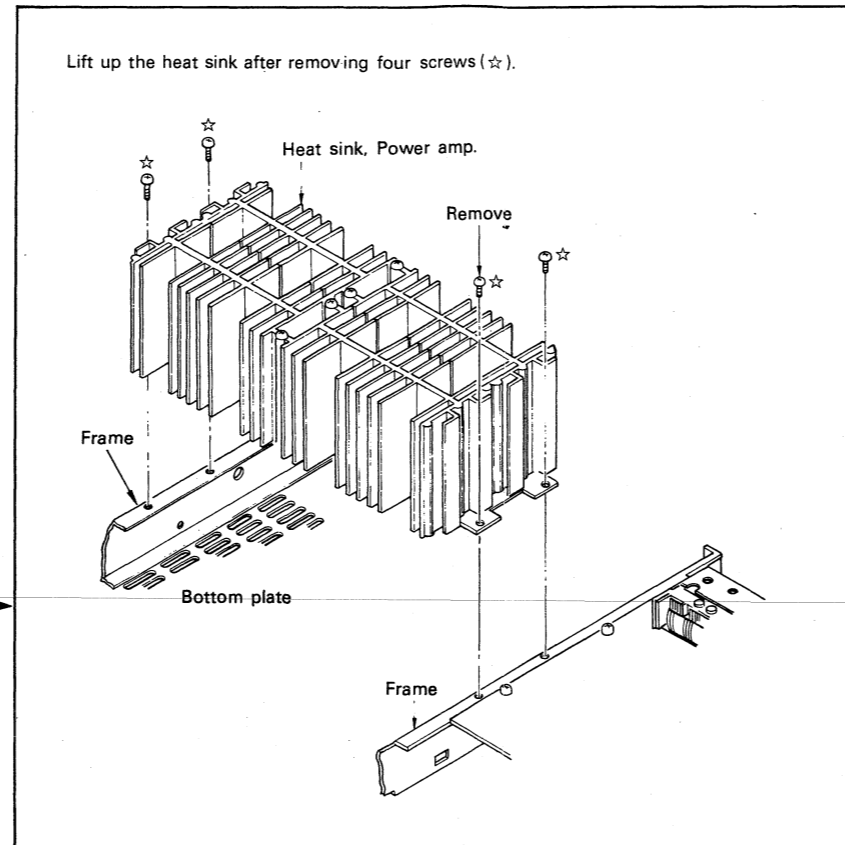
See parts numbers on page 20.
A

B

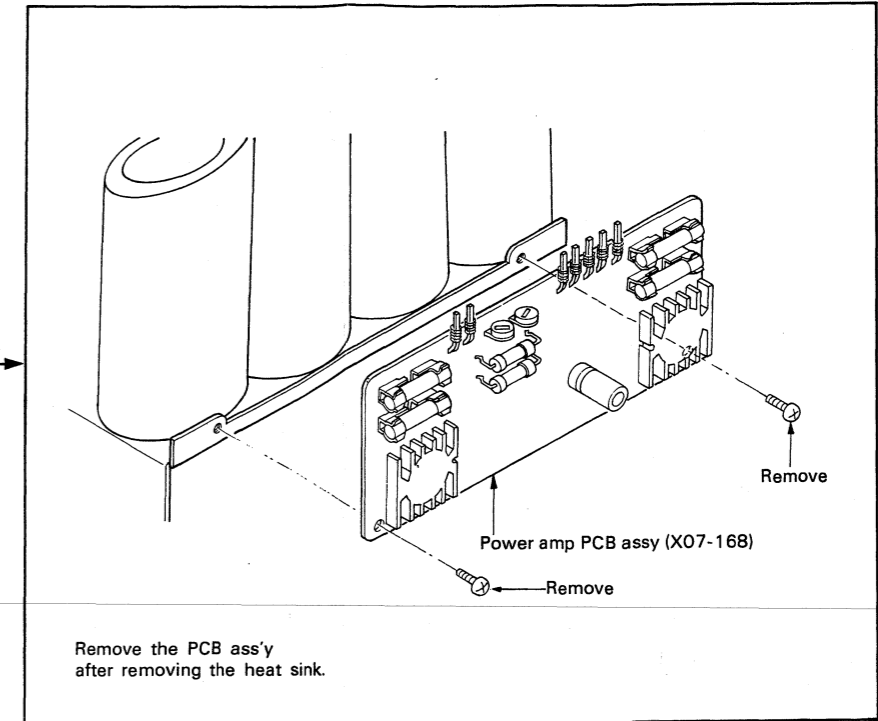


DISASSEMBLY FOR REPAIR

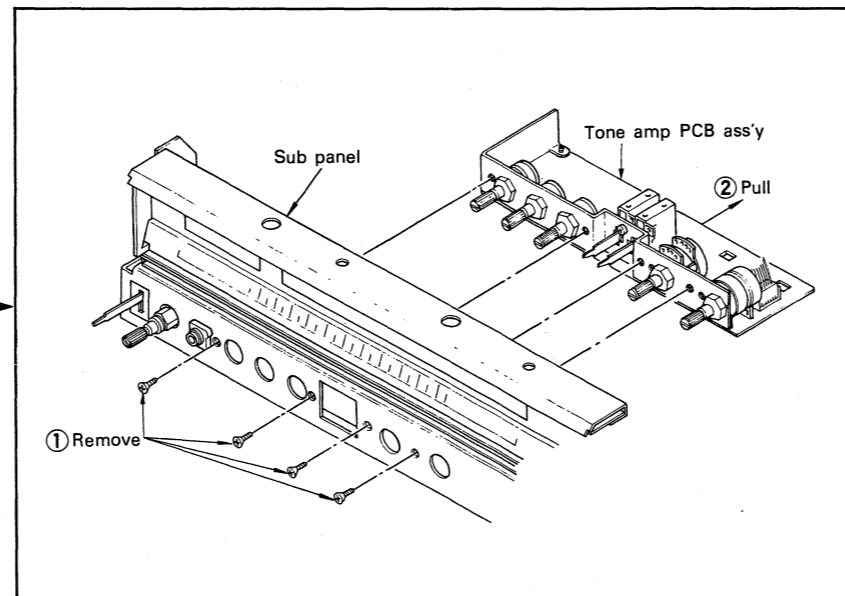
POWER AMP (X07-169)



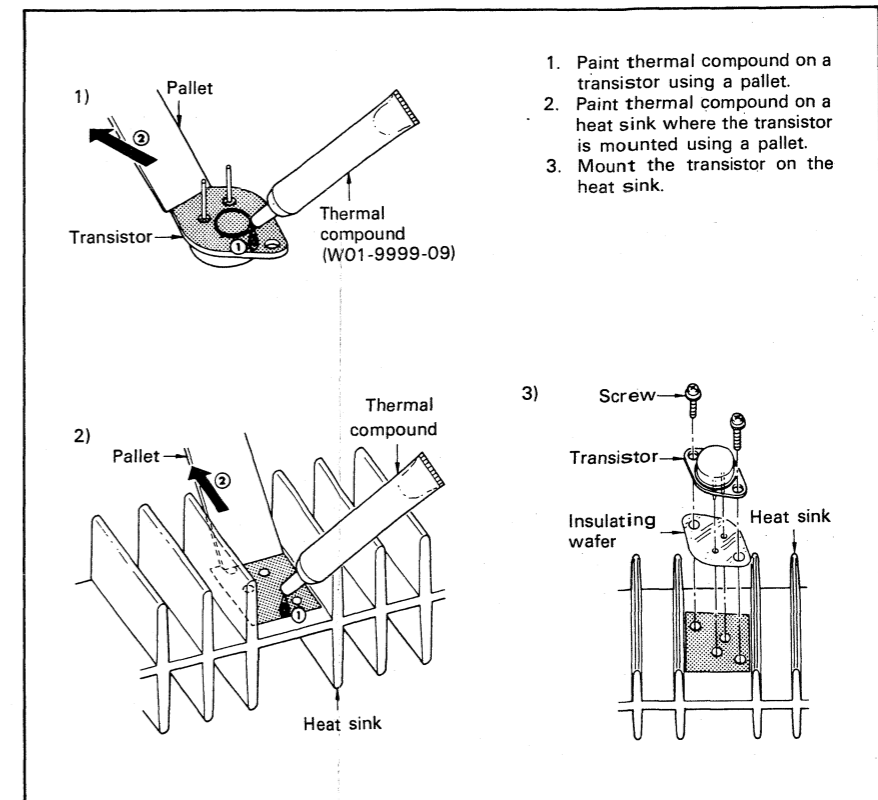
POWER AMP (X07-168)



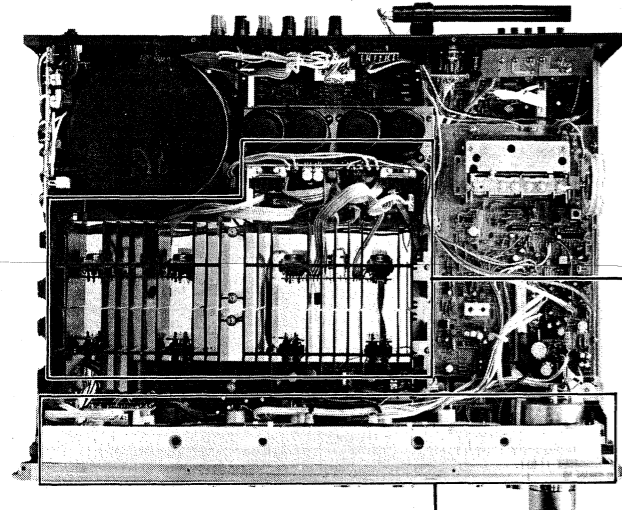
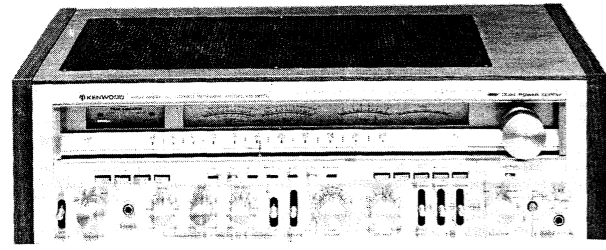
CONTROL AMP. ETC.



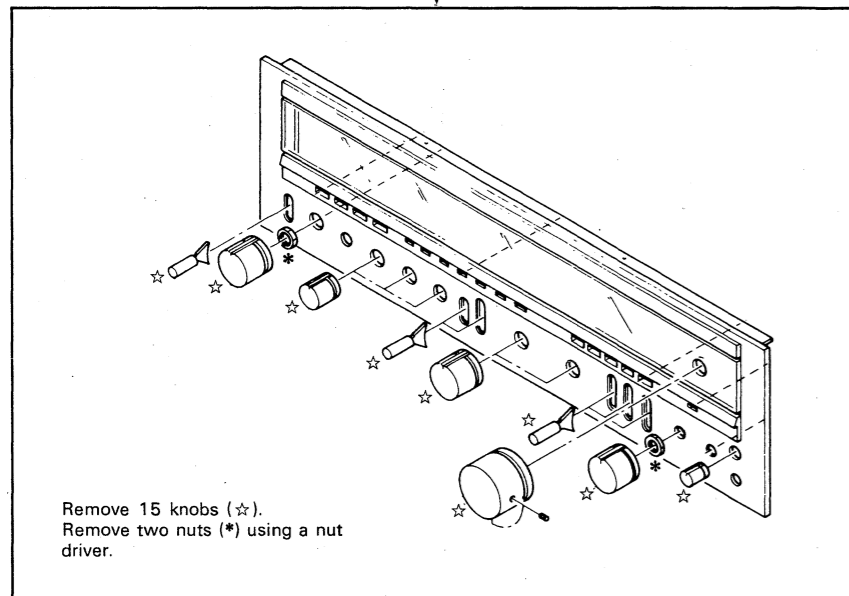
POWER TRANSISTOR



1. Remove the bottom plate.
2. Remove the side plate (L), (R) and the wood top board.
3. Remove the case. (Refer to EXPLODED VIEW)



REMOVE THE PANEL



ADJUSTMENT

INSTRUMENTS USED

AM signal generator AM-SG
 FM signal generator FM-SG
 Audio generator AG
 Solid state voltmeter SSVM
 FM multiplex generator FM-MPX
 Oscilloscope
 Frequency counter
 Distortion meter

NOTES FOR ADJUSTMENT

* The check points are shown on both circuit diagram and printed circuit board diagram.
 * 0 dB = 1 μ V

NO.	ALIGNMENT	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT SETTING	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
①	DISCRI	-	-	FM ST. SENS 2 LOCK OFF IF WIDE TUNING; To a dead spot in the FM band	T meter	L5a	Meter indication in the center
②		A	95 MHz 60 dB (ANT.) 1 kHz (MOD.) 75 kHz (DEV.)	FM 95 MHz SENS 2 LOCK OFF IF WIDE	B	L5b	Minimum distortion
Repeat the alignments of 1 and 2 a few times.							
③	VCO	A	95 MHz 60 dB (ANT.) 0 (DEV.)	- ditto -	C Frequency counter between R63 and GND via SSVM Note 1	VR3	Adjusted to 76 kHz \pm 200 Hz
④	19 kHz CANCEL	D	FM-MPX: PILOT SIGNAL FM-SG: 60 dB (ANT.)	- ditto -	SSVM to Pin 5 or Pin 6 of IC3	VR4	A compromise adjustment may be required if left and right outputs are unequal.
⑤	SEPARATION	D	FM-MPX: SELECTOR L or R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 95 MHz 60 dB (ANT.) 68.25 kHz (DEV.)	- ditto -	E R out (SELECTOR→L) L out (SELECTOR→R)	VR5	A compromise adjustment may be required if left-to-right and right-to-left separations are unequal.
⑥	IFT	D	FM-MPX: SELECTOR L + R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 95 MHz 60 dB (ANT.) 68.25 kHz (DEV.)	- ditto -	E	IFT (Front end)	Minimum distortion. Adjust slightly.
⑦	STEREO BEACON	D	FM-MPX: SELECTOR L + R 1 kHz (MOD.) PILOT (6.75 kHz DEV.) FM-SG: 95 MHz 20 dB (ANT.) 68.25 kHz (DEV.)	FM 95 MHz SENS 1 LOCK OFF IF WIDE		VR1	STEREO INDICATOR lights

NO.	ALIGNMENT	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT SETTING	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
AM SECTION							
1	IFT	E	1000 kHz 400 Hz 30% (MOD.)	AM 1000 kHz	B	L10	Maximum optimum waveform.
2	TRACKING	E	600 kHz 400 Hz 30% (MOD.)	AM 600 kHz	B	L9 Bar antenna	Maximum optimum waveform.
3			1400 kHz 400 Hz 30% (MOD.)	AM 1400 kHz		TCAM 1.2	
Repeat the alignments of 2 and 3 a few times.							
AUDIO SECTION							
I	OFFSET VOLTAGE	-	-	VOLUME to minimum position SPEAKERS B	F Lch (R-ch)	X07-1680 VR1 (VR2)	0V
II	BIAS CURRENT	-	-	VOLUME to minimum position	DC voltmeter between the emitters of Q7 and Q11 (Q8 and Q12) Note 2	X07-1690 VR1 (VR2)	20 mV
III	POWER METER	G	1 kHz 1V	TAPE B PLAY Adjust VOLUME so that SSVM indicates 4.9V SPEAKERS A	H POWER METER	X07-1680 VR3 (VR4)	SSVM 4.9V POWER METER 3W

REFERENCE: FM FRONT END

The FM front end section is completely adjusted in the factory and further adjustment is not necessary. When the transistor and/or FET are replaced, perform the following adjustment.

- (1) Set FM-SG to 108 MHz, 1 kHz Mod, \pm 75 kHz Dev. and connect it to the antenna terminal of the receiver.
- (2) Set the dial pointer at 108 MHz.
- (3) Adjust TCO so that T meter gives a mid-scale reading.
- (4) Adjust TCA, TCR1 and TCR2 so that S meter deflects maximum.

When the FM front end section cannot be repaired by replacing semiconductors and taking steps in "(1)~(4)", replace the front end (W02-0019-05) and do the following.

- (1) Set FM-SG to 90 MHz, 1 kHz Mod, \pm 75 kHz, 60 dB and connect it to the antenna terminal of the receiver.
- (2) Receive the FM-SG signal.
- (3) Fix the dial pointer at 90 MHz.

- * Repeat tracking adjustments 2 or 3 times and finally confirm the result using respective local stations.
- * FM tracking on lower side cannot be adjusted since a fixed coil is employed.

RÉGLAGES

INSTRUMENTS USITE

Générateur MA..... AM-SG
 Générateur MF..... FM-SG
 Générateur Audio fréquences..... AG
 Voltmètre à transistor..... SSVM
 Générateur multiplex stéréo..... FM-MPX
 Oscilloscope
 Compteur de fréquence
 Distorsiomètre

REMARQUES DE RÉGLAGES

* Le point de contrôle est indiqué sur le schéma de montage et le tracé du circuit imprimé.
 * 0 dB = 1 µV

NO.	ALIGNEMENT	APPAREILLAGE		RÉGLAGE DU AMPLI-TUNER	INDICATEUR DE SORTIE	POINTS DE RÉGLAGE	REMARQUES
		RACCORDEMENT	RÉGLAGE				
SECTION MF							
①	INDICATEUR À ZÉRO CENTRAL	—	—	FM STEREO SENS: 2 LOCK: OFF IF: WIDE NOISE:	INDICATEUR A ZÉRO CENTRAL	L5	Aiguille de l'indicateur à zéro central en position centrale.
②	INDICATEUR À ZÉRO CENTRAL	Ⓐ	96 MHz 1 kHz (Mod.) 75 kHz (Dev.) 60 dB (Ant.)	FM 95 MHz STEREO SENS: 2 LOCK: OFF IF: WIDE	Ⓑ	L5	Distorsion minimale.
Répéter les points "1" et "2" plusieurs fois.							
③	VCO	Ⓐ	95 MHz 0 (Dev.) 60 dB (Ant.)	idem	Ⓒ Relier le compteur de fréquence à la résistance R63 par SSVM	VR3	oscillateur à 76 kHz ±200 Hz (Note 1)
④	Circuit suppression de signal pilote	Ⓓ	95 MHz SIGNAL PILOTE 60 dB (Ant.)	idem	Relier le SSVM à plot 5 et 6 de IC3	VR4	Si la sortie de la droite et la gauche ne sont pas même, régler le potentiomètre ajustable pour que la tension de sortie est même.
⑤	SÉPARATION	Ⓓ	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 60 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L ou R)	idem	Ⓑ Sortie de droit (SELECTION: L) sortie de gauche (SELECTION: R)	VR5	Si la sortie la droite de diaphonie et la gauche ne sont pas même régler le potentiomètre ajustable pour que la tension de sortie est même.
⑥	TFI	Ⓓ	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 60 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L + R)	idem	Ⓑ	TFI	Distorsion minimale.
⑦	INDICATEUR DE STÉRÉO	Ⓓ	95 MHz 1 kHz (Mod.) 68,25 kHz (Dev.) 20 dB (Ant.) 6,75 kHz (PILOTE) SELECTION (L + R)	FM 95 MHz SENS: 1 LOCK: OFF IF: WIDE	INDICATEUR DE STÉRÉO	VR1	INDICATEUR DE STÉRÉO Luit

NO.	ALIGNEMENT	APPAREILLAGE		RÉGLAGE DU AMPLI-TUNER	INDICATEUR DE SORTIE	POINTS DE RÉGLAGE	REMARQUES
		RACCORDEMENT	RÉGLAGE				
SECTION MA							
1	TFI	Ⓑ	1000 kHz 4000 Hz, 30% (Mod.)	AM 1000 kHz	Ⓑ	L10	Déviaton maximale.
2	ALIGNEMENT	idem	600 kHz 400 Hz, 30% (Mod.)	AM 600 kHz	idem	L9 Antenne ferrite MA	Déviaton maximale
3	ALIGNEMENT	idem	1400 kHz 400 Hz, 30% (Mod.)	AM 1400 kHz	idem	TCAM 1,2	Déviaton maximale.
Répéter les 2 et 3 plusieurs fois.							
SECTION AMPLI							
I	TENSION DE DÉCALAGE	—	—	VOLUME: minimale SPEAKERS: B	Ⓕ	VR1, 2 (X07-1680)	0V
II	COURANT DE POLARISATION	—	—	idem	Bracher le voltmètre c.c. aux émetteur de Q7 et Q11 (Q9 et Q12) (Note 2)	VR1, 2 (X07-1690)	20 mV
III	POWER MÈTRE	Ⓒ	1 kHz 1V	Regler le VOLUME en sortie que. Le VU mètre indique 3W lorsque le voltmètre indique 4,9V	Ⓖ POWER MÈTRE	VR3, 4 (X07-1680)	3W

REFERENCE: PARTIE FRONTALE FM

La partie frontale FM a été parfaitement réglée en usine et aucun réglage supplémentaire n'est requis.
 Si l'on remplace le transistor et/ou FET, il convient d'effectuer le réglage suivant:

- (1) Régler FM-SG sur 108 MHz, 1 kHz Mod. ±75 kHz Dev et le connecter à la borne d'antenne du ampli-tuner.
- (2) Mettre l'aiguille du cadran à 108 MHz.
- (3) Régler TCO de façon que l'indicateur à ZERO CENTRAL donne une lecture à mi-échelle.
- (4) Ajuster TCA, TCR1 et TCR2 de façon que l'indicateur de champ dévie au maximum.

Si la partie frontale FM ne peut pas être réparée en remplaçant les semi-conducteurs et en procédant suivant les indications dans (1)~(4), remplacer l'assemblage PCB de la partie frontale (W02-0019-05) et effectuer les opérations suivantes:

- (1) Régler FM-SG à 90 MHz, 1 kHz Mod. ±75 kHz, 60 dB et le connecter à la borne d'antenne du récepteur.
- (2) Recevoir le signal FM-SG.
- (3) Fixer l'aiguille du cadran à 90 MHz.

- * Renouveler plusieurs fois le réglage de reproduction et confirmer la réception de l'émission.
- * Comme on utilise une bobine fixée, l'alignement sur band latérale inférieure n'est pas possible.

ABGLEICH

PRÜFEINRICHTUNGEN

MW-Signalgenerator	AM-SG
UKW-Signalgenerator	FM-SG
NF-Signalgenerator	AG
Transistor-Voltmeter	SSVM
Multiplex-Signalgenerator	FM-MPX

Oszilloskop
 Frequenzzähler
 Klirrfactormesser

HINWEISE

- * Der Prüfpunkt (TP) ist im Schaltplan auf geführt.
- * 0 dB = 1 μ V

NR.	ABGLEICH	PRÜFEINRICHTUNG		STEUERGERÄT EINSTELLUNG	AUSGANGS- ANZEIGE	EINSTELL- PUNKT	BEMERKUN- GEN
		AN- SCHLÜSSE	EINSTELLUNG				
UKW-EMPFANGSABTEILUNG							
①	DISKRIMI- NATOR (1)	—	—	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: zu einem toten Freck im UKW-Bereich.	Kanalmitten- Anzeiger	L5a	Den Zeiger des Kanalmitten- Anzeiger mittig einstellen.
②	DISKRIMI- NATOR (2)	A	95 MHz 60 dB (Steuergerät- Eingangspesep) 1 kHz, \pm 75 kHz Hub	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: 95 MHz	B	L5b	Minimaler Klirrfaktor
Abstimmungen „1 und 2“ mehrere Male niederholen.							
③	SPANNUNGS- GEREGLTER OSZILLATOR	A	95 MHz 60 dB (Steuergerät- Eingangspesep) 0 Hub	SELECTOR: FM STEREO SENS: 2 FM LOCK: OFF IF BAND: WIDE Abstimmung: 95 MHz	C Frequenzzähler Zwischen R63 und GND via SSVM	VR3	76 kHz \pm 200 Hz
④	PILOTTON- UNTER- DRÜCKUNG	D	95 MHz 60 dB (Steuergerät- Eingangspesep) Pilotton	- dito -	Gleichspannungs- messer zu Klemme 5 von IC3	VR4	Eine Kompromiß- einstellung wird gefordert wenn Ausschlag von den rechten und linken Kanäle ungleich sind.
⑤	STEREO KANAL TRENNUNG	- dito -	95 MHz 60 dB (Steuergerät- Eingangspesep) 1 kHz, \pm 68,25 kHz Hub Wähler: Loder R Pilotton (\pm 6,75 kHz Hub)	- dito -	E R-Aus (Wähler: L) L-Aus (Wähler: R)	VR5	Eine Kompromiß- einstellung wird gefordert wenn dem Übersprech- anteil des linken kanals in den rechten kanal und dem Über- sprechanteil des rechten kanals in den linken kanal ungleich sind.
⑥	ZF-T	- dito -	95 MHz 60 dB (Steuergerät- Eingangspesep) 1 kHz, \pm 68,25 kHz Hub Wähler: L + R Pilotton: (\pm 6,75 kHz Hub)	- dito -	B	ZF-T (Frontende)	Minimaler Klirr faktor, Schwacher Einstellung
⑦	STEREO INDIKATOR	- dito -	95 MHz 20 dB (Steuergerät- Eingangspesep) 1 kHz, \pm 68,25 kHz Hub Wähler: L + R Pilotton (\pm 6,75 kHz Hub)	SELECTOR: FM STEREO SENS: 1 FM LOCK: OFF IF BAND: WIDE Abstimmung:	INDIKATOR	VR1	STEREO INDIKATOR aufleuchtet.

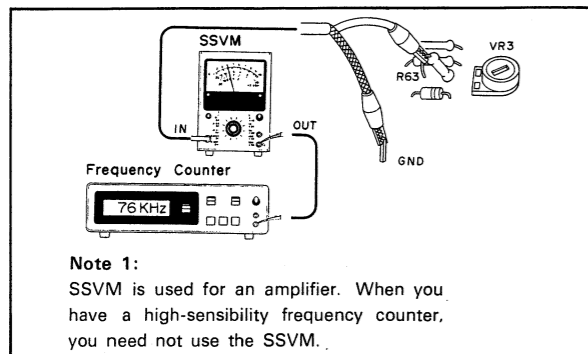
NR.	ABGLEICH	PRÜFEINRICHTUNG		STEUERGERÄT EINSTELLUNG	AUSGANGS- ANZEIGE	EINSTELL- PUNKT	BEMERKUN- GEN
		AN- SCHLÜSSE	EINSTELLUNG				
MW-EMPFANGSABTEILUNG							
1	ZF-T	B	1.000 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 1.000 kHz	B	L10	Maximaler Ausschlag
2	EMPFANGS- BEREICH (1)	- dito -	600 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 600 kHz	- dito -	L9 MW- Ferritantenna	- dito -
3	EMPFANGS- BEREICH (2)	- dito -	1.400 kHz 400 Hz, 30% Mod.	SELECTOR: AM Abstimmung: 1.400 kHz	- dito -	TCAM1, 2	- dito -
Abstimmungen „2 und 3“ mehrere Male wiederholen.							
VERSTÄRKER							
I	OFFSET- SPANNUNG	—	—	VOLUME zu Stellung „ ∞ “	F L-Kanal (R-Kanal)	X07-1680 VR1 (VR2)	0V
II	LEERLAUFS	—	—	- dito -	Gleichspannungs- messer Zwischen den Emitter- Elektroden von Q8 und Q11. (Q8 und Q12) Siehe Bemerkung 1.	X07-1690 VR1 (VR2)	20 mV
III	LEISTUNGS- MESSER	G	1 kHz 1V	Den VOLUME so regulieren, daß die Gleichspannungs- messer- Ablesung 4,9V ist.	H Leistungs- messer	X07-1680 VR3 (VR4)	3W

HINWEISE: UKW-Frontende.

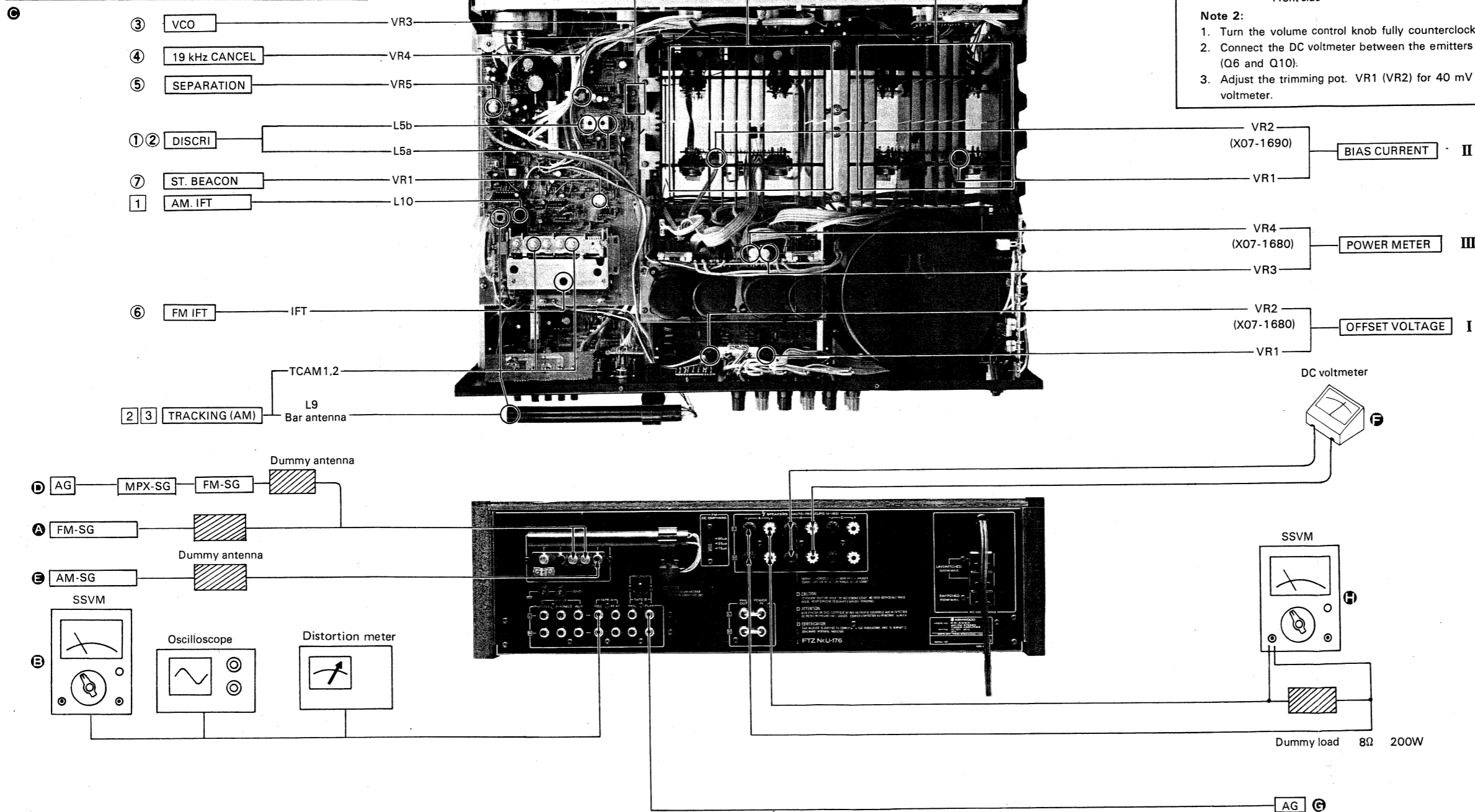
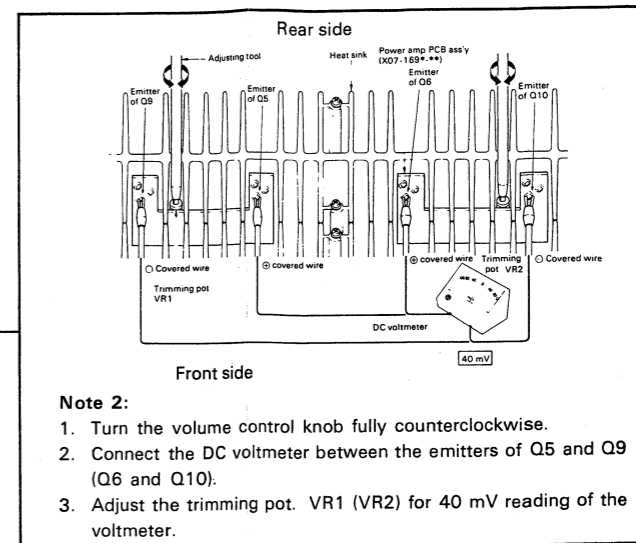
- Das UKW-Frontende wird bereits im Werk vollständig eingestellt. Weitere Einstellung ist daher nicht nötig. Bei Austausch des Transistors und/oder des FETs die Einstellung wie folgt vornehmen.
- (1) Den UKW-Signalgenerator auf 108 MHz, 1 kHz Modulation und \pm 75 kHz Hub einstellen und mit der Antennenklemme des Steuergeräts verbinden.
 - (2) Den Skalenzeiger auf 108 MHz stellen.
 - (3) TCO so einstellen, daß Kanalmitten-anzeiger in der Mitte ausschlägt.
 - (4) TCA, TCR1 und TCR2 so einstellen, daß Feldstärkeinstrument das Maximum anzeigt.
- Wenn des UKW-Frontende durch Auswechseln der Halbleiter und/oder durch in Abschnitt „1 ~ 4“ genannten Schritte nicht repariert werden kann, ist die Leiterplatte (W02-0019-05) des Frontendes auszuschleusen und folgende Einstellung vorzunehmen.
- (1) Den UKW-Signalgenerator auf 90 MHz, 1 kHz Modulation, \pm 75 kHz Hub, und 60 dB einstellen und mit der Antennen- klemme des Steuergeräts verbinden.
 - (2) Den Steuergeräts so einstellen, daß Meßsendersignal empfangen wird, während der Skalenzeiger auf 90 MHz zeigt.
- * Den Empfangsbereich einige Male einstellen und den Empfang überprüfen.
 - * Die UKW-Empfangsbereich auf der unteren Seite kann nicht geregelt werden, weil eine Festspule verwendet wird.

ADJUSTMENT

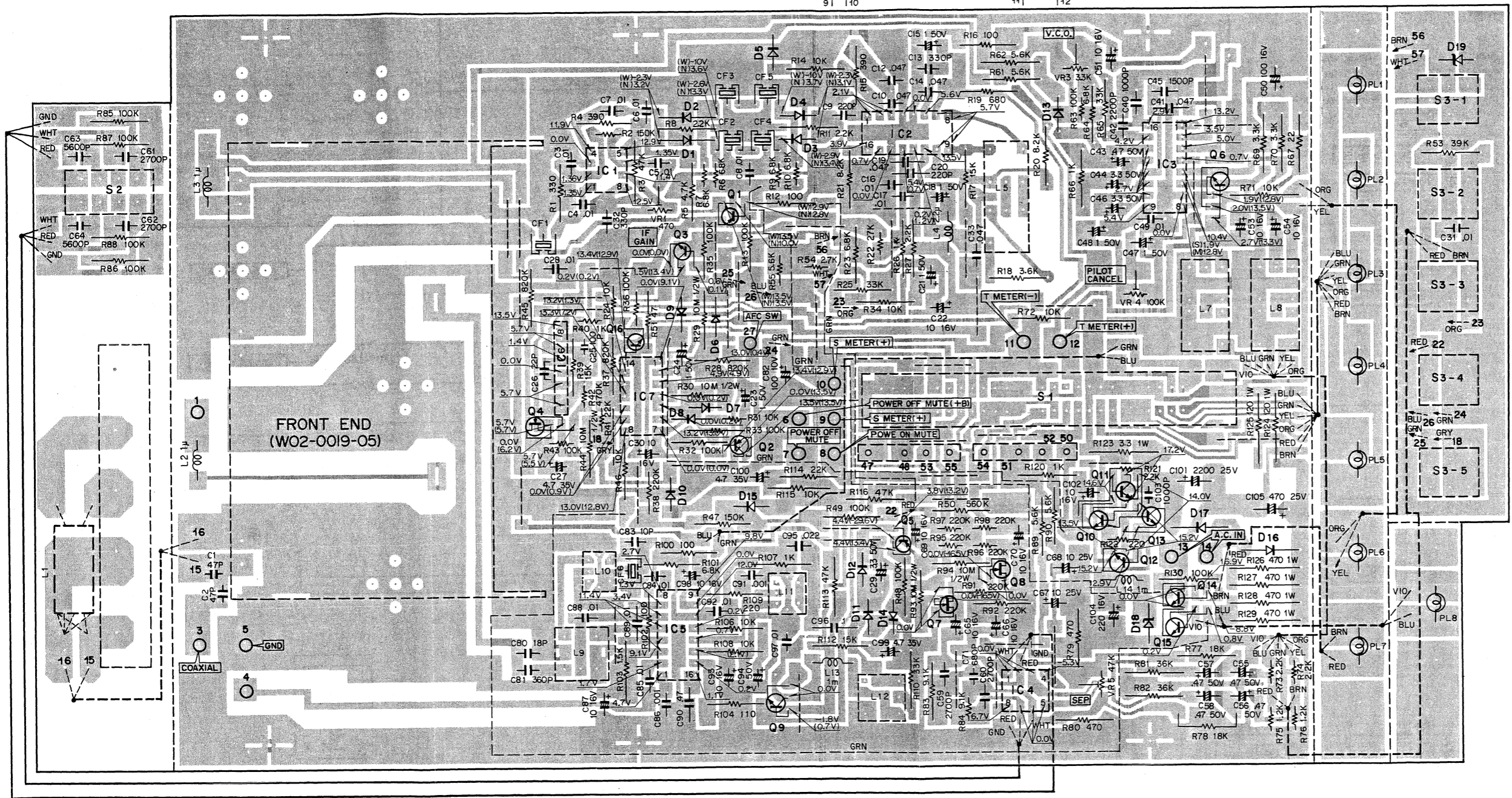
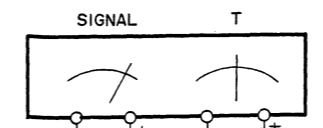
FM, AM SECTION



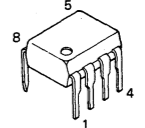
AUDIO SECTION



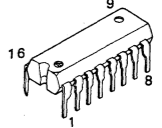
▼ TUNER (X05-1630-10) (Foil side)



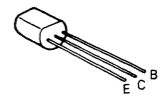
LA1222
NJM4558D



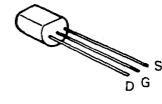
HA11225
HA11223W
LA1240



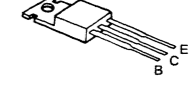
2SA733A
2SC945
2SC1222



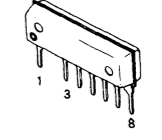
2SK117
2SK163



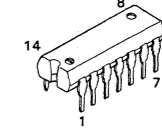
2SD330



HA1457



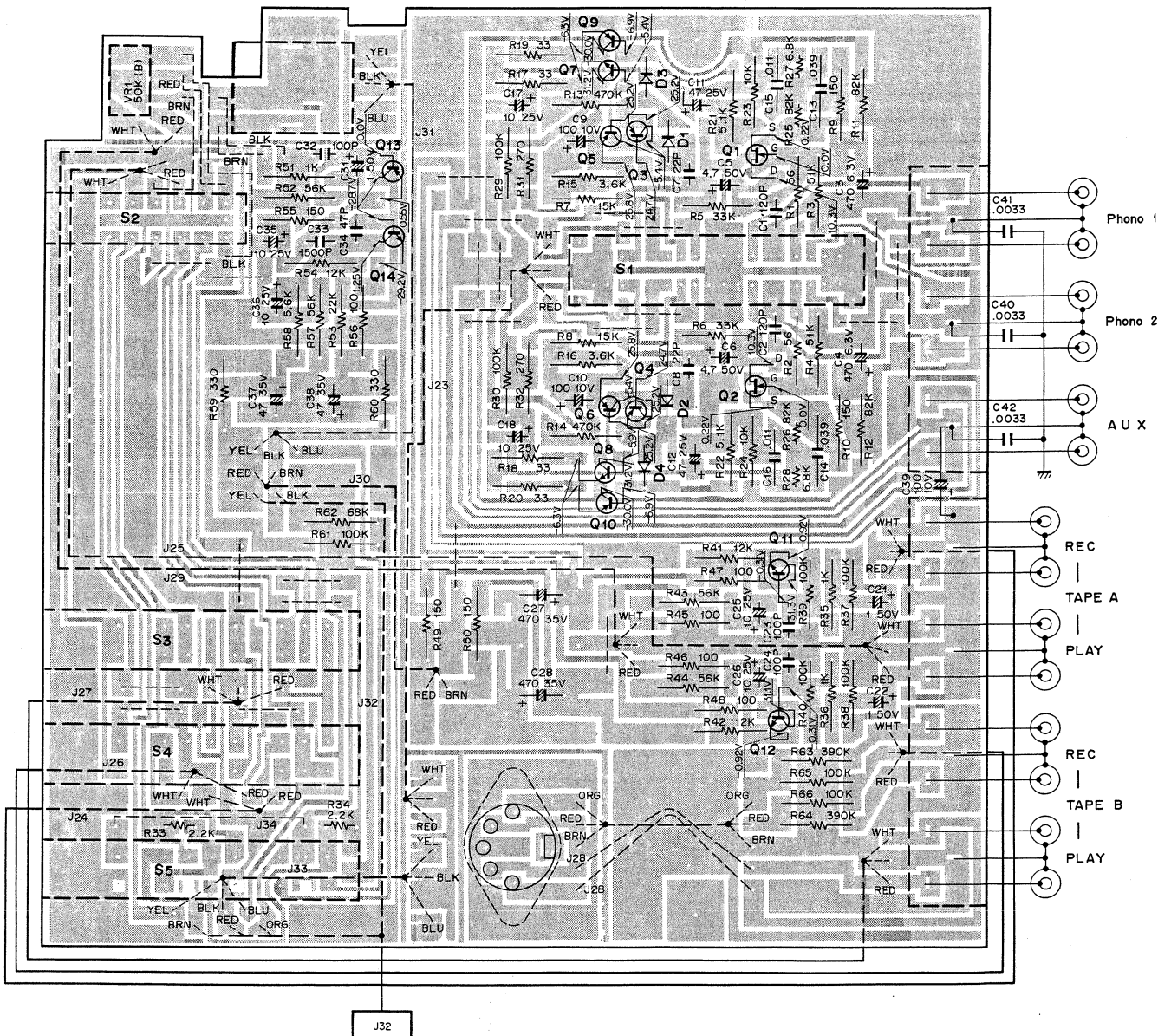
TC4069UBP
MC14069UBCP



Q1,2,5:	2SA733A(Q,P)	Q14:	2SC1222(U)	IC1:	LA1222	IC7:	TC4069UBP or MC14069UBCP
Q3,6,9,10:	2SC945(Q,P,K)	D1,2:	1N60	IC2:	HA11225		
12,13,15,16:	2SK163 or 2SK117 (Y,GR,BL)	D3~15:	1S1555 or 1S2076	IC3:	HA11223W		
Q4,7,8:	2SK163 or 2SK117 (Y,GR,BL)	D16,17:	W06B	IC4:	NJM4558D(A,B)		
Q11:	2SD330(E,F)	D18:	XZ-127	IC5:	LA1240 or HA1197		
		D19:	YZ-040B	IC6:	HA1457		

PC BOARD

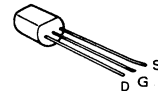
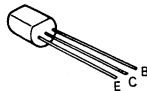
▼ PREAMP (X08-1710-10) (Foil side)



- Q1,2: 2SK163(K,L) or 2SK68A(L,M,N)
- Q3~6,9,10: 2SB725(Q,R) or 2SA1023(P,K)
- Q7,8: 2SD767(Q,R) or 2SC2378(P,K)
- Q11,12,14: 2SC1845(F,E)
- Q13: 2SA992(F,E)
- D1~4: 1S2076 or 1S1555

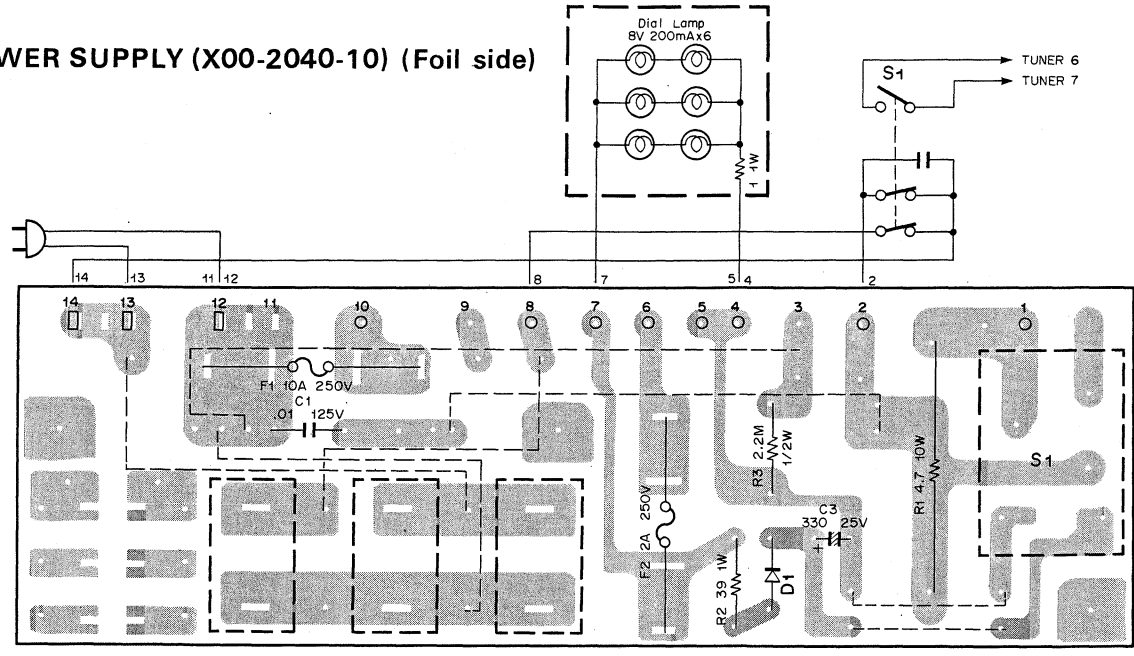
- 2SA992
- 2SA1023
- 2SB725
- 2SC1845
- 2SC2378
- 2SD767

- 2SK163
- 2SK68A

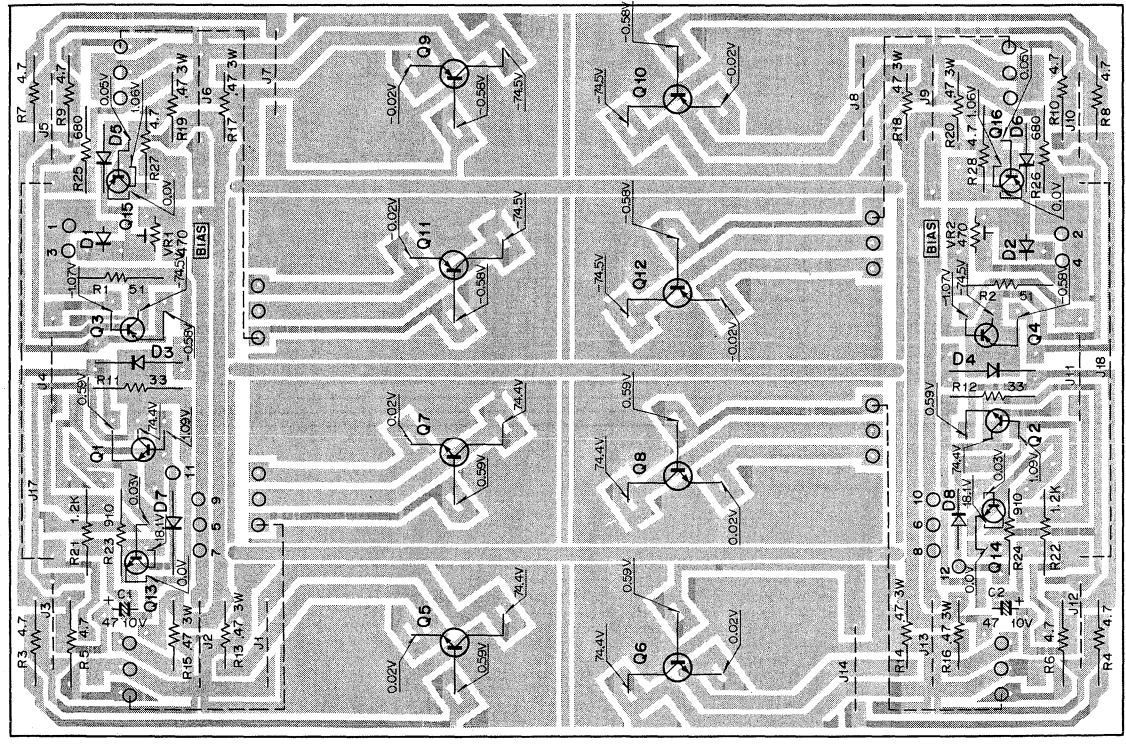


PC BOARD

▼ POWER SUPPLY (X00-2040-10) (Foil side)

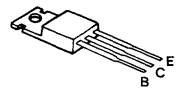


▼ POWER AMP (X07-1690-00) (Foil side)

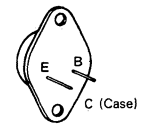


- | | | | |
|---------|--------------|-----------|--------------|
| Q1,2: | 2SD760(B,C) | Q15,16: | 2SA733A(R,Q) |
| Q3,4: | 2SB720(B,C) | D1,2: | STV-4H(W) |
| Q5~8: | 2SC2607(O,Y) | D3,4,7,8: | 1S2076A |
| Q9~12: | 2SA1116(O,Y) | D5,6: | YZ-040B |
| Q13,14: | 2SC1890(E,F) | | |

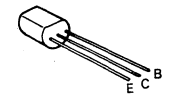
2SB720
2SD760



2SA1116
2SC2607

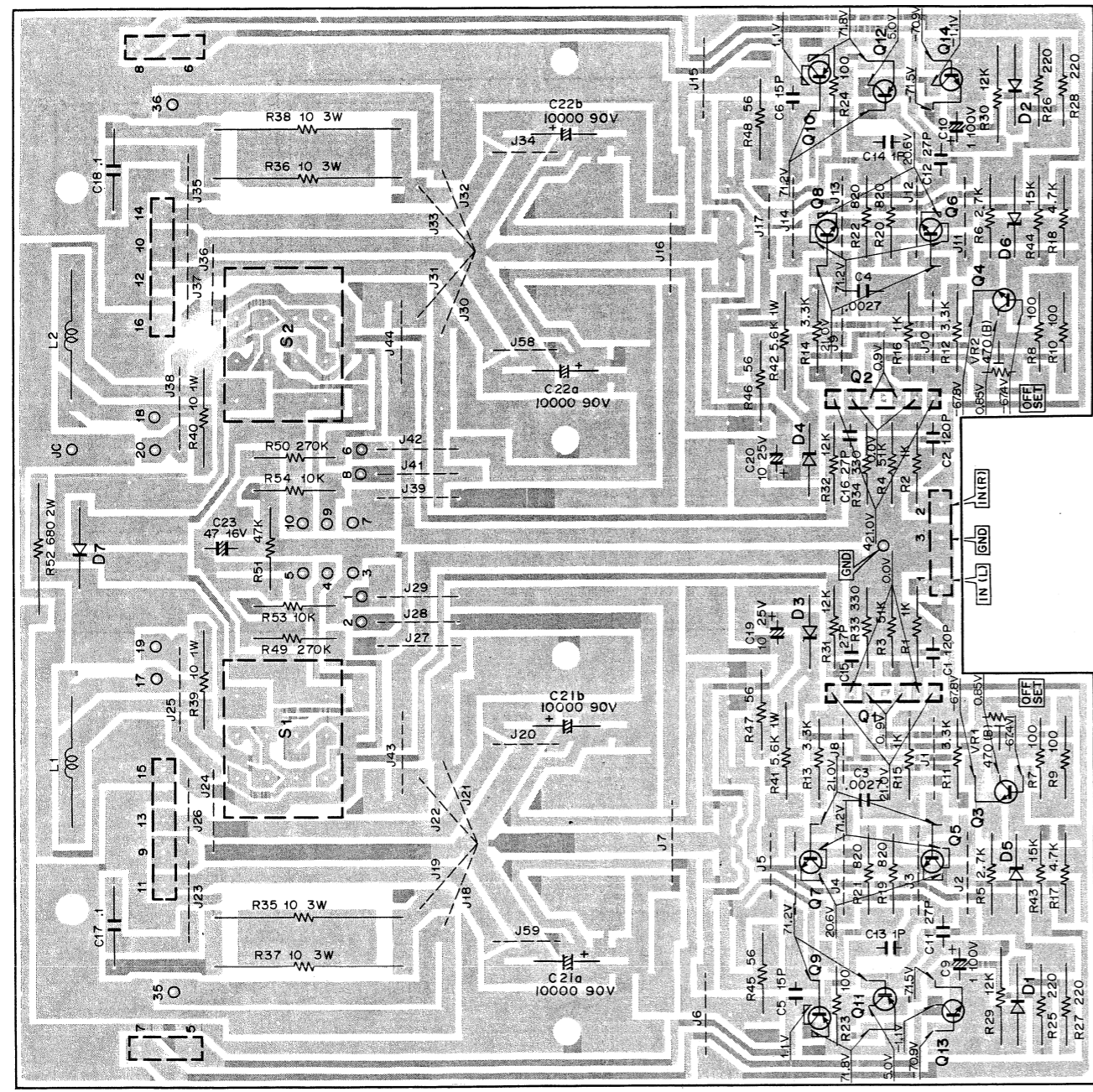


2SA733A
2SC1890

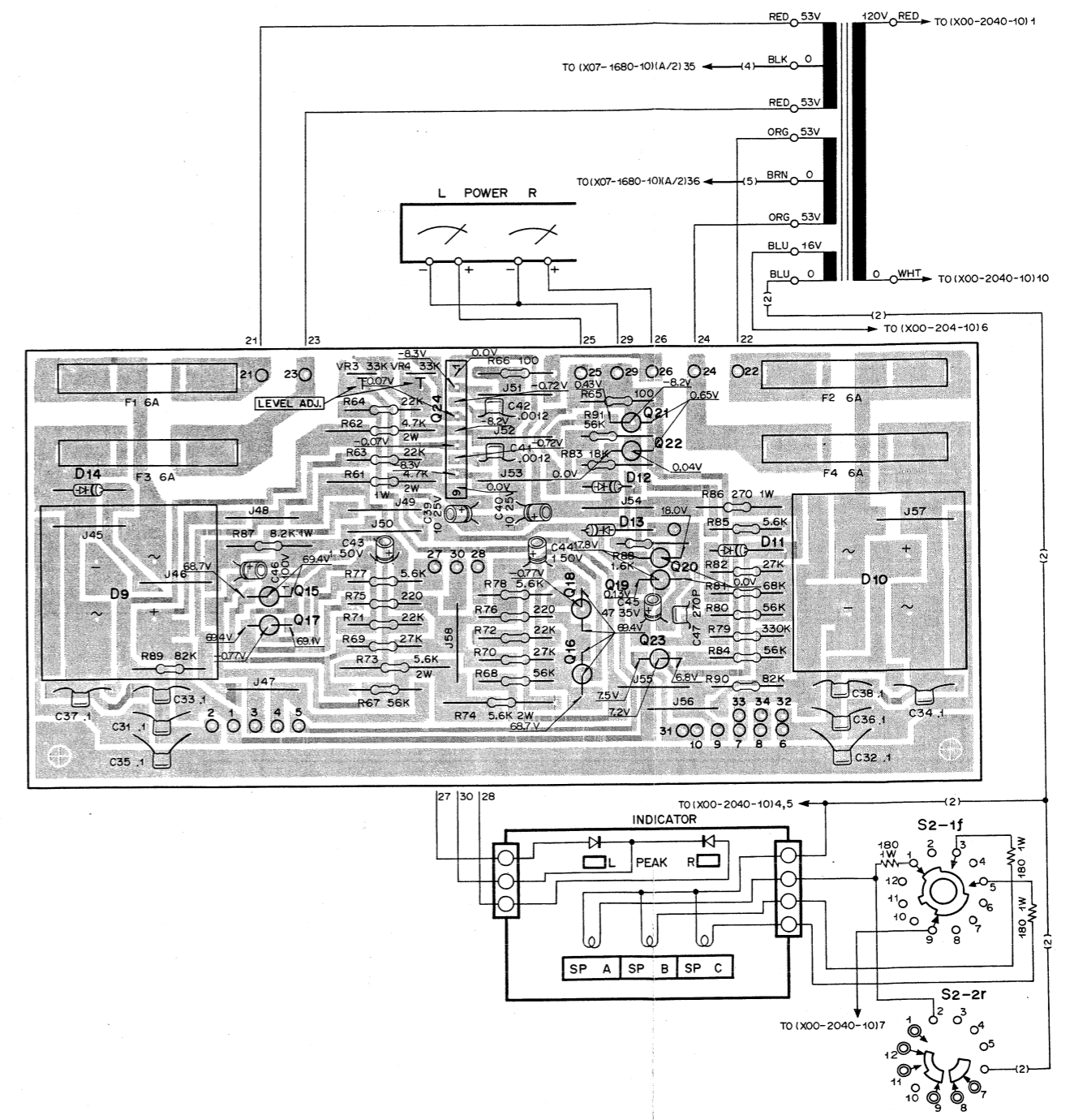


PC BOARD

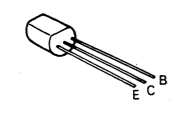
▼ POWER AMP (X07-1680-10) (A/2)(Foil side)



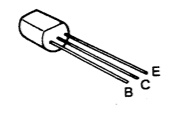
(B/2)(Component side)



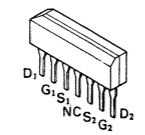
2SC1890A 2SA893
2SC1890 2SC945
2SA733A



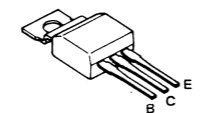
2SA850



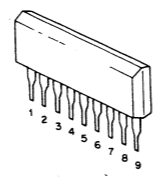
2SK150A
μPA68H



2SB718
2SD758



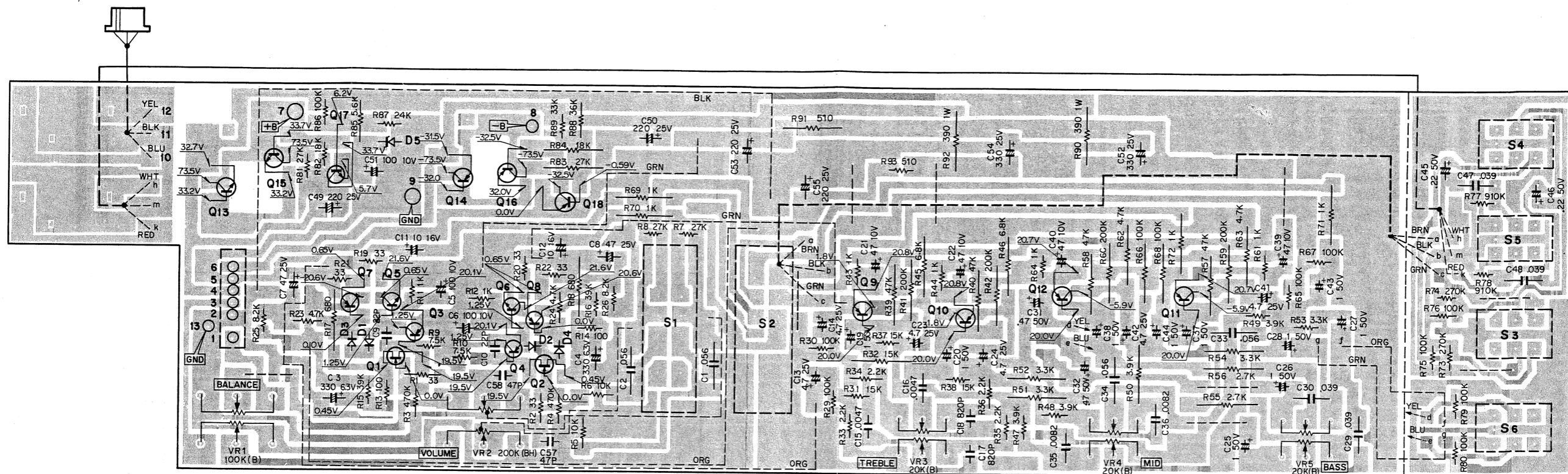
TA7318P



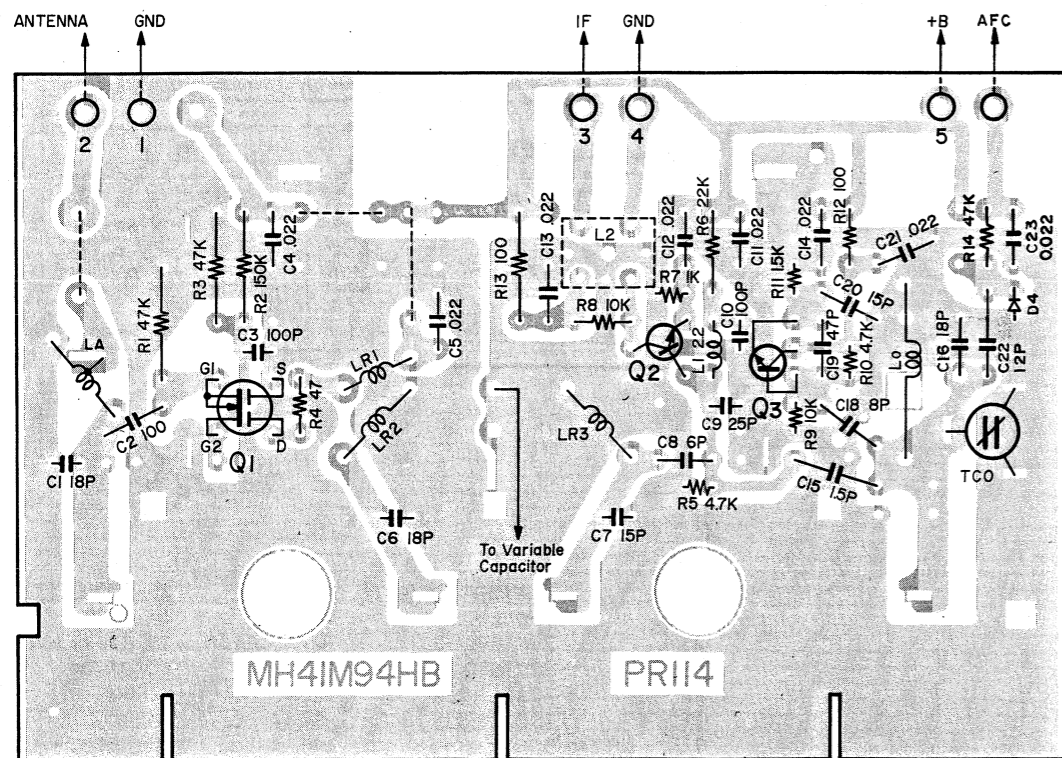
- | | | | |
|---------------|---------------------------------|-------------|------------------|
| Q1,2: | 2SK150A (GR,BL) or μPA68H (L,M) | Q23: | 2SA850(E) |
| Q3,4: | 2SC1890A(E,F) | Q24: | TA7318P |
| Q5~8,22: | 2SC1890(E,F) | D1,2,11,12: | 1S2076 or 1S1555 |
| Q9~12: | 2SB718(B,C) | D3,4: | EQA01-24 |
| Q13,14: | 2SD758(B,C) | D5,6: | XZ060 |
| Q15,16,20,21: | 2SA733(Q,R) | D7,14: | W06B |
| Q17,18: | 2SA893(E,F) | D9,10: | M4C-51-12*1 |
| Q19: | 2SC945(Q,R) | D13: | 1S2076A |

PC BOARD

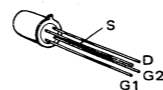
▼ CONTROL (X11-1550-10) (Foil side)



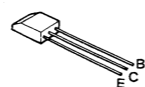
▼ FRONT END (W02-0019-05) (Foil side)



3SK45B



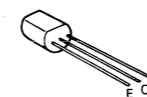
2SC535
2SC461



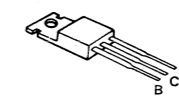
- Q1: 3SK45B
- Q2: 2SC535
- Q3: 2SC461B
- D1: 1S2236

- Q12: 2SK68(M) or 2SK117(GR)
- Q3,4,7~12: 2SA872(E)
- Q5,6: 2SC1775(E)
- Q13: 2SD330
- Q14: 2SB514
- Q15,17: 2SC1890(E)
- Q16,18: 2SA893(E)
- D1~4: 1S1555
- D5: EQA01-06R

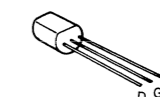
2SA872
2SA893
2SC1775
2SC1890



2SB514
2SD330

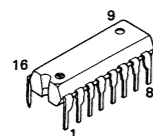


2SK68
2SK117

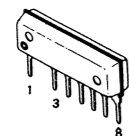


- 2SA640
- 2SA733A
- 2SA750
- 2SA777
- 2SA872
- 2SA893
- 2SA992
- 2SB725
- 2SC945
- 2SC1222
- 2SC1439
- 2SC1509
- 2SC1735
- 2SC1775
- 2SC1775A
- 2SC1890
- 2SC1980
- 2SC2008
- 2SC2089
- 2SD767

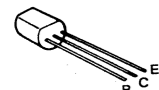
HA11223W
HA11225
HA1197
LA1240



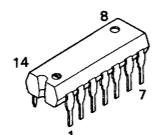
HA1457



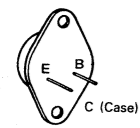
- 2SA794
- 2SA850



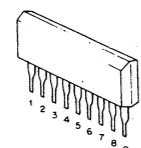
TC4069UBP
MC14069UBCP



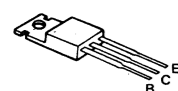
- 2SA1116
- 2SC2607



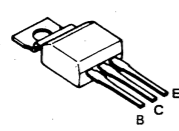
TA7318P



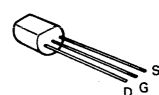
- 2SB507V-AL
- 2SB514
- 2SB720
- 2SC1419
- 2SD330
- 2SD313V-AL
- 2SD760



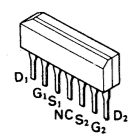
2SB718
2SD758



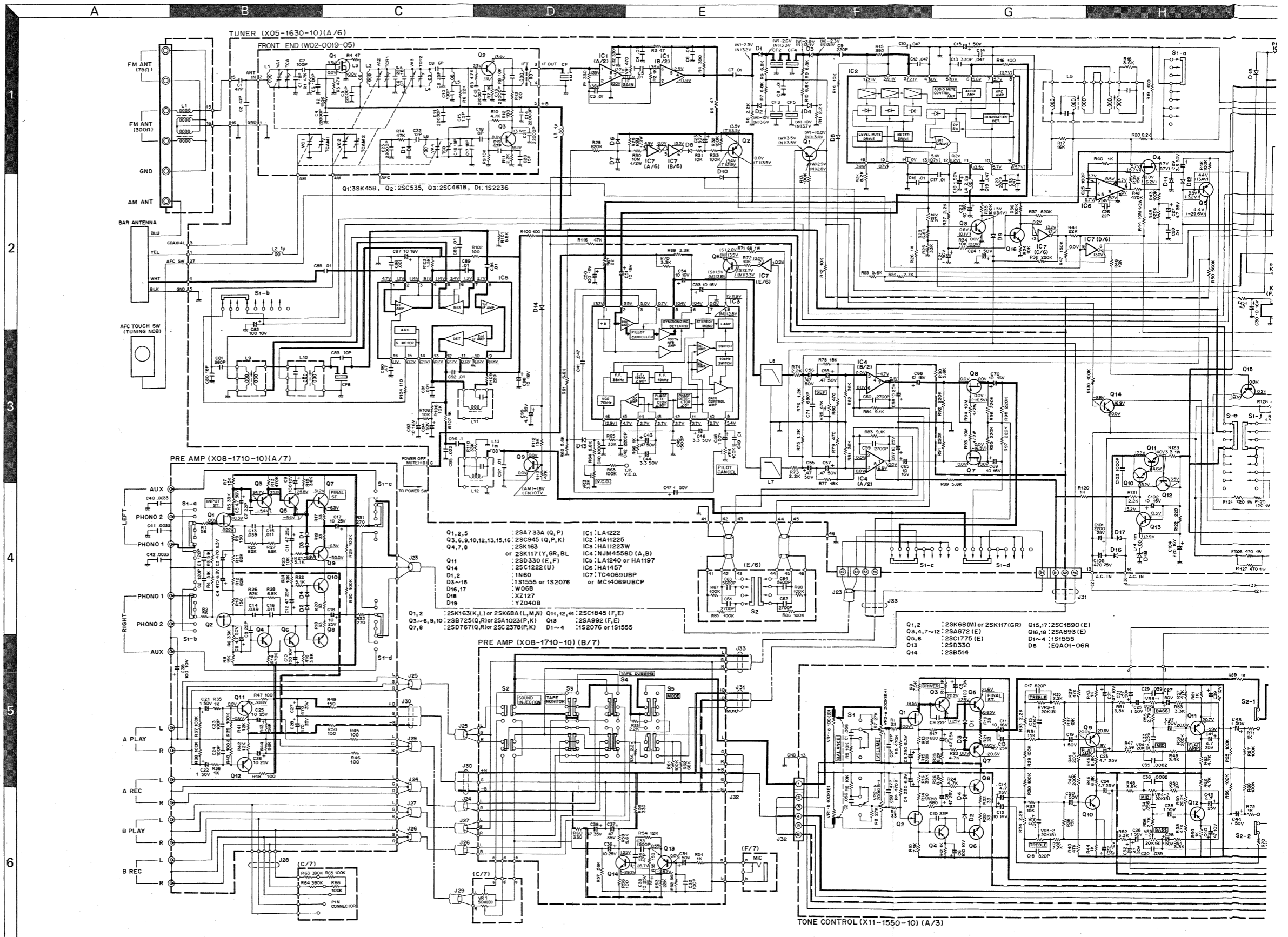
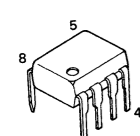
- 2SK68
- 2SK105
- 2SK117
- 2SK163

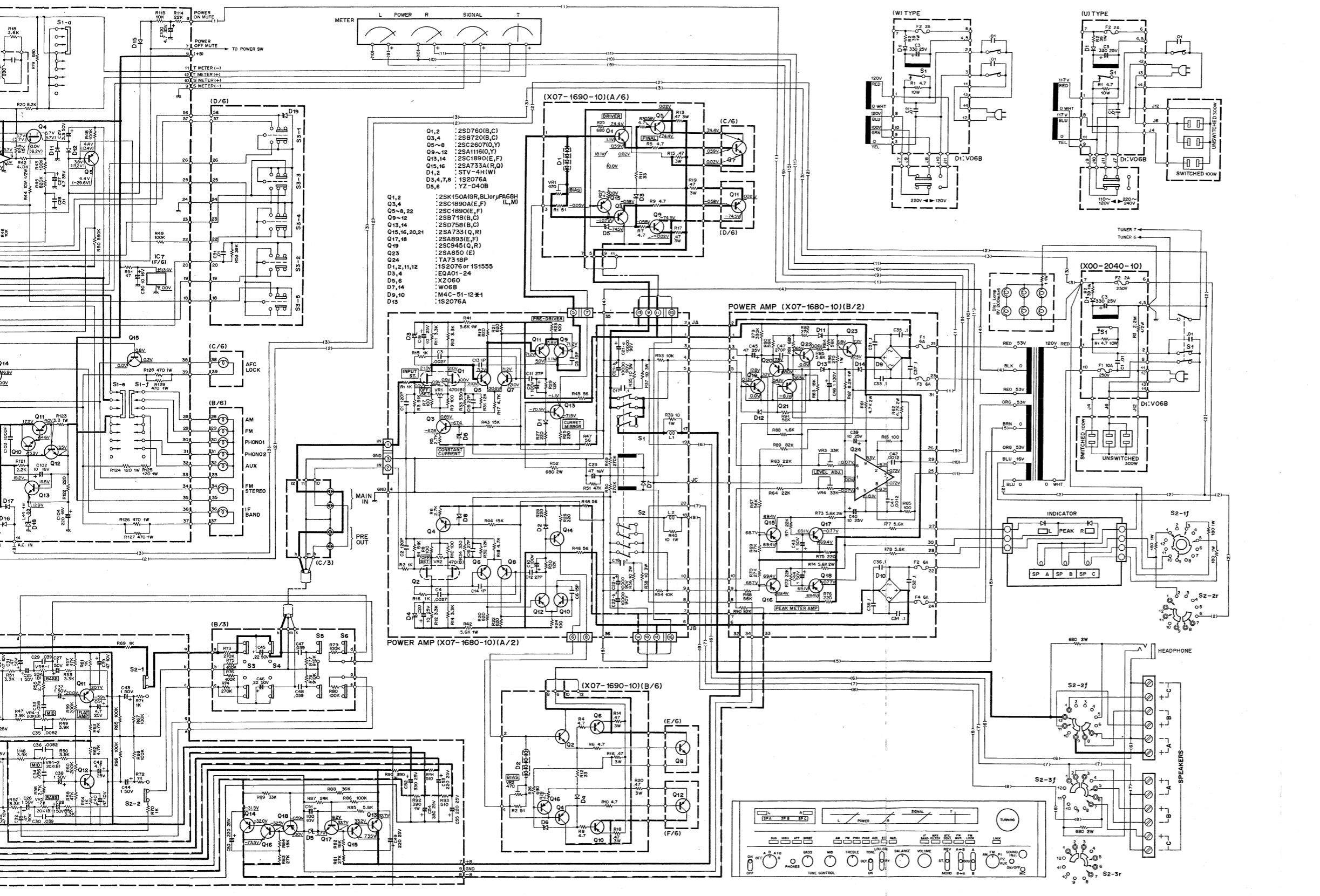
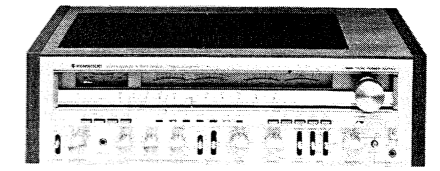


- 2SK150A
- μPA68H



- LA1222
- NJM4558D
- NJM4559D





POWER AMPLIFIER SECTION
 Power Output
 200 watts* per channel, minimum RMS both channels driven, at 8 ohms from 20 to 20,000 Hz with no more than 0.02% total harmonic distortion.

Both Channels Driven
 into 8Ω at 1,000 Hz 210W + 210W
 into 4Ω at 1,000 Hz 250W + 250W
 Dynamic Power Output 600W at 8Ω
 Total Harmonic Distortion [20 Hz to 20,000 Hz from AUX] rated power into 8Ω 0.02%
 1W power into 8Ω 0.007%
 Intermodulation Distortion (60 Hz : 7 kHz = 4 : 1 SMPTE) rated power into 8Ω 0.0045%
 1W power into 8Ω 0.006%
 Slew Rate ±110V/μsec
 Rise Time 0.95 μsec
 Frequency Response DC to 280,000 Hz - 3 dB
 Signal to Noise Ratio (A weighted) 115 dB
 Damping Factor (20 to 20 kHz at 8Ω) 50
 Input Sensitivity/Impedance 1V/50 kΩ

PRE-AMPLIFIER SECTION
 Input Sensitivity/Impedance
 PHONO 1, 2 2.5 mV/50 kΩ
 AUX and TAPE 200 mV/50 kΩ
 MIC 2.2 mV/50 kΩ
 Signal to Noise Ratio (A weighted)
 PHONO 1, 2 85 dB for 2.5 mV input
 91 dB for 5.0 mV input
 AUX and TAPE 110 dB for 200 mV input
 MIC 74 dB for 2.2 mV input
 Maximum Input Level at 1,000 Hz 260 mV(RMS), T.H.D. 0.02%

FM TUNER SECTION
 Usable Sensitivity 9.8 dBf (1.7 μV)
 50 dB Quieting Sensitivity
 Mono 14.1 dBf (2.8 μV)
 Stereo 36.1 dBf (35 μV)
 Stereo Sensitivity
 position 1 (S/N 40 dB) 25.2 dBf (10 μV)
 position 2 (S/N 60 dB) 45.2 dBf (100 μV)
 Signal to Noise Ratio at 65 dBf
 Mono 83 dB
 Stereo 78 dB
 Total Harmonic Distortion
 Mono 0.07%
 Stereo 0.1%
 Frequency Response 20 Hz to 15,000 Hz ±0.5 dB
 Capture Ratio 1.0 dB
 Image Rejection Ratio 105 dB
 Spurious Response Ratio 115 dB
 IF Response Ratio 105 dB
 Alternate Channel Selectivity
 WIDE 35 dB at 300 kHz
 NARROW 60 dB at 300 kHz
 AM Suppression Ratio 65 dB
 Stereo Separation Ratio
 50 dB at 1,000 Hz
 40 dB at 50 Hz to 10,000 Hz
 Subcarrier Product Ratio 73 dB
 Antenna Impedance 300Ω Balanced and 75Ω unbalanced
 FM Frequency Range 88 MHz to 108 MHz

AM TUNER SECTION
 Usable Sensitivity 10 μV (250 μV/m)
 Signal to Noise Ratio 55 dB
 Image Rejection 50 dB
 Selectivity 45 dB

GENERAL
 Power Consumption 1,200 watts at full power
 AC Outlet Switched 1, Unswitched 2
 Dimensions W: 602 mm (23-11/16") H: 177 mm (6-31/32")
 D: 465 mm (18-5/16")
 Weight (Net) 24.0 kg (52.9 lbs)
 (Gross) 28.0 kg (61.7 lbs)

DC voltage measured with 20kΩ/V VOM.

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

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

PARTS LIST

PARTS LIST

See instructions at the end of the parts list.

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
KR-9050 (UNIT)			
1	2A	BOTTOM PLATE	
2	2A	METALLIC FRAME	
3	2A	CHASSIS	
4	3B	SUB PANEL	
5	1B	REAR PANEL	
6	2B	HOLDER	
7	3A, 3B	FASTENER	
8	2A, B	MOUNTING HARDWARE	
9	2A	PCB HOLDER	
10	2A	WIRE CRAMPER	
-	351-0003-14	DIAL CORD	
11	1A	A01-0352-02 CASE	* *K
12	3A	A20-1402-03 FRONT PANEL	PU
12	3A	A20-1402-03 FRONT PANEL	MW
12	3A	A20-1402-03 FRONT PANEL	L
12	3A	A20-1402-03 FRONT PANEL	L
12	3A	A20-1403-03 FRONT PANEL	T
13	1A	A50-0059-02 SIDE PLATE (L)	*
14	1A	A50-0060-02 SIDE PLATE (R)	*
15	1A	A54-0169-02 WOOD TOP BOARD	*
-	B07-0235-04	ESCUTCHEON (LEVER)	*
-	B07-0262-04	ESCUTCHEON (KNOB)	*
-	B07-0263-04	ESCUTCHEON (KNOB)	*
-	B07-0265-04	ESCUTCHEON (KNOB)	*
-	B46-0055-20	WARRANTY CARD	P
-	B46-0060-00	WARRANTY CARD	T
-	B46-0061-20	WARRANTY CARD	K
-	B46-0062-20	WARRANTY CARD	U
-	B46-0063-00	WARRANTY CARD	U
-	B50-1845-00	INSTRUCTION MANUAL	*K
-	B50-1846-00	INSTRUCTION MANUAL	PM
-	B50-1847-00	INSTRUCTION MANUAL	T
16	1A	B04-0065-02 MESH PLATE	*K
16	1A	B04-0065-02 MESH PLATE	PU
16	1A	B04-0065-02 MESH PLATE	M
16	1A	B04-0066-02 MESH PLATE	*T
16	1A	B04-0066-02 MESH PLATE	WL
17	3A	B08-2018-04 INDICATOR	*
18	3A	B10-0244-04 FRONT GLASS	*
19	3B	B11-0002-03 FILTER	*
20	3A	B20-0442-03 DIAL CALIBRATIONS	*
21	3A	B21-0032-04 DIAL POINTER	*
22	3A	B30-0084-05 LAMP	*
23	3B	B30-0179-05 LAMP	*
24	3A	B30-0181-05 LED	*
25	3B	B31-0299-05 METER	*
26	3A	B38-0008-04 DISPLAY ASSY	*
27	2B	C54-3310-39 CERAMIC 0.01UF DC2KV	TW
27	2B	C54-3310-39 CERAMIC 0.01UF DC2KV	L
27	2B	C90-0145-05 FILM 0.01UF AC125V	K
27	2B	C91-0023-05 CERAMIC 0.01UF AC250V	UM
27	2B	C91-0072-05 FILM 0.01UF AC125V	P
-	D32-0075-04	STOPPER (P. VOLT. SELECT)	UM
-	D32-0075-04	STOPPER (P. VOLT. SELECT)	WL
28	2A, 3B	D15-0170-14 PULLEY	
29	2B	D15-0171-13 PULLEY	
30	3B	D20-0147-04 DIAL SHAFT	*
31	1B	E04-0004-05 RECEPTACLE (FM ANT.)	TW
31	1B	E04-0004-05 RECEPTACLE (FM ANT.)	L
32	2B	E11-0060-15 PHONE JACK	
33	1B	E20-0813-05 TERMINAL BOARD	
34	1B	E30-0290-05 POWER CORD	KP
34	1B	E30-0515-05 POWER CORD	UM
34	1B	E30-0580-05 POWER CORD	W
34	1B	E30-0585-05 POWER CORD	L
34	1B	E30-0602-05 POWER CORD	T
35	2B	G01-0045-24 COIL SPRING	
36	3A	G01-0364-04 COIL SPRING	*
37	3A	G01-0365-04 COIL SPRING	*
38	2B, 3B	G10-0017-04 DUST SEET	
-	H01-3001-04	CARTON BOX	*K
-	H01-3001-04	CARTON BOX	UM
-	H01-3002-04	CARTON BOX	*P
-	H01-3003-04	CARTON BOX	*T
-	H01-3052-04	CARTON BOX	*W
-	H01-3052-04	CARTON BOX	L
-	H10-1528-02	POLYSTYRENE FIXTURE	*
-	H10-1529-02	POLYSTYRENE FIXTURE	*
-	H20-0443-04	COVER	*M
-	H20-0449-04	COVER	*K
-	H20-0449-04	COVER	PU
-	H20-0449-04	COVER	TW
-	H20-0449-04	COVER	L
-	H25-0078-04	BAG	KP
-	H25-0078-04	BAG	UM
-	H25-0078-04	BAG	T
-	J12-0010-04	SHORT PIN	*
39	2A	J02-0101-05 FOOT	*
40	3B	J32-0249-04 BOSS	*
41	3A	J32-0250-04 BOSS	*
42	1B	J41-0024-15 POWER CORD BUSHING	TL
42	1B	J41-0033-05 POWER CORD BUSHING	KP
42	1B	J41-0033-05 POWER CORD BUSHING	UM
42	1B	J41-0033-05 POWER CORD BUSHING	W
43	3A	J90-0092-03 RAIL	*
44	3A	K23-0320-04 KNOB (TUNING)	*
45	3A	K23-0321-04 KNOB (SP. SEL. VOL. BAL.)	*
46	3A	K23-0322-04 KNOB (TONE)	*
47	3A	K23-0323-04 KNOB (MIC)	*
48	3A	K27-0070-04 KNOB (LEVER)	*
49	3A	K29-0307-04 KNOB (PUSH)	*
50	3A	K29-0308-04 KNOB (PUSH)	*
51	2A	L01-1741-05 POWER TRANSFORMER	*K
51	2A	L01-1742-05 POWER TRANSFORMER	*T
51	2A	L01-1745-05 POWER TRANSFORMER	*U
51	2A	L01-1745-05 POWER TRANSFORMER	M
51	2A	L01-1746-05 POWER TRANSFORMER	*W
51	2A	L01-1746-05 POWER TRANSFORMER	L
51	2A	L01-1747-05 POWER TRANSFORMER	*P
52	2A, 3B	N09-0293-05 SCREW (PULLEY)	
53	1B	N09-0303-05 SCREW	
54	1A	N09-0306-05 SCREW (MESH PLATE)	*
55	1A, 1B	N08-0127-05 DRESSED SCREW (CASE)	
56	1B	N08-0128-35 DRESSED SCREW (GND)	
57	3A	N14-0074-05 NUT	
58	3A	N29-0033-05 FASTENER	
R1		R47-5418-15 FL-PROOF RS180 J 3A	
R2		R47-5568-15 FL-PROOF RS680 J 3D	

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
59	3B	S90-0001-05 REMOTE SW. SHAFT	
60	3B	S90-0015-05 REMOTE WIRE	*
61	2A	S33-4012-05 LEVER SWITCH S1	KP
61	2A	S33-4013-05 LEVER SWITCH S1	TW
61	2A	S33-4013-05 LEVER SWITCH S1	L
61	2A	S33-4014-05 LEVER SWITCH S1	UM
62	2B	S01-3026-05 ROTARY SWITCH S2	
-	T90-0202-05	ANTENNA (FM)	
63	1B	T90-0083-05 ANTENNA (AM)	
64	1A	X00-2040-10 POWER SUPPLY PCB ASSY	*K
64	1A	X00-2040-51 POWER SUPPLY PCB ASSY	*T
64	1A	X00-2040-61 POWER SUPPLY PCB ASSY	*W
64	1A	X00-2040-61 POWER SUPPLY PCB ASSY	L
64	1A	X00-2040-81 POWER SUPPLY PCB ASSY	*U
64	1A	X00-2040-81 POWER SUPPLY PCB ASSY	M
64	1A	X00-2041-01 POWER SUPPLY PCB ASSY	*P
65	2B, 3B	X05-1630-10 TUNER PCB ASSY	*K
65	2B, 3B	X05-1630-10 TUNER PCB ASSY	P
65	2B, 3B	X05-1630-11 TUNER PCB ASSY	*U
65	2B, 3B	X05-1630-11 TUNER PCB ASSY	MT
65	2B, 3B	X05-1630-11 TUNER PCB ASSY	WL
66	2B	X07-1680-10 POWER AMP PCB ASSY	*K
66	2B	X07-1680-10 POWER AMP PCB ASSY	PU
66	2B	X07-1680-10 POWER AMP PCB ASSY	M
66	2B	X07-1680-61 POWER AMP PCB ASSY	*T
66	2B	X07-1680-61 POWER AMP PCB ASSY	WL
67	1A	X07-1690-10 POWER AMP PCB ASSY	*
68	2B, 3B	X08-1710-10 PRE AMP PCB ASSY	*
69	1B, 2B	X11-1550-10 TONE AMP PCB ASSY	*
POWER SUPPLY (X00-2040)			
C1	C90-0145-05	CAPACITOR 0.01UF AC125V	K
C1	C91-0023-05	CERAMIC 0.01UF AC250V	UM
C1	C91-0072-05	FILM 0.01UF AC125V	P
C3	C24-1433-71	ELECTRO 330UF 25WV	
-	E03-0008-05	AC OUTLET	PK
-	E03-0008-05	AC OUTLET	U
F1	F05-1032-05	FUSE (10A)	KP
F2	F05-2021-05	FUSE (2A)	KP
F2	F05-2023-05	FUSE (2A)	UM
-	J13-0055-05	FUSE HOLDER	
R1	R92-0199-05	CEMENT 4.7 J 4A	*
R2	R47-1439-05	FL-PROOF RS39 J 3A	
R3	R92-0173-05	RC 2.2M J 2H	KP
101	2A	S51-1023-05 RELAY S1	
102	1B	S31-2001-05 SLIDE SWITCH S2	UM
102	1B	S31-2001-05 SLIDE SWITCH S2	WL
D1	V11-0219-05	V06B	
TUNER (X05-1630)			
103	2B, 3B	B30-0084-05 LAMP	
C1	.2	C71-1747-05 CERAMIC 47PF J	
C3	-8	C55-1710-38 CERAMIC 0.01UF Z	
C9		C71-1722-15 CERAMIC 220PF J	
C10		C55-1747-38 CERAMIC 0.047UF Z	
C12		C55-1747-38 CERAMIC 0.047UF Z	
C13		C71-1733-15 CERAMIC 330PF J	
C14		C55-1747-38 CERAMIC 0.047UF Z	
C15		C24-1710-51 ELECTRO 1UF 50WV	
C16	.17	C55-1710-38 CERAMIC 0.01UF Z	
C18		C24-1710-51 ELECTRO 1UF 50WV	
C19		C55-1747-38 CERAMIC 0.047UF Z	
C20		C71-1722-15 CERAMIC 220PF J	
C21		C24-1710-51 ELECTRO 1UF 50WV	
C22		C24-1210-61 ELECTRO 10UF 16WV	
C23	.24	C24-1710-51 ELECTRO 1UF 50WV	
C25		C71-1710-15 CERAMIC 100PF J	
C26		C71-1722-05 CERAMIC 22PF J	
C27		C24-6547-51 ELECTRO 4.7UF 35WV	
C28		C55-1710-38 CERAMIC 0.01UF Z	
C29		C24-1733-51 ELECTRO 3.3UF 50WV	
C30		C24-1210-61 ELECTRO 10UF 16WV	
C31		C46-1710-36 MYLAR 0.01UF K	
C32		C71-1733-15 CERAMIC 330PF J	
C33		C55-1747-38 CERAMIC 0.047UF Z	
C40		C48-1710-25 POLYSTY 1000PF J	
C41		C46-1747-36 MYLAR 0.047UF K	
C42		C52-1722-26 CERAMIC 0.0022UF K	
C43		C25-1747-47 LL-ELEC 0.47UF 50WV	
C44		C25-1733-57 LL-ELEC 3.3UF 50WV	
C45		C52-1715-26 CERAMIC 0.0015UF K	
C46		C25-1733-57 LL-ELEC 3.3UF 50WV	
C47	.48	C24-1710-51 ELECTRO 1UF 50WV	
C49		C46-1710-36 MYLAR 0.01UF K	
C50		C24-1210-71 ELECTRO 100UF 16WV	
C51		C24-1210-61 ELECTRO 10UF 16WV	
C53	.54	C24-1210-61 ELECTRO 10UF 16WV	
C55	-58	C25-1747-47 LL-ELEC 0.47UF 50WV	
C59	-62	C46-1727-25 MYLAR 0.0027UF J	
C63	.64	C46-1756-25 MYLAR 0.0056UF J	
C65	.66	C24-1210-61 ELECTRO 10UF 16WV	
C67	.68	C24-1410-61 ELECTRO 10UF 25WV	
C69	.70	C24-1210-61 ELECTRO 10UF 16WV	
C71		C52-1768-16 CERAMIC 680PF K	
C80		C70-1718-05 CERAMIC 18PF J	
C81		C48-1736-15 POLYSTY 360PF J	
C82		C24-1010-71 ELECTRO 100UF 10WV	
C83		C71-1710-02 CERAMIC 10PF D	
C84	.85	C90-0245-05 CERAMIC 0.01UF M	
C86		C52-1710-26 CERAMIC 0.001UF K	
C87		C24-1210-61 ELECTRO 10UF 16WV	
C88	.89	C90-0245-05 CERAMIC 0.01UF M	
C90		C55-1747-38 CERAMIC 0.047UF Z	
C91		C52-1710-26 CERAMIC 0.001UF K	
C92		C90-0245-05 CERAMIC 0.01UF M	
C93		C24-1210-61 ELECTRO 10UF 16WV	
C94		C24-1710-51 ELECTRO 1UF 50WV	
C95		C90-0253-05 CERAMIC 0.022UF M	
C96		C46-1710-47 MYLAR 0.1UF M	
C97		C90-0245-05 CERAMIC 0.01UF M	
C98		C24-1210-61 ELECTRO 10UF 16WV	
C99	.100	C24-6547-51 ELECTRO 4.7UF 35WV	
C101		C24-1422-81 ELECTRO 2200UF 25WV	
C102		C24-1210-61 ELECTRO 10UF 16WV	
C103		C52-1710-26 CERAMIC 0.001UF K	
C104		C24-1222-71 ELECTRO 220UF 16WV	
C105		C24-1447-71 ELECTRO 470UF 25WV	
104	1B	E29-0082-05 TERMINAL BOARD	
-		L79-0085-05 FILTER ASSY (CF1-CF5, FM)	*
CF6		L72-0075-05 CERAMIC FILTER (AM)	
L1		L19-0021-05 BALUN TRANSFORMER	

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名 / 規格	Re- marks 備考
L2	.3	L4	L
L4		L5	L
L5		L7	L
L7	.8	L	

PARTS LIST

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Ref. No. 参照番号	Parts No. 部品番号	Description 部品名/規格	Re- marks 備考
L2 ,3	L40-1092-44	INDUCTOR 1UH	
L4	L40-2292-44	INDUCTOR 2.2UH	
L5	L30-0322-05	IFT (FM)	*
L7 ,8	L79-0071-15	FILTER	
L9	L32-0205-15	OSCILLATING COIL (AM)	
L10	L30-0321-05	IFT (AM)	*
L11	L30-0284-05	IFT (AM)	
L12	L79-0073-05	FILTER	*
L13 ,14	L40-1021-45	INDUCTOR 1MH	
R5	R43-1247-05	FL-PROOF RD47	J 2E
R18	R48-2360-14	RN 3.6K	G 2E
R29 ,30	R40-8310-68	RC 10M	M 2H
R44	R40-8310-68	RC 10M	M 2H
R51	R43-1247-05	FL-PROOF RD47	J 2E
R67	R43-1222-05	FL-PROOF RD22	J 2E
R71	R47-6468-05	FL-PROOF RS68	J 3A
R93 ,94	R40-8310-68	RC 10M	M 2H
R100	R43-1210-15	FL-PROOF RD100	J 2E
R123	R47-6433-95	FL-PROOF RS3.3	J 3A
R124,125	R47-6412-15	FL-PROOF RS120	J 3A
R126-129	R47-6447-15	FL-PROOF RS470	J 3A
VR1	R12-0065-05	TRIMMING POT. 470	
VR3	R12-1041-05	TRIMMING POT. 3.3K	
VR4	R12-5030-05	TRIMMING POT. 100K	
VR5	R12-3046-05	TRIMMING POT. 47K	
105 2B	S90-0016-05	SLIDE SWITCH	S1 *
106 1B	S31-2048-05	SLIDE SWITCH	S2 *
107 3B	S42-5013-05	PUSH SWITCH	S3-S7 *
D1 ,2	V11-0051-05	1N60	
D3 -15	V11-0076-05	1S1555	
D16 ,17	V11-0295-05	W06B	
D18	V11-4101-80	XZ-127	
D19	V11-4104-60	YZ-040B	
IC1	V30-0215-05	LA1222	
IC2	V30-0321-10	HA11225	*
IC3	V30-0266-20	HA11223W	
IC4	V30-0217-05	NJM4558D(A, B)	
IC5	V30-0245-10	LA1240	
IC6	V30-0264-10	HA1457	
IC7	V30-0297-20	TC4069UBP	
Q1 ,2	V01-0733-40	2SA733A(Q, P)	
Q3	V03-0945-40	2SC945(Q, P, K)	
Q4	V09-0126-60	2SK117(Y, GR, BL)	
Q5	V01-0733-40	2SA733A(Q, P)	
Q6	V03-0945-40	2SC945(Q, P, K)	
Q7 ,8	V09-0126-60	2SK117(Y, GR, BL)	
Q9 ,10	V03-0945-40	2SC945(Q, P, K)	
Q11	V04-0330-20	2SD330(E, F)	
Q12 ,13	V03-0945-40	2SC945(Q, P, K)	
Q14	V03-0416-05	2SC1222(U)	
Q15 ,16	V03-0945-40	2SC945(Q, P, K)	
108 2B	W02-0019-05	FM FRONT END	
POWER AMP (X07-1680)			
109 2B	C90-0403-05	ELECTRO 10000UF 90WV	*
109 2B	C90-0403-05	ELECTRO 10000UF 90WV	C21, 22 *
C1 ,2	C71-1712-15	CERAMIC 120PF	J
C3 ,4	C46-1727-25	MYLAR 0.0027UF	J
C5 ,6	C71-1715-05	CERAMIC 15PF	J
C9 ,10	C24-2010-51	ELECTRO 1UF	100WV
C11 ,12	C71-1727-05	CERAMIC 27PF	J

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名/規格	Re- marks 備考
C13 ,14	C71-1701-01	CERAMIC 1PF	C
C15 ,16	C71-1727-05	CERAMIC 27PF	J
C17 ,18	C46-2010-47	MYLAR 0.1UF	M
C19 ,20	C24-1410-61	ELECTRO 10UF	25WV
C23	C26-1247-67	NP-ELEC 47UF	16WV
C31 -38	C91-0039-05	MYLAR 0.1UF	J
C39 ,40	C24-1410-61	ELECTRO 10UF	25WV
C41 ,42	C46-1712-26	MYLAR 0.0012UF	K
C43 ,44	C24-1710-51	ELECTRO 1UF	50WV
C45	C25-6547-67	ELECTRO 47UF	35WV
C46	C24-2010-51	ELECTRO 1UF	100WV
C47	C71-1727-15	CERAMIC 270PF	J
110 2B	F05-6024-05	FUSE (6A)	F1-4
110 2B	F05-6024-05	FUSE (6A)	F1-4
110 2B	F05-6322-05	FUSE (6.3A)	F1-4
110 2B	F05-6322-05	FUSE (6.3A)	F1-4
111 2B	J13-0055-05	FUSE HOLDER	
L1 ,2	L39-0085-05	COIL	
R5 ,6	R43-1227-25	FL-PROOF RD2.7K	J 2E
R17 ,18	R43-1247-25	FL-PROOF RD4.7K	J 2E
R23 ,24	R43-1210-15	FL-PROOF RD100	J 2E
R25 -28	R43-1222-15	FL-PROOF RD220	J 2E
R29 ,30	R47-1412-35	FL-PROOF RS12K	J 3A
R35 -38	R47-1610-05	FL-PROOF RS10	J 3F
R39 ,40	R47-1410-05	FL-PROOF RS10	J 3A
R41 ,42	R47-1456-25	FL-PROOF RS5.6K	J 3A
R43 ,44	R47-1415-35	FL-PROOF RS15K	J 3A
R45 -48	R43-1256-05	FL-PROOF RD56	J 2E
R52	R47-1568-15	FL-PROOF RS680	J 3D
R61 ,62	R47-1547-25	FL-PROOF RS4.7K	J 3D
R73 ,74	R47-1556-25	FL-PROOF RS5.6K	J 3D
R86	R47-1427-15	FL-PROOF RS270	J 3A
R87	R47-1482-25	FL-PROOF RS8.2K	J 3A
VR1 ,2	R12-0058-05	TRIMMING POT. 470	
VR3 ,4	R12-3054-05	TRIMMING POT. 47K	*
S1 ,2	S51-4034-05	RELAY	
D1 ,2	V11-0271-05	1S2076	
D3 ,4	V11-0416-05	EQA01-24	
D5 ,6	V11-4101-20	XZ-060	
D7	V11-0295-05	W06B	
D9 ,10	V11-2101-40	M4C-51-12*1	
D11 ,12	V11-0271-05	1S2076	
D13	V11-0273-05	1S2076A	
D14	V11-0295-05	W06B	
Q1 ,2	V09-0137-50	2SK150A(GR, BL)	
Q3 ,4	V03-1890-50	2SC1890A(E, F)	
Q5 -8	V03-1890-20	2SC1890(E, F)	
Q9 -12	V02-0718-10	2SB718(B, C)	
Q13 ,14	V04-0758-10	2SD758(B, C)	
Q15 ,16	V01-0733-30	2SA733A(R, Q)	
Q17 ,18	V01-0893-50	2SA893(E, F)	
Q19	V03-0270-05	2SC945(R, Q)	
Q20 ,21	V01-0733-30	2SA733A(R, Q)	
Q22	V03-1890-20	2SC1890(E, F)	
Q23	V01-0850-10	2SA850(E)	
Q24	V30-0292-10	TA7318P	
POWER AMP (X07-1690)			
C1 ,2	C24-1047-61	ELECTRO 47UF	10WV

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名/規格	Re- marks 備考
-	E02-0004-05	SOCKET	
-	F01-0306-04	HEAT SINK	*
112 2A	F01-0305-03	HEAT SINK	*
112 2A	F01-0310-03	HEAT SINK	*
R3 -10	R43-1247-95	FL-PROOF RD4.7	J 2E
R11 ,12	R43-1233-05	FL-PROOF RD33	J 2E
R13 -20	R92-0111-05	METAL 0.47	J 3F
R27 ,28	R43-1247-95	FL-PROOF RD4.7	J 2E
VR1 ,2	R12-0072-05	TRIMMING POT. 470	*
D1 ,2	V11-5100-10	STV-4H(W)	
D3 ,4	V11-0273-05	1S2076A	
D5 ,6	V11-4104-60	YZ-040B	*
D7 ,8	V11-0273-05	1S2076A	
Q1 ,2	V04-0760-10	2SD760(B, C)	*
Q3 ,4	V02-0720-10	2SB720(B, C)	*
Q5 -8	V03-2607-00	2SC2607	*
Q9 -12	V01-1116-00	2SA1116	*
Q13 ,14	V03-1890-20	2SC1890(E, F)	
Q15 ,16	V01-0733-30	2SA733A(R, Q)	
PRE AMP (X08-1710)			
C1 ,2	C71-1712-15	CERAMIC 120PF	J
C3 ,4	C24-0847-71	ELECTRO 470UF	6.3WV
C5 ,6	C24-1747-51	ELECTRO 4.7UF	50WV
C7 ,8	C71-1722-05	CERAMIC 22PF	J
C9 ,10	C24-1010-71	ELECTRO 100UF	10WV
C11 ,12	C24-1447-61	ELECTRO 47UF	25WV
C13 ,14	C49-2039-34	MYLAR 0.039UF	G
C15 ,16	C49-2011-34	MYLAR 0.011UF	G
C17 ,18	C24-1410-61	ELECTRO 10UF	25WV
C21 ,22	C25-1710-57	LL-ELEC 1UF	50WV
C23 ,24	C71-1710-15	CERAMIC 100PF	J
C25 ,26	C24-1410-61	ELECTRO 10UF	25WV
C27 ,28	C24-6547-71	ELECTRO 470UF	35WV
C31	C25-1710-57	LL-ELEC 1UF	50WV
C32	C71-1710-15	CERAMIC 100PF	J
C33	C52-1715-26	CERAMIC 0.0015UF	K
C34	C71-1747-05	CERAMIC 47PF	J
C35	C24-1410-61	ELECTRO 10UF	25WV
C36	C25-1410-67	LL-ELEC 10UF	25WV
C37 ,38	C24-6547-61	ELECTRO 47UF	35WV
C39	C24-1010-71	ELECTRO 100UF	10WV
C40 -42	C53-1733-27	CERAMIC 0.0033UF	M
113 1B	E06-0510-05	DIN CONNECTOR	
114 3B	E11-0065-05	PHONE JACK (MIC)	
115 2B	E13-0417-15	PHONE JACK	
116 2B	E13-0611-15	PHONE JACK	
117 3B	R06-4032-05	POT. METER 50K(B)X2	VR1
R17 -20	R43-1233-05	FL-PROOF RD33	J 2E
R25 ,26	R48-2820-24	RN 82K	G 2E
R27 ,28	R48-2680-14	RN 6.8K	G 2E
R49 ,50	R43-1215-15	FL-PROOF RD150	J 2E
R59 ,60	R43-1233-15	FL-PROOF RD330	J 2E
118 2B	S90-0003-05	SLIDE SWITCH	S1
119 3B	S40-4027-05	PUSH SWITCH	S2
120 3B	S33-4018-05	LEVER SWITCH	S3, 4
121 3B	S33-4022-05	LEVER SWITCH	S5
D1 -4	V11-0271-05	1S2076	
Q1 ,2	V09-0144-30	2SK163(K, L)	
Q3 -6	V02-0725-00	2SB725	
Q7 ,8	V04-0767-00	2SD767	

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名/規格	Re- marks 備考
Q9 ,10	V02-0725-00	2SB725	
Q11 ,12	V03-1845-10	2SC1845(F, E)	
Q13	V01-0992-10	2SA992(F, E)	
Q14	V03-1845-10	2SC1845(F, E)	
TONE AMP (X11-1550)			
C1 ,2	C46-1756-35	MYLAR 0.056UF	J
C3 ,4	C24-0833-71	ELECTRO 330UF	6.3WV
C5 ,6	C24-1010-71	ELECTRO 100UF	10WV
C7 ,8	C24-1447-61	ELECTRO 47UF	25WV
C9 ,10	C71-1722-05	CERAMIC 22PF	J
C11 ,12	C25-1210-67	LL-ELEC 10UF	16WV
C13 ,14	C25-1447-57	LL-ELEC 4.7UF	25WV
C15 ,16	C46-1747-25	MYLAR 0.0047UF	J
C17 ,18	C52-1782-16	CERAMIC 820PF	K
C19 ,20	C25-1710-57	LL-ELEC 1UF	50WV
C21 ,22	C24-1047-61	ELECTRO 47UF	10WV
C23 ,24	C25-1447-57	LL-ELEC 4.7UF	25WV
C25 -28	C25-1710-57	LL-ELEC 1UF	50WV
C29 ,30	C46-1739-35	MYLAR 0.039UF	J
C31 ,32	C25-1747-47	LL-ELEC 0.47UF	50WV
C33 ,34	C46-1756-35	MYLAR 0.056UF	J
C35 ,36	C46-1782-25	MYLAR 0.0082UF	J
C37 ,38	C25-1710-57	LL-ELEC 1UF	50WV
C39 ,40	C24-1047-61	ELECTRO 47UF	10WV
C41 ,42	C25-1447-57	LL-ELEC 4.7UF	25WV
C43 ,44	C25-1710-57	LL-ELEC 1UF	50WV
C45 ,46	C25-1722-47	LL-ELEC 0.22UF	50WV
C47 ,48	C46-1739-35	MYLAR 0.039UF	J
C49 ,50	C24-1422-71	ELECTRO 220UF	25WV
C51	C24-1010-71	ELECTRO 100UF	10WV
C52	C24-1433-71	ELECTRO 330UF	25WV
C53	C24-1422-71	ELECTRO 220UF	25WV
C54	C24-1433-71	ELECTRO 330UF	25WV
C55	C24-1422-71	ELECTRO 220UF	25WV
C57 ,58	C71-1747-05	CERAMIC 47PF	J
122 1B	E13-0422-05	PHONO JACK	*
-	F01-0294-04	HEAT SINK	
123 2B	R08-5042-05	POT. METER 200K(BH)	VR1 *
124 2B	R08-5041-05	POT. METER 100K(B)X2	VR2 *
125 2B	R06-3018-05	POT. METER 20K(B)	VR3-5 *
R90	R47-1439-15	FL-PROOF RS390	J 3A
R92	R47-1439-15	FL-PROOF RS390	J 3A
126 2B	S33-2034-05	LEVER SWITCH	S1
127 2B	S33-2049-05	LEVER SWITCH	S2
128 2B	S42-4009-05	PUSH SWITCH	S3-6 *
D1 -4	V11-0076-05	1S1555	
D5	V11-		

PARTS LIST

Fig. No.	Parts No.
M3 × 6	N30-3006-46
M3 × 6 BLK	N30-3006-45
M3 × 6 (F-Tap) BLK	N88-3006-45
M3 × 8 BLK	N30-3008-45
M3 × 8 (Br-Tap)	N87-3008-46
M3 × 8 (F-Tap)	N88-3008-46
M3 × 8 (Bi-Tap) BLK	N89-3008-45
M3 × 8 (Tp-T)	N91-3008-46
M3 × 10 (Br-Tap)	N87-3010-46
M3 × 10 (F-Tap)	N88-3010-46
M4 × 10 (Br-Tap)	N87-4010-46

⑦ 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
OIL	Oil capacitor

The unit "UF" is used in lieu of "μF".

INSTRUCTIONS FOR PARTS LIST

Ref. No. 参照番号	Parts No. 部品番号	Description 部品名/規格	Re- marks 備考
①	11 1A	A01-0352-02	CASE
②	12 3A	A20-1402-03	FRONT PANEL
	12 3A	A20-1402-03	FRONT PANEL
	12 3A	A20-1402-03	FRONT PANEL
	12 3A	A20-1402-03	FRONT PANEL
	12 3A	A20-1403-03	FRONT PANEL
	13 1A	A50-0059-02	SIDE PLATE (L)
	14 1A	A50-0060-02	SIDE PLATE (R)
	15 1A	A54-0169-02	WOOD TOP BOARD
	C31 .38	C91-0039-05	MYLAR 0.1UF J
	C39 .40	C24-1410-61	ELECTRO 10UF 25WV
	C41 .42	C46-1712-26	MYLAR 0.0012UF K
	C43 .44	C24-1710-51	ELECTRO 1UF 50WV
	C45	C25-6547-67	ELECTRO 47UF 35WV
⑤	C46	C24-2010-51	ELECTRO 1UF 100WV
	C47	C71-1727-15	CERAMIC 270FF J
	110 2B	F05-6024-05	FUSE (6A) F1-4
	110 2B	F05-6024-05	FUSE (6A) F1-4
	110 2B	F05-6322-05	FUSE (6.3A) F1-4
	110 2B	F05-6322-05	FUSE (6.3A) F1-4
	111 2B	J13-0055-05	FUSE HOLDER
	L1 .2	L39-0085-05	COIL
	R5 .6	R43-1227-25	FL-PROOF RD2.7K J 2E
	R17 .18	R43-1247-25	FL-PROOF RD4.7K J 2E
	R23 .24	R43-1210-15	FL-PROOF RD100 J 2E
	R25 .28	R43-1222-15	FL-PROOF RD220 J 2E
	R29 .30	R47-1412-35	FL-PROOF RS12K J 3A

① Exploded view drawing No.

② Position in exploded view.

③ Symbol of new parts.

④ Area to which parts are shipped. Example: A20-1402-03 is the parts No. of FRONT PANEL ASSY for the "K" type products (for USA).

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 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

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..... ±0.25 pF (Used for capacitors only)

D..... ±0.5 pF (Used for capacitors only)

F..... ±1%

G..... ±2%

J..... ±5%

K..... ±10%

M..... ±20%

Z..... +80%, -20% (Used for capacitors only)

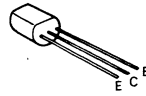
P..... +100%, -0% (Used for capacitors only)

⑧ Resistors RD (carbon composition resistors) are not listed in the parts list. For values, refer to the schematic diagram.

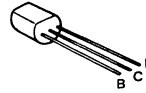
SEMICONDUCTOR SUBSTITUTIONS

Ref. No.	Name	Substitutions
X05-1630-10 (-11)		
IC1	LA1222	—
IC2	HA11225	—
IC3	HA11223W	—
IC4	NJM4558D (A,B)	NJM4559D
IC5	LA1240	HA1197
IC6	HA1457	—
IC7	TC4069UBP	MC14069BCP
Q1,2,5	2SA733A(Q,P)	2SA640, 2SA750
Q3,6,9,10, 12,13, 15,16	2SC945(Q,P,K)	2SC1980(S,T), 2SC1845(F,E)
Q4,7,8	2SK117(Y,GR,BL)	2SK105, 2SK163
Q11	2SD330(E,F)	2SC1419, 2SD313-AL
Q14	2SC1222(U)	2SC1775, 2SC1980
X07-1680-10 (-61)		
Q1,2	2SK150A(GR,BL)	μPA68H(L,M)
Q3,4	2SC1890A(E,F)	2SC1775A, 2SC1439
Q5~8,22	2SC1890(E,F)	2SC1775, 2SC2089
Q9~12	2SB718(B,C)	—
Q13,14	2SD758(B,C)	—
Q15,16	2SA733A(R,Q)	2SA640, 2SA750
20,21	—	—
Q17,18	2SA893(E,F)	2SA872
Q19	2SC945(R,Q)	2SC1980(S,T), 2SC1845(F,E)
Q23	2SA850(E)	2SA794
Q24	TA7138P	—
X07-1690-10		
Q1,2	2SD760(B,C)	—
Q3,4	2SB720(B,C)	—
Q5~8	2SC1607(O,Y)	—
Q9~12	2SA1116(O,Y)	—
Q13,14	2SC1890(E,F)	2SC1775, 2SC1089
Q15,16	2SA733(A)(R,Q)	2SA640, 2SA750
X08-1710-10		
Q1,2	2SK163(K,L)	2SK68A(L,M,N)
Q3~6, 9,10	2SB725	2SA1023(P,K), 2SA777, 2SA850
Q7,8	2SD767	2SC2378(P,K), 2SC1509, 2SC1735
Q11,12,14	2SC1845(F,E)	2SC1890, 2SC2008
Q13	2SA992(F,E)	2SA872
X11-1550-10		
Q1,2	2SK68(M)	2SK117(GR), 2SK105
Q3,4, 7~12	2SA872(E)	2SA992
Q5,6	2SC1775(E)	2SC1890, 2SC2089
Q13	2SD330	2SC1419, 2SD313V-AL
Q14	2SB514	2SB507V-AL
Q15,17	2SC1890(E)	2SC1775, 2SC2089
Q16,18	2SA893(E)	2SA872

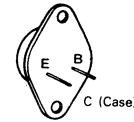
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 2SA733A 2SC945 2SC1890
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 2SA777 2SC1439 2SC2008
 2SA872 2SC1509 2SC2089
 2SA893 2SC1735 2SD767
 2SA992 2SC1775



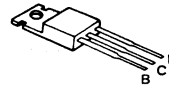
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2SA850



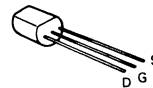
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2SC2607



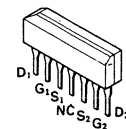
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2SB514
2SB720
2SC1419
2SD330
2SD313V-AL
2SD760



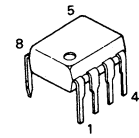
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2SK163



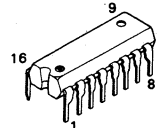
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μPA68H



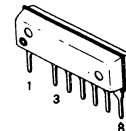
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NJM4559D



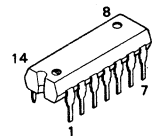
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HA11225
HA1197
LA1240



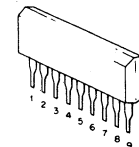
HA1457



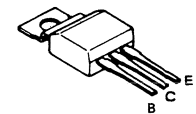
TC4069UBP
MC14069UBCP



TA7318P



2SB718
2SD758



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