KENWOOD

HI/FI STEREO COMPONENTS

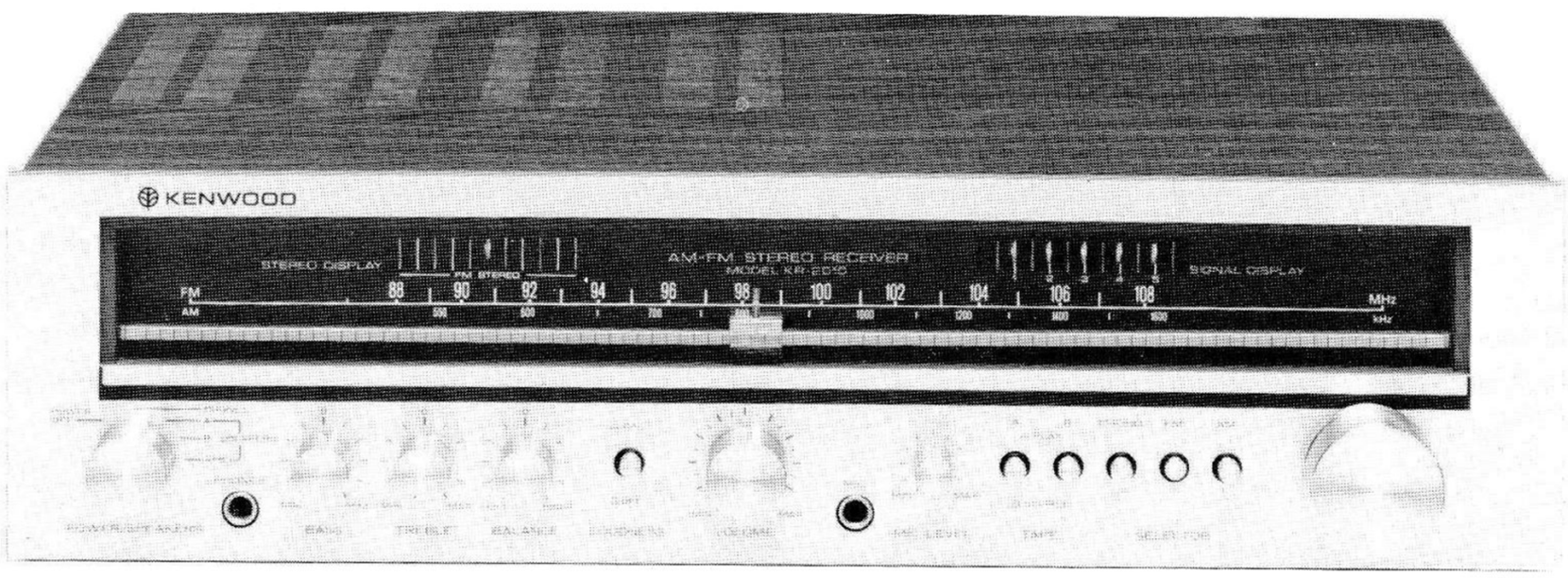
SERVICE MANUAL

KR-2010

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.



AM-FM STEREO RECEIVER

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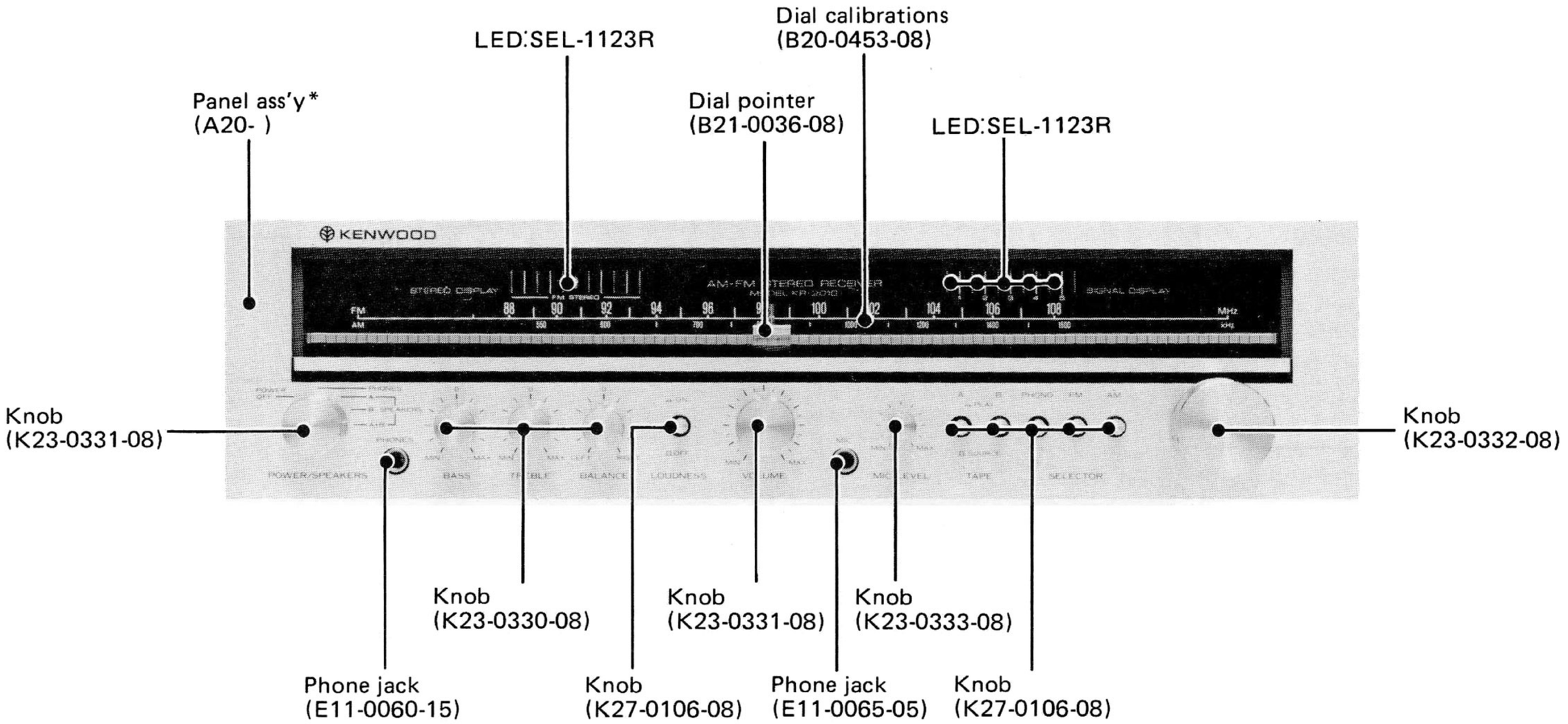
Note:

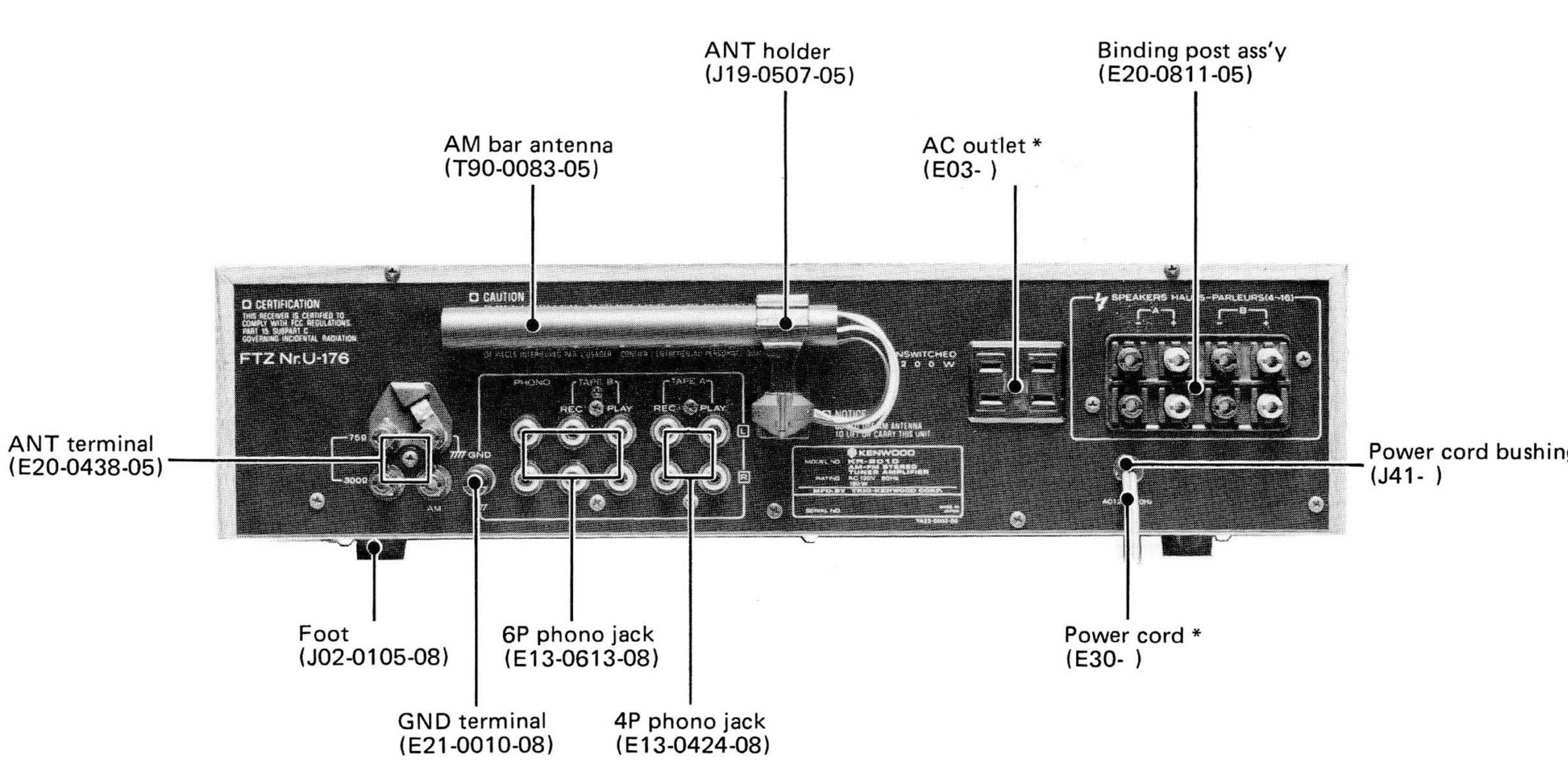
Component and circuitry are subject to modification to insure best operation under differing local conditions. This manual is based on, the U.S. (K) standard, and provides information on regional circuit modification through use of alternate schematic diagrams, and information on regional component variations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

Region	Code
U.S.A.	K
Canada	P
Australia	X
Europe & Scandinavia	E
England	T
Other Areas	M

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EXTERNAL VIEW

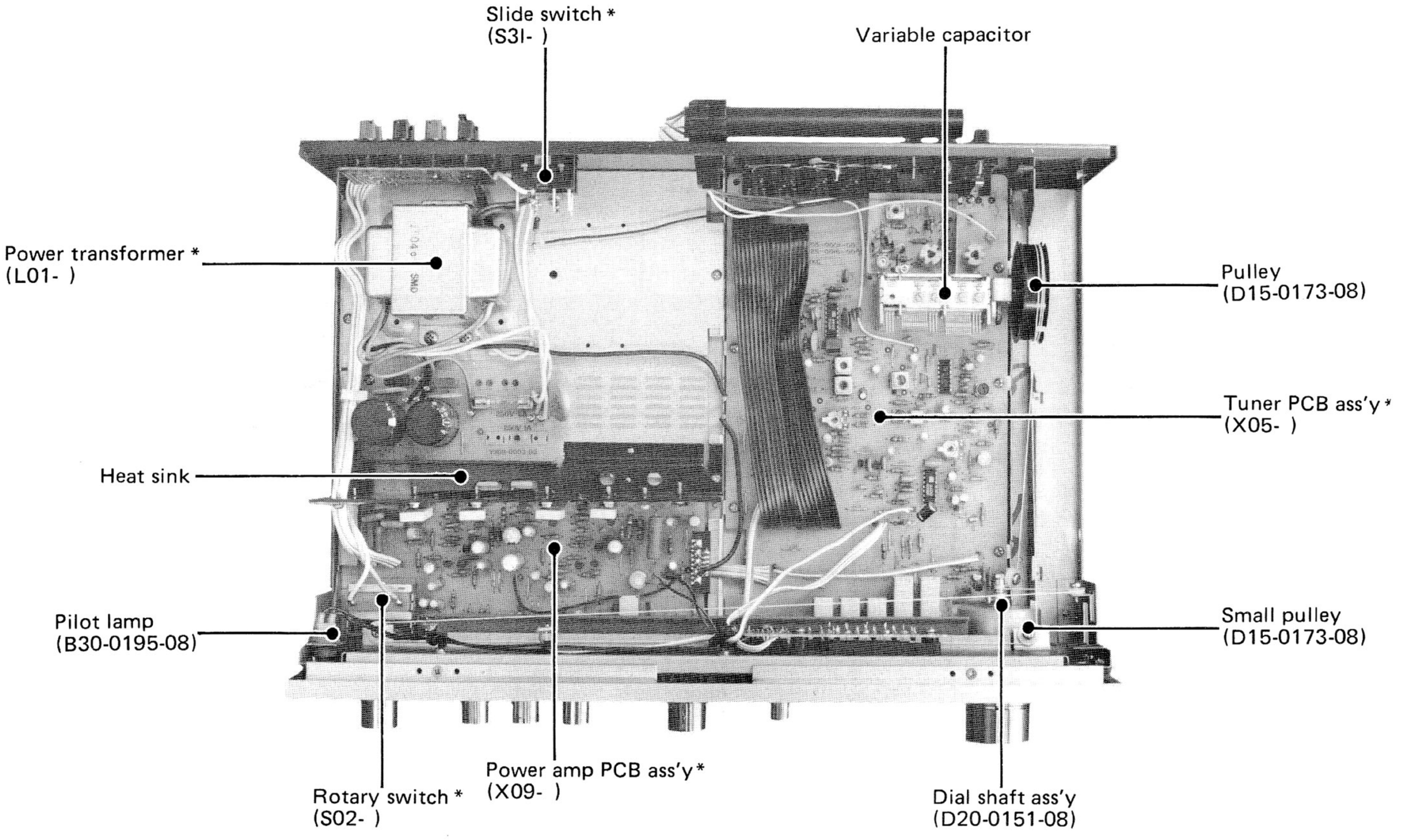




* Refer to Parts List

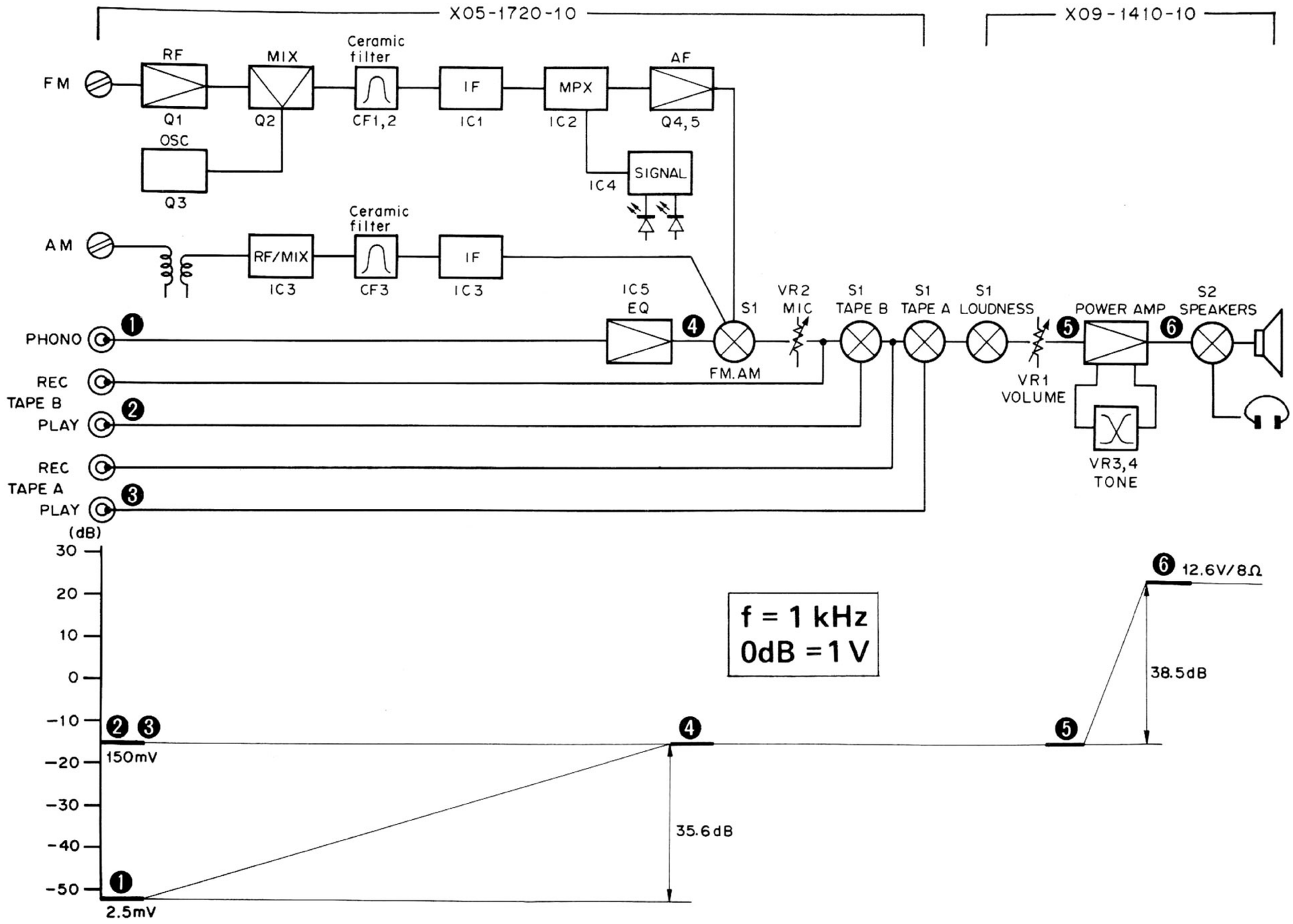
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INTERNAL VIEW/BLOCK & LEVEL DIAGRAM



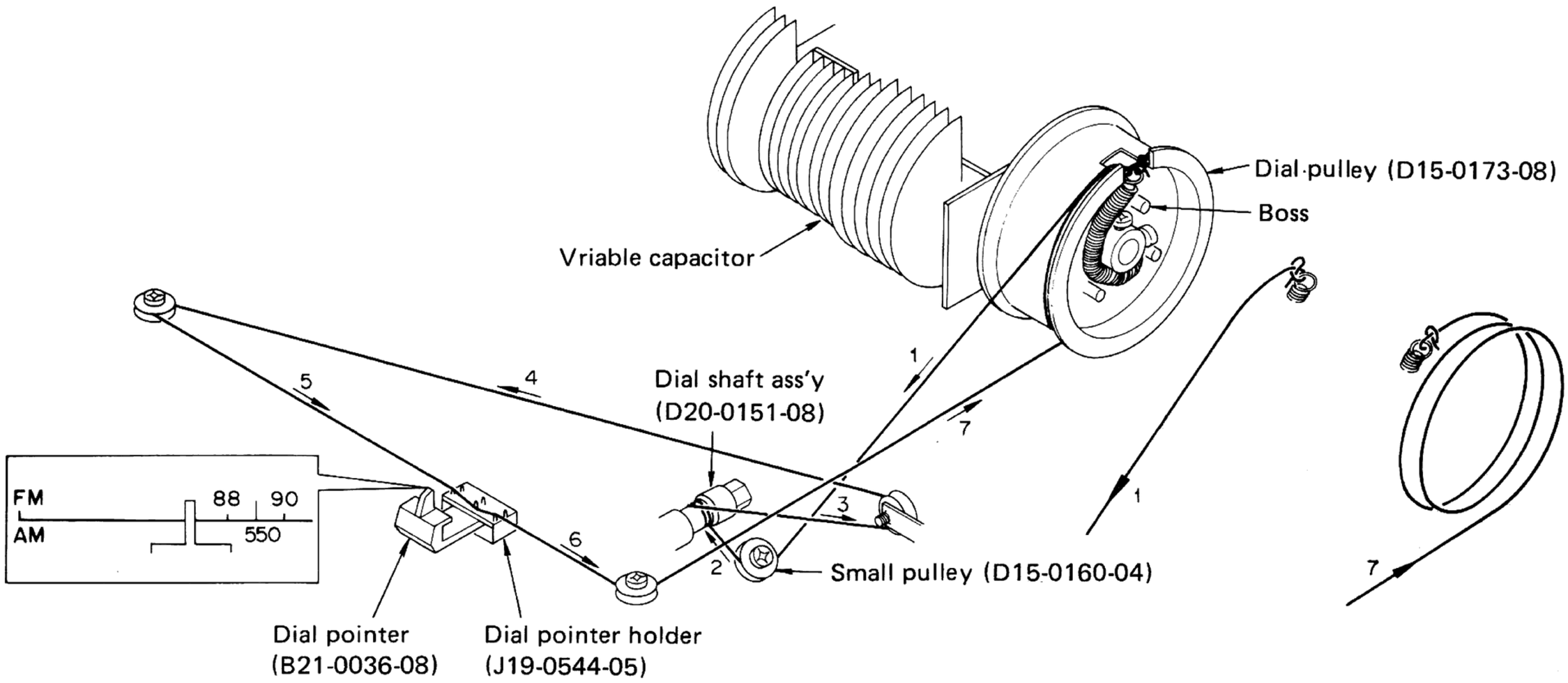
* Refer to Parts List

BLOCK & LEVEL DIAGRAM



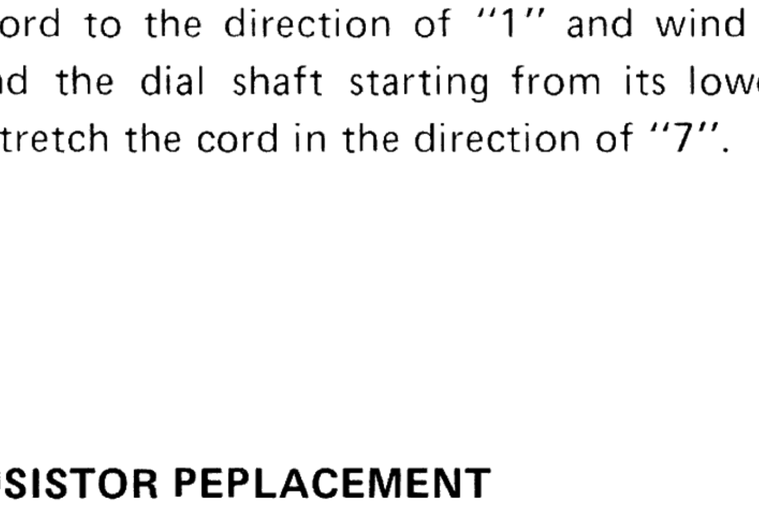
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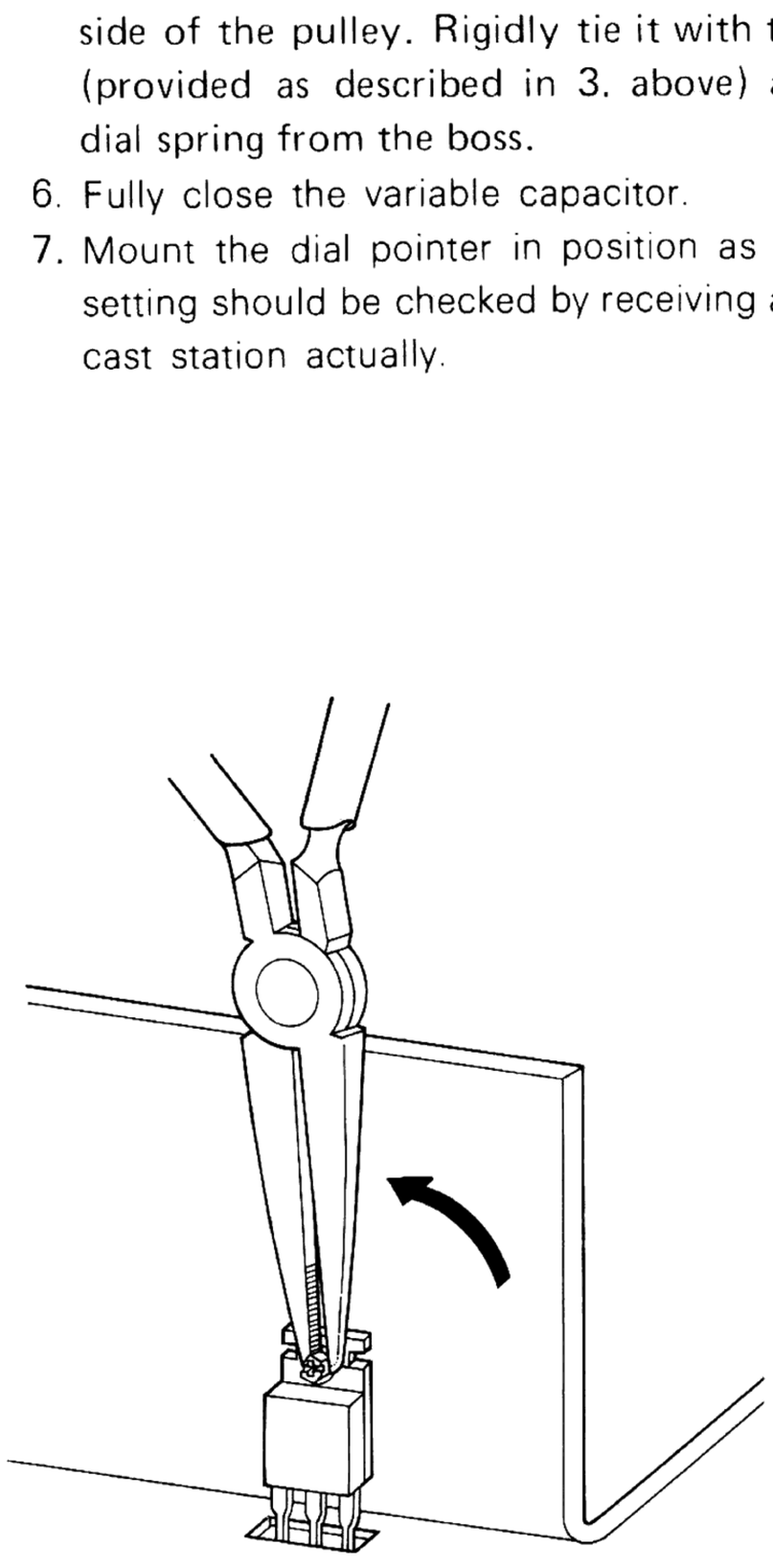
DIAL COAD STRINGING/REPAIR



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. Give dial cord to the direction of "1" and wind 2 turns around the dial shaft starting from its lower side. Then stretch the cord in the direction of "7".
5. Wind the cord 2 turns and half around the dial pulley in the direction of "7" and starting from the lower side of the pulley. Rigidly tie it with the margin cord (provided as described in 3. above) and release the dial spring from the boss.
6. Fully close the variable capacitor.
7. Mount the dial pointer in position as illustrated. This setting should be checked by receiving a suitable broadcast station actually.

POWER TRANSISTOR PEPLACEMENT





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EXPLODED VIEW

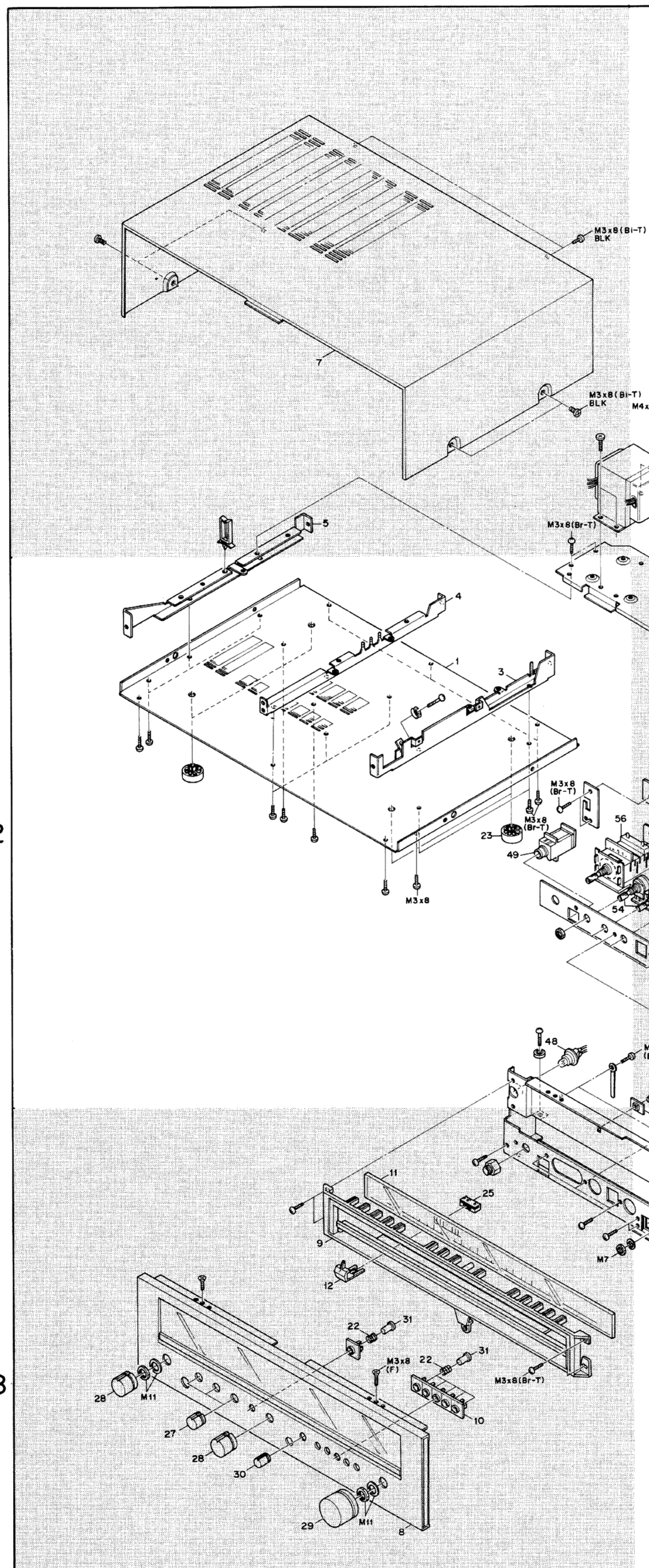
A

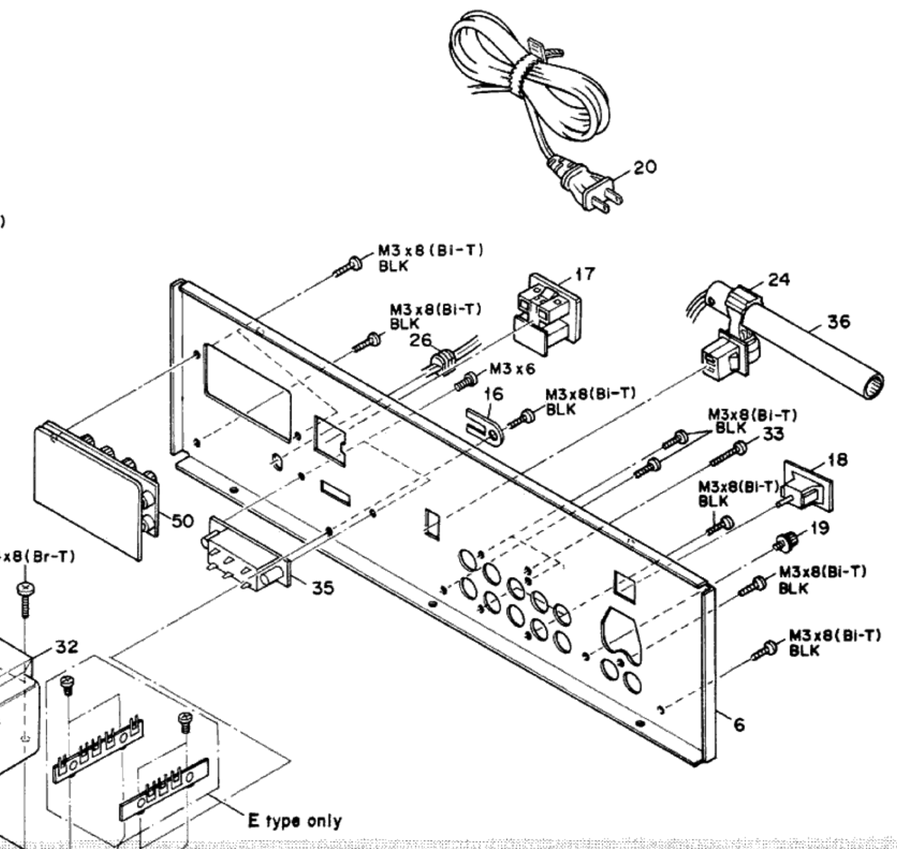
B

1

2

3





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ADJUSTMENT

INSTRUMENTS USED

Oscilloscope ..... SCOPE
AM signal generator ..... AM-SG
FM signal generator ..... FM-SG
Audio generator ..... AG
Solid state voltmeter ..... SSVM
FM multiplex generator ..... FM-MPX
Frequency counter
DC voltmeter

NOTES FOR ADJUSTMENT

* Repeat tracking adjustments 2 or 3 times and finally confirm the result using respective local stations.
* The check points are shown on both circuit diagram and printed circuit board diagram.
* 0 dB = 1 μV

ORDER	ITEM	INSTRUMENT		RECEIVER SETTING	OUTPUT	ADJUSTMENT POINTS	ADJUSTMENT METHOD
		CONNECTION	SETTING				
FM SECTION							
1	IFT	A	95 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	95 MHz	B	L5	Maximum optimum waveform, minimum distortion
2	DISCRI	A	95 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	95 MHz	DC voltmeter to TP2 and TP3 (X05-1720)	L7	0V
3		A	95 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	95 MHz	B	L8	Minimum distortion
4	TRACKING	A	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	B	L1, 2, 4	Maximum optimum waveform
5	TRACKING	A	106 MHz 1 kHz (Mod) 75 kHz (Dev)	106 MHz	B	CT1 ~ 3	Maximum optimum waveform
6	VCO	A	95 MHz 60 dB 0 (Dev)	95 MHz	C	VR1	Adjusted to 19 kHz ±50 Hz
7	SEPARATION	D	95 MHz 1 kHz (Mod) SELECTOR: L or R	95 MHz	B	VR2	Minimum crosstalk
AM SECTION							
1	IF	E	1000 kHz 400 Hz 30% (Mod) 100 dB	1000 kHz	B	L12, L13	Maximum optimum waveform, minimum distortion
2	TRACKING	E	600 kHz 400 Hz 30% (Mod) 100 dB	600 kHz	B	L11 Bar antenna	Maximum optimum waveform, minimum distortion
3			1400 kHz 400 Hz 30% (Mod) 100 dB	1400 kHz		CT4, 5	

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RÉGLAGES

INSTRUMENTS USITE

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

REMARQUES DE RÉGLAGES

- Renouveller plusieurs fois le réglage de reproduction et confirmer la réception de l'émission.
- 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 DE AMPLI-TUNER	INDICATEUR DE SORTIE	POINTS DE RÉGLAGES	REMARQUES
		RACCOR-MENT	RÉGLAGE				
	MF						
1	**FI**	A	95 MHz 1 kHz (Modulation) 75 kHz (Déviation) 60 dB (Entrée d'antenne)	95 MHz	B	L5	Déviation maximale, distorsion minimale
2	**DISCRIMI-NATEUR**	A	95 MHz 1 kHz (Modulation) 75 kHz (Déviation) 60 dB (Entrée d'antenne)	95 MHz	Brancher le voltmètre cc aux points de réglages, TP2 et TP3, sur la plaque circuit imprimé du tuner (X05-1720-)	L7	0V
3	**DISCRIMI-NATEUR**	A	95 MHz 1 kHz (Modulation) 75 kHz (Déviation)	95 MHz	B	L8	Déviation maximale, distorsion minimale
4	**ALIGNEMENT**	A	90 MHz 1 kHz (Modulation) 75 kHz (Déviation)	90 MHz	B	L1, 2, 4	Déviation maximale
5	**ALIGNEMENT**	A	106 MHz 1 kHz (Modulation) 75 kHz (Déviation)	106 MHz	B	CT1 ~ 3	Déviation maximale.
6	**OSCILLATEUR VCO 19 kHz**	A	95 MHz 0 (Déviation) 60 dB (Entrée d'antenne)	95 MHz	C	VR1	Ajuster oscillateur sur 19 kHz ± 50 Hz
7	**SÉPARATION**	D	95 MHz 1 kHz (Modulation) Sélecteur: L ou R	95 MHz	B	VR2	Diaphonie minimale
	MA						
1	**FI**	E	1000 kHz 400 Hz, 30% (Modulation) 100 dB (Entrée d'antenne)	1000 kHz	B	L12, L13	Déviation maximale, distorsion minimale
2	**ALIGNEMENT**	E	600 kHz 400 Hz, 30% (Modulation) 100 dB (Entrée d'antenne)	600 kHz	B	L11 ANTENNE-FERRITE MA	Déviation maximale, distortion minimale
3	**ALIGNEMENT**	E	1400 kHz 400 Hz, 30% (Modulation) 100 dB (Entrée d'antenne)	1400 kHz	B	CT4, CT5	Déviation maximale, distortion minimale

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ABGLEICH

PRÜFINSTRUMENTE

Oszilloskop ..... SCOPE
MW-Signalgenerator ..... AM-SG
UKW-Signalgenerator ..... FM-SG
NF-Signalgenerator ..... AG
Transistor-Voltmeter ..... SSVM
UKW-Multiplex-Signalgenerator ..... FM-MPX
Frequenzzähler
Gleichspannungsmesser

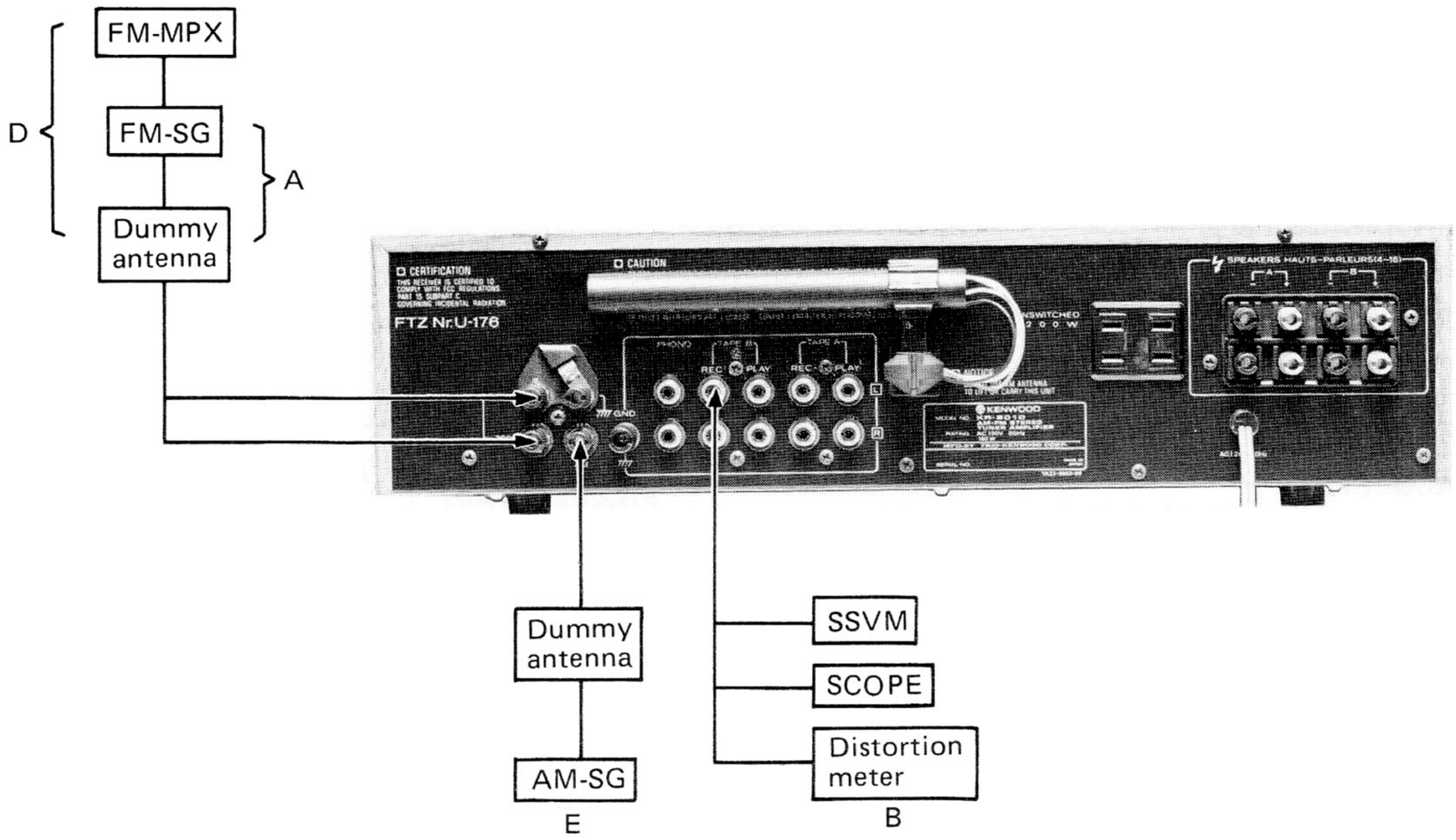
HINWEISE

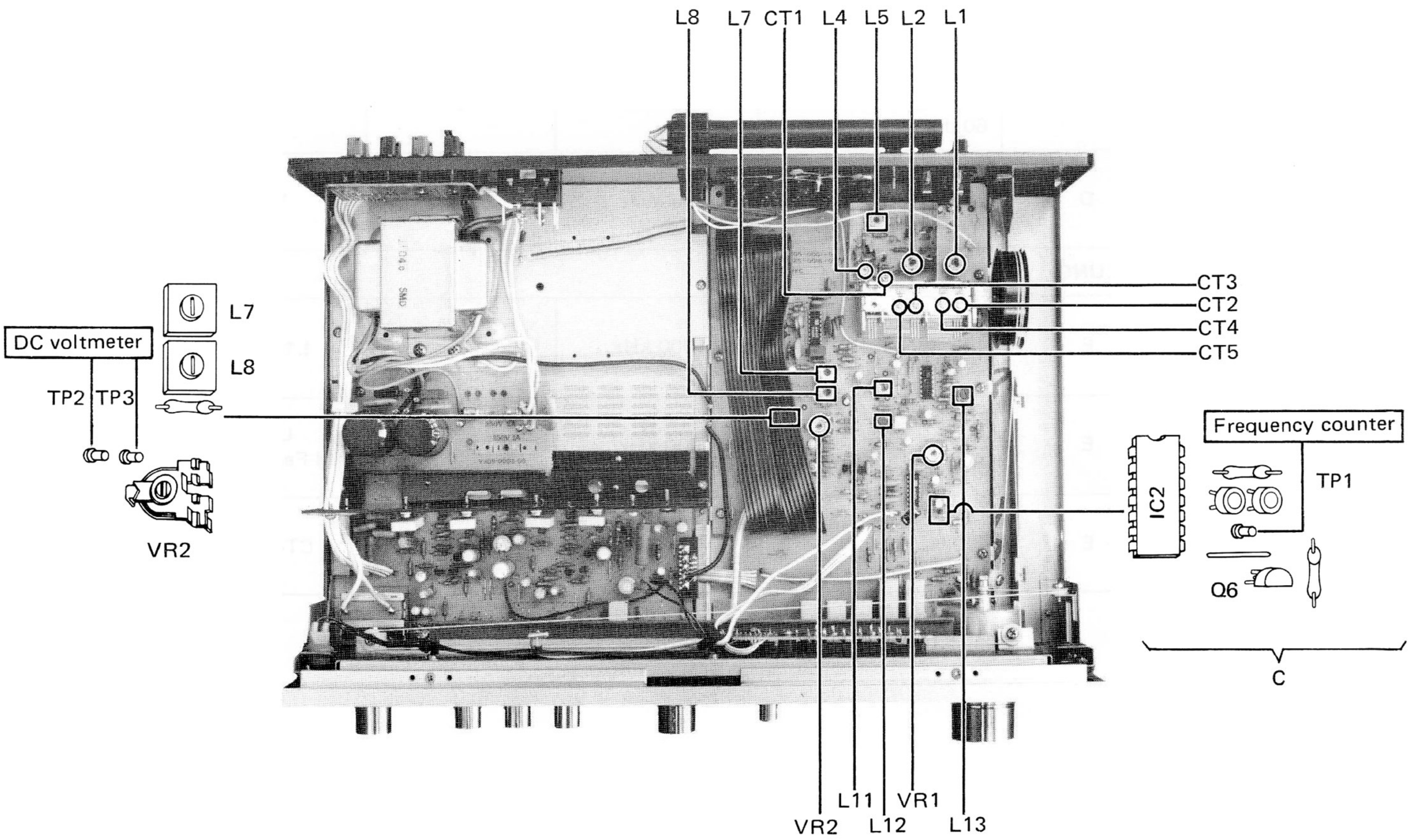
- Den Empfangsbereich einige Male einstellen und den Empfang überprüfen.
- Der Prüfpunkt (TP) ist im Schaltplan auf geführt.
- 0 dB = 1 μV

NR.	ABGLEICH	PRÜFEINRICHTUNG		STEUERGERÄT EINSTELLUNG	AUSGANGS-ANZEIGE	EINSTELL-PUNKT	BEMERKUNGE
		ANSCHLÜSSE	EINSTELLUNG				
UKW-EMPFANGSABTEILUNG							
1	**ZF-T**	A	95 MHz 1 kHz, ±75 kHz (Hub) 60 dB	95 MHz	B	L5	Maximaler Ausschlag und Minimaler Klirrfaktor.
2	**DISKRIMI-NATOR**	A	95 MHz 1 kHz, ±75 kHz (Hub) 60 dB	95 MHz	Gleichspannungs-messer über TP2 und TP3	L7	0V
3	**DISKRIMI-NATOR**	A	95 MHz 1 kHz, ±75kHz (Hub) 60 dB	95 MHz	B	L8	Minimaler Klirrfaktor
4	**EMPFANGS-BEREICH**	A	90 MHz 1 kHz ±75 kHz (Hub)	90 MHz	B	L1, 2, 4	Maximaler Ausschlag
5	**EMPFANGS-BEREICH**	A	106 MHz 1 kHz, ±75 kHz (Hub)	106 MHz	B	CT1 ~3	Maximaler Ausschlag
6	**SPANNUNGS-GEREGELTER OSZILLATOR**	A	95 MHz 0 (Hub) 60 dB	95 MHz	C	VR1	19 kHz ±50 Hz
7	**STEREO KANAL-TRENNUNG**	D	95 MHz 1 kHz Wähler: L order R	95 MHz	B	VR2	Minimaler Übersprechen
AM-EMPFANGSABTEILUNG							
1	**ZF**	E	1000 kHz 400 Hz, 30% Modulation	1000 kHz	B	L12, L13	Maximaler Ausschlag und Minimaler Klirrfaktor
2	**EMPFANGS-BEREICH**	E	600 kHz 400 Hz, 30% Modulation	600 kHz	B	L11 AM-Ferritantenne	Maximaler Ausschlag
3	**EMPFANGS-BEREICH**	E	1400 kHz 400 Hz, 30% Modulation	1400 kHz	B	CT4, CT5	dito

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ADJUSTMENT(RÉGLAGE, ABGLEICH)



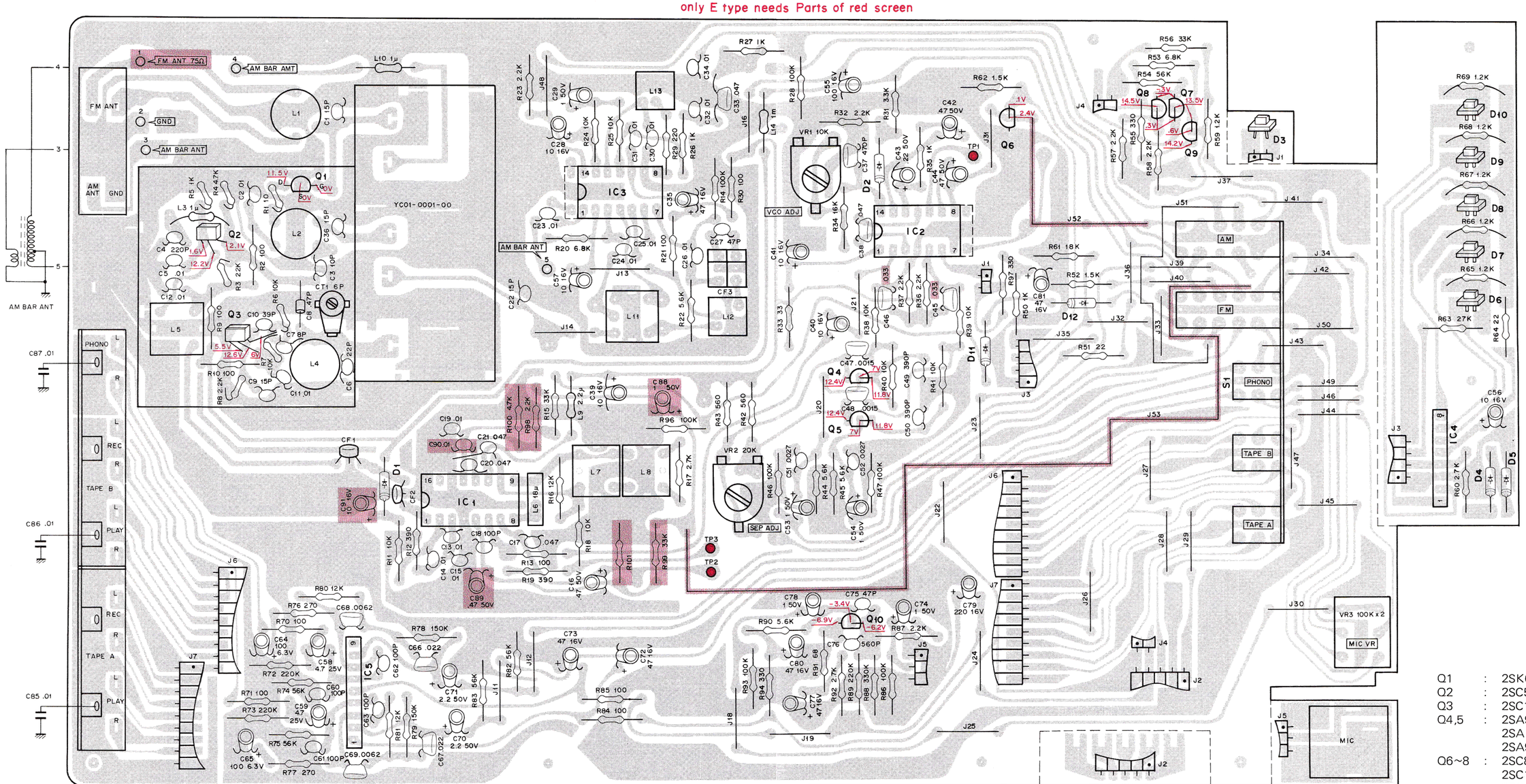


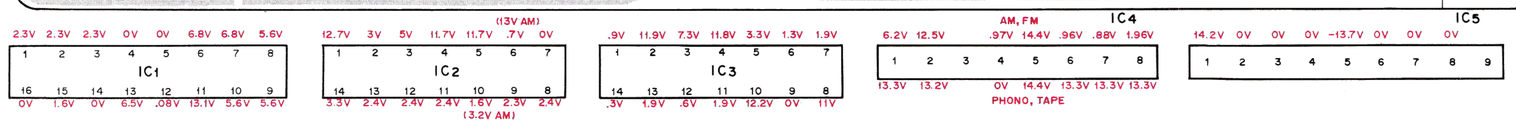
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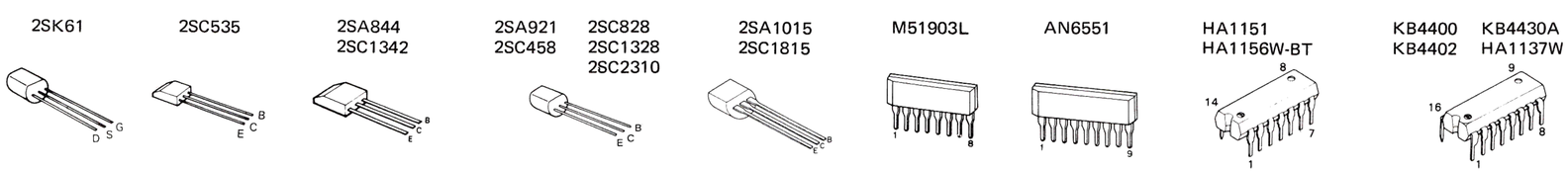
PC BOARD

▼ TUNER PCB ASS'Y (X05-1720-10) Components Side View

only E type needs Parts of red screen







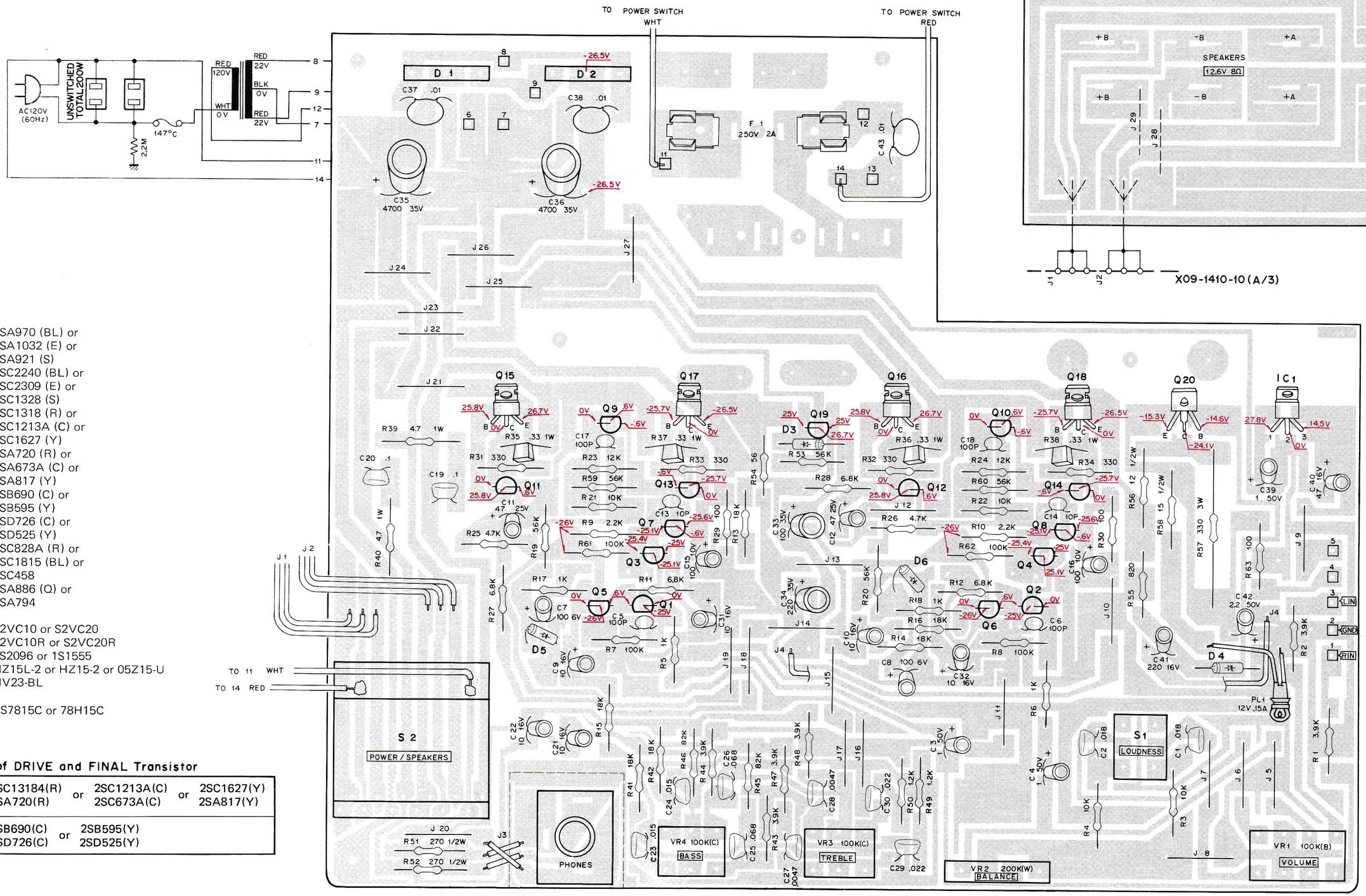
Q1 : 2SK61 (Y, GR)
Q2 : 2SC535 (B)
Q3 : 2SC1342 (A, B)
Q4,5 : 2SA970 (BL) or 2SA1032 (E) or 2SA921 (S)
Q6~8 : 2SC828 (R) or 2SC1815 (BL) or 2SC458 (C)
Q9 : 2SA1015 (BL) or 2SA844 (E)
Q10 : 2SC2240 (BL) or 2SC2310 (E) or 2SC1328 (S)

D1,2,4,5,11,12: HV23-BL
D3,6~10 : SEL-1123R

IC1 : KB4402 or HA1137W
IC2 : KB4400 or HA1156W-BT
IC3 : KB4430A or HA1151
IC4 : M51903L
IC5 : AN6551

PC BOARD

▼POWER AMP PCB ASS'Y (X09-1410-10)
Components Side View



▼POWER AMP PCB ASS'Y (X09-1410-10)
Foil Side View

Q1~6 : 2SA970 (BL) or
2SA1032 (E) or
2SA921 (S)
Q7~10 : 2SC2240 (BL) or
2SC2309 (E) or
2SC1328 (S)
Q11,12 : 2SC1318 (R) or
2SC1213A (C) or
2SC1627 (Y)
Q13,14 : 2SA720 (R) or
2SA673A (C) or
2SA817 (Y)
Q15,16 : 2SB690 (C) or
2SB595 (Y)
Q17,18 : 2SD726 (C) or
2SD525 (Y)
Q19 : 2SC828A (R) or
2SC1815 (BL) or
2SC458
Q20 : 2SA886 (Q) or
2SA794

D1 : S2VC10 or S2VC20
D2 : S2VC10R or S2VC20R
D3 : 1S2096 or 1S1555
D4 : HZ15L-2 or HZ15-2 or 05Z15-U
D5,6 : HV23-BL

IC1 : FS7815C or 78H15C

PAIR USE of DRIVE and FINAL Transistor

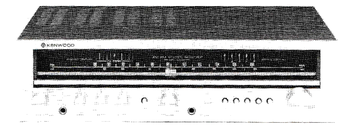
Q11, 12 **Q13, 14**	2SC13184(R) 2SA720(R)	or	2SC1213A(C) 2SC673A(C)	or	2SC1627(Y) 2SA817(Y)
Q15, 16 **Q17, 18**	2SB690(C) 2SD726(C)	or	2SB595(Y) 2SD525(Y)		

KENWOOD

only E type needs Parts of black screen

AM-FM STEREO RECEIVER

KR-2010



POWER AMPLIFIER SECTION

Power Output

20 watts* per channel, minimum RMS both channels driven, at 8 ohms from 40 Hz to 20,000 Hz with no more than 0.3% total harmonic distortion.

Both Channels Driven	
into 8 ohms at 1,000 Hz	22 W + 22 W
into 4 ohms at 1,000 Hz	25 W + 25 W
Dynamic Power Output	100 W at 4 ohms
Total Harmonic Distortion (20 Hz to 20,000 Hz from AUX)	
rated power into 8 ohms	0.3%
1 W power into 8 ohms	0.05%
Intermoduration Distortion (60 Hz:7 kHz=4:1 SMPTE)	
rated power into 8 ohms	0.07%
1 W power into 8 ohms	0.04%
Damping Factor	28
(20 – 20 kHz at 8 ohms)	
Input Sensitivity/Impedance	
PHONO	2.5 mV/50 kohms
TAPE	150 mV/50 kohms
Signal to Noise Ratio (A weighted)	
PHONO	72 dB for 2.5 mV input
	78 dB for 5.0 mV input
TAPE	98 dB for 150 mV input
Maximum Phono Input Level	
at 1,000 Hz	140 mV (RMS), THD 0.3%
Frequency Response	
PHONO RIAA Standard Curve	20 Hz to 20,000 Hz ±0.3 dB
TAPE	7 Hz to 130,000 Hz
	+0.5 dB, −3 dB
Tone Control	
Bass	±8 dB at 100 Hz
Treble	±8 dB at 10 kHz
Loudness Control (VOL. −30 dB)	+10 dB at 100 Hz
Output Level/Impedance	
TAPE REC Out (Pin)	150 mV/300 ohms
TAPE REC Out (DIN)	30 mV/80 kohms

FM TUNER SECTION

Usable Sensitivity	10.8 dBf (1.9 μV)
50 dB Quieting Sensitivity	
Mono	16.8 dBf (3.8 μV)
Stereo	38.3 dBf (45 μV)
Signal to Noise Ratio at 65 dBf	
Mono	76 dB
Stereo	70 dB
	72 dB at 10 mV input
Total Harmonic Distortion	
Mono	0.12%
Stereo	0.13%
Frequency Response	30 Hz to 15,000 Hz
	+0.5 dB, −2.0 dB
Capture Ratio	1.0 dB
Image Rejection Ratio	53 dB
Spurious Response Ratio	80 dB
IF Response Ratio	90 dB
Alternate Channel Selectivity	50 dB at 400 kHz
AM Suppression Ratio	50 dB at 65 dBf
Stereo Separation Ratio	42 dB at 1,000 Hz
	38 dB at 100 Hz to 10,000 Hz
Subcarrier Product Ratio	40 dB
Antenna Impedance	300 ohms balanced &
	75 ohms unbalanced
FM Frequency Range	88 MHz to 108 MHz

AM TUNER SECTION

Usable Sensitivity	20 μV
Signal to Noise Ratio	50 dB
Image Rejection	40 dB
Selectivity	40 dB

GENERAL

Power Consumption	100 W (UL and CSA)
	105 W (8 ohms at rated power)
	20 W (Non Signal)
AC OUTLET	Unswitched 2
Dimensions	W 440 mm (17-5/16")
	H 120 mm (5-1/16")
	D 350 mm (13-25/32")
Weight (Net)	6.5 kg (14.3 lbs)
(Gross)	7.5 kg (16.5 lbs)

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

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

2SK61 2SA817 2SC535 2SC1627 2SA673A 2SC1213A 2SA844 2SC1342 2SA720 2SC828 2SC1328 2SA921 2SC828A 2SC2309 2SC458 2SC1318 2SC2310 2SA1015 2SC1815 2SB595 2SD525 2SB690 2SD726 2SA794 2SA886 FS7815C 78H15C M51903L AN6551 HA1151 HA1156W-BT KB4400 KB4402 KB4430A HA1137W

DC voltage measured with 20 kΩ/V VOM

KR-2010(K)

PARTS LIST

☆ : New parts
FP: Flame proof
RD: Carbon film resistor
RC: Carbon composition resistor
RW: Wire wound power resistor
RN: Metal film resistor
RS: Metal oxide film resistor
The parts No. of the resistor and capacitor is changed into computer code.

TOTAL

Ref.No.	Parts No.	Description		Re-marks
1(2A)	—	Bottom plate		
2(3B)	—	Sub panel		
3(2A)	—	Frame (A)		
4(2A)	—	Frame (B)		
5(1A)	—	Frame (C)		
6(1B)	—	Rear panel		
7(1A)	A01-0359-08	Case	K,P,T	☆
7(1A)	A01-0360-08	Case (GRY)	M,X,E	☆
8(3A)	A20-1521-08	Panel ass'y	K,P,M,X,E	☆
8(3A)	A20-1522-08	Panel ass'y	T	☆
9(3A)	B01-0154-08	Dial escutcheon		☆
10(3A)	B07-0287-08	Push knob escutcheon		☆
11(3A)	B20-0453-08	Dial calibrations		☆
12(3A)	B21-0036-08	Dial pointer		☆
—	B46-0055-20	Warranty card	P	
—	B46-0060-00	Warranty card	T	
—	B46-0061-20	Warranty card	K	
—	B46-0064-10	Warranty card	X	
—	B50-3039-00	Instruction manual	K	☆
—	B50-3040-10	Instruction manual	P,M,X	☆
—	B50-3041-30	Instruction manual	E	☆
—	B50-3042-00	Instruction manual	T	☆
C1, 2	C54-3310-39	Ceramic cap. 0.01μF 2kV	X,E,T	
13(3B)	D15-0160-04	Small pulley x4		
14(2B)	D15-0173-08	Pulley		☆
15(3B)	D20-0151-08	Dial shat ass'y		☆
16(1B)	D32-0075-04	Switch stopper	M,X	
17(1B)	E03-0019-08	AC outlet	K,P,M,X	☆
18(1B)	E04-0004-05	Coaxial connector	E,T	
19(1B)	E21-0010-08	GND terminal		☆
20(1B)	E30-0181-05	Power cord	K,P	
20(1B)	E30-0185-05	Power cord	X	
20(1B)	E30-0459-05	Power cord	E	
20(1B)	E30-0545-05	Power cord	M	
20(1B)	040-0304-05	Power cord without plug	T	
21(2B)	G01-0045-24	Dial spring		
22(3A)	G01-0367-08	Spring (push switch) x6		☆
—	H01-3059-08	Carton box	K,M,X	☆
—	H01-3060-08	Carton box	P	☆
—	H01-3061-08	Carton box	E	☆
—	H01-3062-08	Carton box	T	☆
—	H10-1536-08	Polystyrene foamed fixture L		☆
—	H10-1537-08	Polystyrene foamed fixture R		☆
23(2A)	J02-0105-08	Foot x4		☆
24(1B)	J19-0507-05	ANT holder		
25(3A)	J19-0544-08	Dial pointer holder		☆
26(1B)	J41-0024-15	Power cord bushing	X,T	
26(1B)	J41-0033-05	Power cord bushing	E	
26(1B)	J41-0034-05	Power cord bushing	K,P,M	
27(3A)	K23-0330-08	Knob x3 (TONE, BALANCE)		☆
28(3A)	K23-0331-08	Knob x2 (VOLUME, POWER)		☆
29(3A)	K23-0332-08	Knob (Tuning)		☆
30(3A)	K23-0333-08	Knob (MIC LEVEL)		☆
31(3A)	K27-0106-08	Knob x6 (Push switch)		☆
32(1B)	L01-1871-08	Power transformer	K	☆
32(1B)	L01-1872-08	Power transformer	T	☆
32(1B)	L01-1875-08	Power transformer	M,X	☆
32(1B)	L01-1876-08	Power transformer	E	☆
32(1B)	L01-1877-08	Power transformer	P	☆
33(1B)	N09-0256-05	Wrapping terminal screw		
34(3B)	N09-0297-08	Screw for small pulley x4		☆
R1	R92-0173-05	Carbon resistor 2.2MΩ 1/2W	K,P	
35(1B)	S31-2054-08	Slide switch (Voltage selector)	M,X	☆
35(1B)	S31-2055-08	Slide switch (Voltage selector)	E	☆
36(1B)	T90-0083-05	AM bar antenna		
37(2B,3B)	X05-1720-10	Tuner PCB ass'y	K,P	☆
37(2B,3B)	X05-1720-21	Tuner PCB ass'y	M,X	☆
37(2B,3B)	X05-1722-71	Tuner PCB ass'y	E,T	☆
38(2B)	X09-1410-10	Power amp PCB ass'y	K	☆
38(2B)	X09-1410-21	Power amp PCB ass'y	M,X	☆
38(2B)	X09-1412-71	Power amp PCB ass'y	E	☆
38(2B)	X09-1410-51	Power amp PCB ass'y	T	☆
38(2B)	X09-1411-01	Power amp PCB ass'y	P	☆

TUNER PCB ASS'Y (X05-1720-10,-21,-27,-71)

Ref.No.	Parts No.	Description			Re-marks
39(3B)	—	Escutcheon (STEREO DISPLAY)			☆
C1	C71-1715-05	Ceramic	15pF	±5%	
C2	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C3	C71-1710-02	Ceramic	10pF	±0.5pF	
C4	C71-1722-15	Ceramic	220pF	±5%	
C5	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C6	C60-1722-05	Ceramic	22pF	±5%	
C7	C60-1708-02	Ceramic	8pF	±0.5pF	
C8	C91-0037-05	Smallcap	0.47pF		
C9	C63-1715-05	Ceramic	15pF	±5%	
C10	C63-1739-05	Ceramic	39pF	±5%	
C11~15	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C16	C25-1747-41	Electrolytic	0.47μF	50WV	
C17	C55-1747-38	Ceramic	0.047μF	+80,−20%	
C18	C71-1710-15	Ceramic	100pF	±5%	
C19	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C20, 21	C55-1747-38	Ceramic	0.047μF	+80,−20%	
C22	C70-1715-05	Ceramic	15pF	±5%	
C23	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C24	C90-0246-05	Semiconductor-ceramic	0.01μF	25WV	
C25, 26	C55-1710-38	Ceramic	0.01μF	+80,−20%	
C27	C71-1747-05	Ceramic	47pF	±5%	

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PARTS LIST

Ref.No.	Parts No.	Description	Remarks
C28	C24-1210-61	Electrolytic 10μF 16WV	
C29	C24-1710-51	Electrolytic 1μF 50WV	
C30	C55-1710-38	Ceramic 0.01μF +80,−20%	
C31, 32	C90-0246-05	Semiconductor-ceramic 0.01μF 25WV	
C33	C46-1747-36	Mylar 0.047μF ±10%	
C34	C90-0246-05	Semiconductor-ceramic 0.01μF 25WV	
C35	C24-1247-61	Electrolytic 47μF 16WV	
C36	C71-1715-05	Ceramic 15pF ±5%	
C37	C48-1747-15	Polystyrene 470pF ±5%	
C38	C46-1747-36	Mylar 0.047μF ±10%	
C39~41	C24-1210-61	Electrolytic 10μF 16WV	
C42	C25-1747-41	Electrolytic 0.47μF 50WV	
C43	C25-1722-41	Electrolytic 0.22μF 50WV	
C44	C25-1747-41	Electrolytic 0.47μF 50WV	
C45, 46	C46-1733-35	Mylar **-10,-21,-71** 0.033μF ±5%	
C45, 46	C46-1722-35	Mylar 0.022μF ±5% **-27**	
C47, 48	C46-1715-26	Mylar 0.0015μF ±10%	
C49, 50	C52-1739-16	Ceramic 390pF ±10%	
C51, 52	C46-1727-26	Mylar 0.0027μF ±10%	
C53, 54	C24-1710-51	Electrolytic 1μF 50WV	
C55	C24-1210-71	Electrolytic 100μF 16WV	
C56, 57	C24-1210-61	Electrolytic 10μF 16WV	
C58, 59	C25-1447-51	Electrolytic 4.7μF 25WV	
C60~63	C71-1710-15	Ceramic 100pF ±5%	
C64, 65	C24-0810-71	Electrolytic 100μF 6.3WV	
C66, 67	C46-1722-35	Mylar 0.022μF ±5%	
C68, 69	C46-1762-25	Mylar 0.0062μF ±5%	
C70, 71	C24-1722-51	Electrolytic 2.2μF 50WV	
C72, 73	C24-1247-61	Electrolytic 47μF 16WV	
C74	C24-1710-51	Electrolytic 1μF 50WV	
C75	C71-1747-05	Ceramic 47pF ±5%	
C76	C52-1756-16	Ceramic 560pF ±10%	
C77	C24-1247-61	Electrolytic 47μF 16WV	
C78	C24-1710-51	Electrolytic 1μF 50WV	
C79	C24-1222-71	Electrolytic 220μF 16WV	
C80, 81	C24-1247-61	Electrolytic 47μF 16WV	
C85~87	C55-1710-38	Ceramic 0.01μF +80,−20%	
CT1	C05-0055-05	Ceramic trimmer 6pF	
40(3B)	E11-0065-05	Phone jack (MIC)	
41(2B)	E13-0424-08	4P phono jack (TAPE A)	☆
42(2B)	E13-0613-08	6P phono jack (PHONO, TAPE B)	☆
43(2B)	E20-0438-05	4P ANT terminal	
44(3B)	J19-0546-08	Escutcheon (SIGNAL DISPLAY)	☆
L1	L31-0412-05	FM ANT coil	
L2	L31-0410-05	FM RF coil	
L3	L40-1092-13	Ferri-inductor 1μH	
L4	L32-0187-05	FM OSC coil	
L5	L30-0282-05	FM IFT coil	
L6	L40-1805-63	Ferri-inductor 18μH	
L7	L30-0305-05	FM DET (P) coil	
L8	L30-0306-06	FM DET (S) coil	
L9	L40-2292-13	Ferri-inductor 2.2μH	
L10	L40-1092-13	Ferri-inductor 1μH	
L11	L32-0225-05	AM OSC coil	
L12	L30-0307-05	AM IFT coil	
L13	L30-0300-05	AM IFT coil	
L14	L40-1021-13	Ferri-inductor 1mH	

Ref.No.	Parts No.	Description	Remarks
CF1, 2	L72-0057-05	FM ceramic filter **-10,-21,-71**	
CF1, 2	L72-0059-05	FM ceramic filter **-27**	
CF3	L72-0054-05	AM ceramic filter	
VR1	R12-3055-08	Trimming potentiometer 10kΩ VCO ADJ	☆
VR2	R12-3028-05	Trimming potentiometer 20kΩ SEP ADJ	
VR3	R06-5044-08	Potentiometer 100kΩ(B)x2 (MIC) **Fig 45(2B)**	☆
R9,10,21 30,84,85	R43-1210-15	FP-RD 100Ω ±5% 1/4W	
R33	R43-1233-05	FP-RD 33Ω ±5% 1/4W	
R51,64	R43-1222-05	FP-RD 22Ω ±5% 1/4W	
R55, 94	R43-1233-15	FP-RD 330Ω ±5% 1/4W	
S1	S42-5014-08	Push switch (TAPE, SELECTOR) **Fig 46(2B)**	☆
Q1	V09-0124-10	FET 2SK61(Y,GR)	
Q2	V03-0098-05	Transistor 2SC535(B)	
Q3	V03-0357-05	Transistor 2SC1342(A,B)	
Q4, 5	V01-0970-10	Transistor 2SA970(BL) or	
	—	2SA1032(E) or	
	V01-0921-10	2SA921(S)	
Q6~8	V03-0828-50	Transistor 2SC828(R) or	
	—	2SC1815(BL) or	
	V03-0080-05	2SC458(C)	
Q9	—	Transistor 2SA1015(BL) or	
	—	2SA844(E)	
Q10	V03-2240-10	Transistor 2SC2240(BL) or	
	—	2SC2310(E) or	
	—	2SC1328(S)	
D1, 2	V11-2101-90	Silicone varistor HV23-BL	
D3	V11-5100-70	LED SEL-1123R	
D4, 5	V11-2101-90	Silicone varistor HV23-BL	
D6~10	V11-5100-70	LED SEL-1123R	
D11, 12	V11-2101-90	Silicone varistor HV23-BL	
IC1	V30-0235-05	IC KB4402 or	
	V30-0133-05	HA1137W	
IC2	—	IC KB4400 or	
	V30-0144-05	HA1156W(BT)	
IC3	—	IC KB4430A or	
	V30-0134-05	HA1151	
IC4	V30-0295-10	IC M51903L	
IC5	V30-0353-10	IC AN6551	

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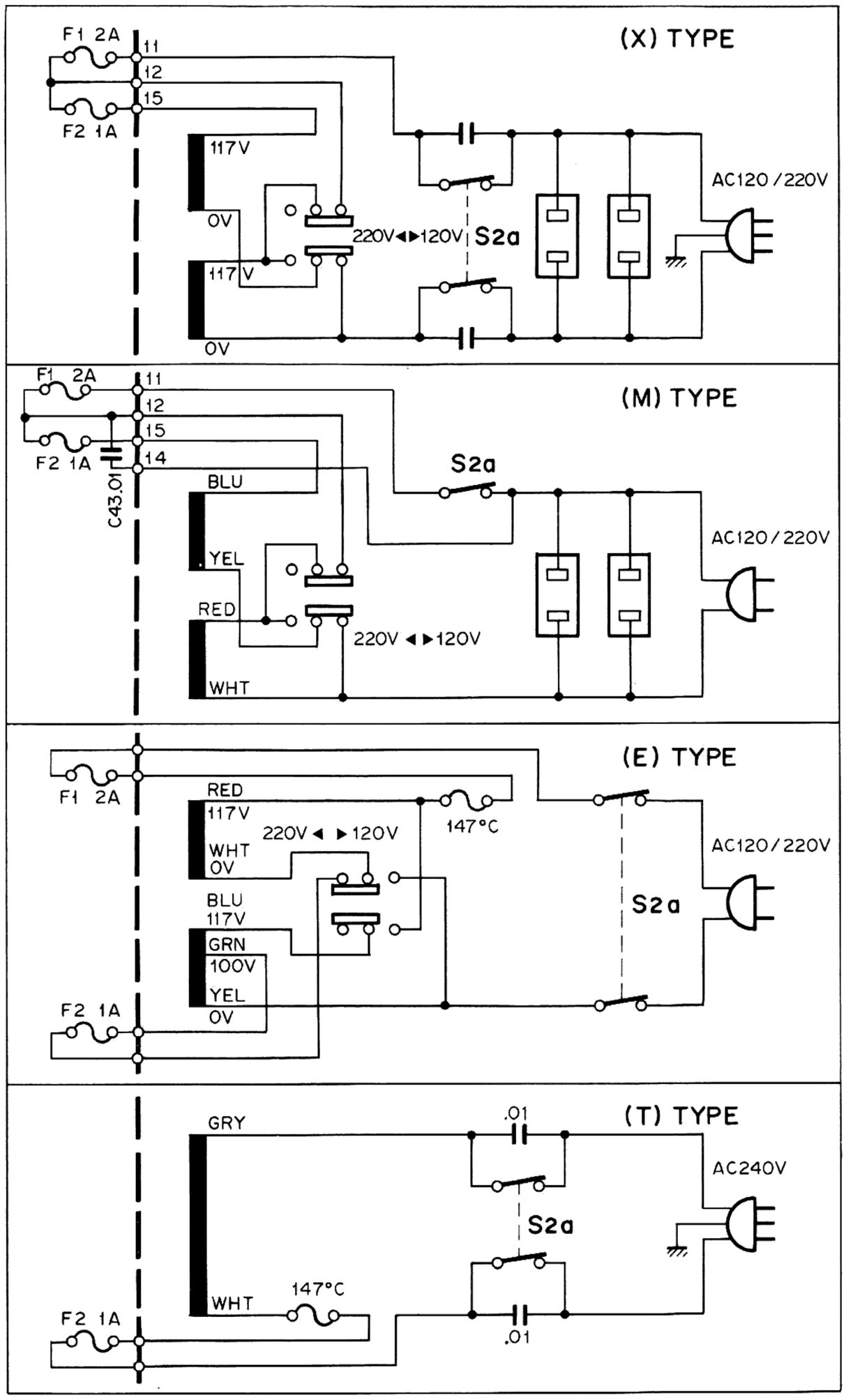
PARTS LIST

POWER AMP PCB ASS'Y (X09-1410-10,-21,-27,-51,-71,-1411-01)

Ref.No.	Parts No.	Description	Re-marks
47(2B)	—	Heat sink	☆
PL1	B30-0195-08	Pilot lamp 12V,015A **Fig 48(2A)**	☆
C1, 2	C46-1718-36	Mylar 0.018μF ±10%	
C3, 4	C25-1710-51	Electrolytic 1μF 50WV	
C5, 6	C71-1710-15	Ceramic 100pF ±5%	
C7, 8	C24-0810-71	Electrolytic 100μF 6.3WV	
C9, 10	C24-1210-61	Electrolytic 10μF 16WV	
C11, 12	C24-1447-61	Electrolytic 47μF 25WV	
C13, 14	C71-1710-02	Ceramic 10pF ±0.5pF	
C15, 16	C24-1310-71	Electrolytic 100μF 10WV	
C17, 18	C71-1710-15	Ceramic 100pF ±5%	
C19, 20	C46-1710-47	Mylar 0.1μF ±20%	
C21, 22	C26-1210-67	NP-Electrolytic 10μF 16WV	
C23, 24	C46-1715-36	Mylar 0.015μF ±10%	
C25, 26	C46-1768-36	Mylar 0.068μF ±10%	
C27, 28	C46-1747-26	Mylar 0.0047μF ±10%	
C29, 30	C46-1722-36	Mylar 0.022μF ±10%	
C31, 32	C24-1210-61	Electrolytic 10μF 16WV	
C33	C24-6510-71	Electrolytic 100μF 35WV	
C34	C24-6522-71	Electrolytic 220μF 35WV	
C35, 36	C90-0368-05	Electrolytic 4700μF 35WV	
C37, 38	C54-2710-39	Ceramic 0.01μF +100,−0%	
C39	C24-1710-51	Electrolytic 1μF 50WV	
C40	C24-1247-61	Electrolytic 47μF 16WV	
C41	C24-1222-71	Electrolytic 220μF 16WV	
C42	C24-1722-51	Electrolytic 2.2μF 50WV	
C43	C91-0044-08	Ceramic 0.01μF **K**	☆
C43	C91-0045-08	Ceramic 0.01μF **P**	☆
C43	C91-0082-08	Ceramic 0.01μF 2kV **M**	☆
49(2A)	E11-0060-15	Phone jack (PHONES)	
50(1B)	E20-0811-05	Binding post ass'y (SPEAKERS)	
F1	F05-2021-05	Fuse 250V,2A **K** **Fig 51(2B)**	
F1	F05-2023-05	Fuse 250V,2A **P,M,X** **Fig 51(2B)**	
F1	F05-2029-05	Fuse 250V,2A **E** **Fig 51(2B)**	
F2	F05-1023-05	Fuse 250V,1A **M,X** **Fig 51(2B)**	
F2	F06-1021-05	Fuse 250V,1A **E,T** **Fig 51(2B)**	
—	J13-0041-05	Fuse holder x2 **K,P**	
—	J13-0041-05	Fuse holder x4 **M,X**	
—	J13-0061-08	Fuse holder x2 **E**	☆
—	J13-0061-08	Fuse holder x2 **T**	☆
VR1	R06-5045-08	Potentiometer 100kΩ (B)x2 VOLUME **Fig 52(2B)**	☆
VR2	R01-5026-08	Potentiometer 200kΩ (W) BALANCE **Fig 53(2B)**	☆
VR3, 4	R06-5046-08	Potentiometer 100kΩ (C)x2 TONE **Fig 54(2A)**	☆
R29, 30	R43-1210-15	FP-RD 100Ω ±5% 1/4W	
R31~34	R43-1233-15	FP-RD 330Ω ±5% 1/4W	
R35~38	R92-0112-05	Cement 0.33Ω ±10% 1W	
R39, 40	R47-1447-95	FP-RS 4.7Ω ±5% 1W	
R51, 52	R40-1327-15	RC 270Ω ±5% 1/2W	
R54	R43-1256-05	FP-RD 56Ω ±5% 1/4W	
R55	R43-1282-15	FP-RD 820Ω ±5% 1/4W	
R56	R43-1312-05	FP-RD 12Ω ±5% 1/2W	
R57	R47-1633-15	FP-RS 330Ω ±5% 3W	
R58	R43-1315-05	FP-RD 15Ω ±5% 1/2W	
R63	R43-1210-15	FP-RD 100Ω ±5% 1/4W	
S1	S40-2098-08	Push switch LOUDNESS **Fig 55(2B)**	☆
S2	S02-1019-08	Rotary switch POWER **K,P,M** **Fig 56(2B)**	☆
S2	S02-1020-08	Rotary switch POWER **X,E,T** **Fig 56(2B)**	☆
Q1~6	V01-0970-10	Transistor 2SA970(BL) or	
	—	2SA1032(E) or	
	V01-0921-10	2SA921(S)	
Q7~10	V03-2240-10	Transistor 2SC2240(BL) or	
	—	2SC2309(E) or	
	—	2SC1328(S)	
Q11, 12	V03-0371-05	Transistor 2SC1318(R) or	
	V03-0215-05	2SC1213A(C) or	
	—	2SC1627(Y)	
Q13, 14	V01-0128-05	Transistor 2SA720(R) or	
	V01-0081-05	2SA673A(C) or	
	—	2SA817(Y)	
Q15, 16	V02-0690-10	Transistor 2SB690(C) or	
	—	2SB595(Y)	
Q17, 18	V04-0726-10	Transistor 2SD726(C) or	
	—	2SD525(Y)	
Q19	V03-0362-05	Transistor 2SC828A(R) or	
	—	2SC1815(BL) or	
	—	2SC458( )	
Q20	—	Transistor 2SA886(Q) or	
	V01-0794-10	2SA794( )	
D1	V11-1300-60	Silicone diode S2VC10 or	
	V11-1300-70	S2VC20 **K,M,X,E,T**	
D1	V11-1301-20	Silicone diode S3VC10 **P**	☆
D2	V11-1300-80	Silicone diode S2VC10R or	
	V11-1300-90	**K,M,X,E,T**	
		S2VC20R	
D2	V11-1301-30	Silicone diode S3VC10R **P**	☆
D3	V11-0271-05	Silicone diode 1S2076 or	
	V11-0076-05	1S1555	
D4	V11-2101-80	Zener diode HZ15L-2 or	☆
	—	HZ15-2 or	☆
	—	05Z15-U	☆
D5, 6	V11-2101-90	Silicone varistor HV23-BL	☆
IC1	V30-0354-10	IC FS7815C or	☆
	—	78H15C	☆

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ALTERNATE SCHEMATIC DIAGRAMS



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