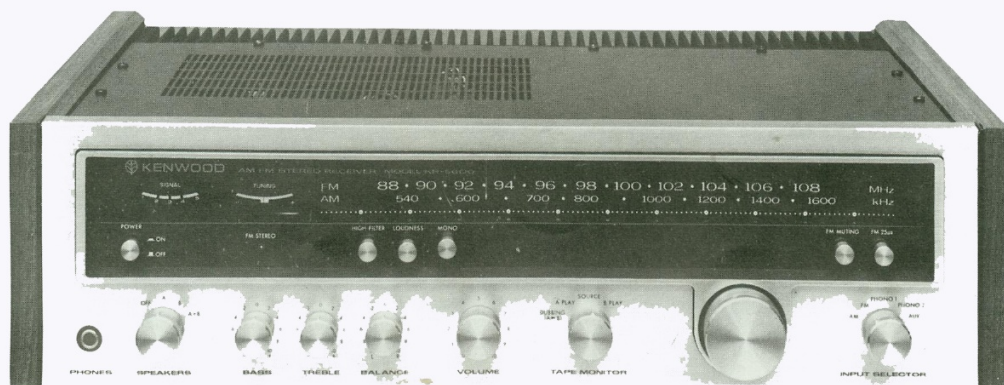




KENWOOD
HI/FI STEREO COMPONENTS

SERVICE MANUAL

KR-4600
KR-5600



AM-FM STEREO RECEIVER

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Note 1:

The products are subject to modification in components and circuits in different countries and regions. This is because each products must be used under the best condition.

This manual provides information of modification based on the standard in the U.S. for the convenience of ordering associated components and parts.

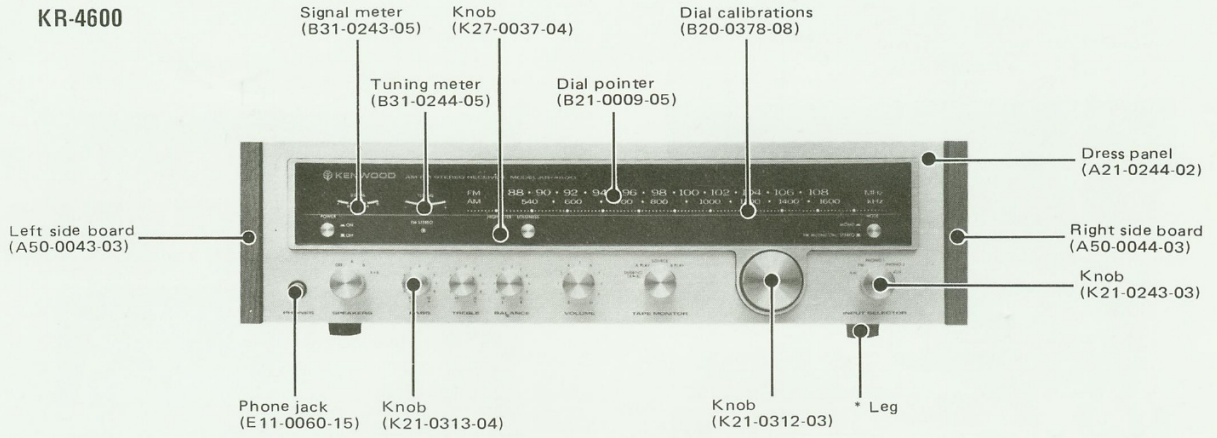
U.S.A.	K
Canada	P
PX	U
Australia	X
Europe	W
England	T
Scandinavia	L
Other area	M

Note 2:

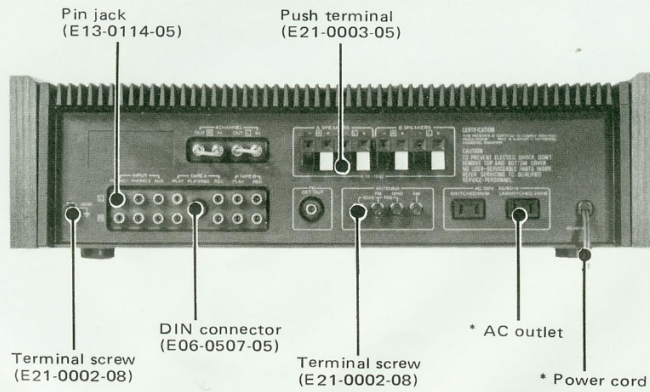
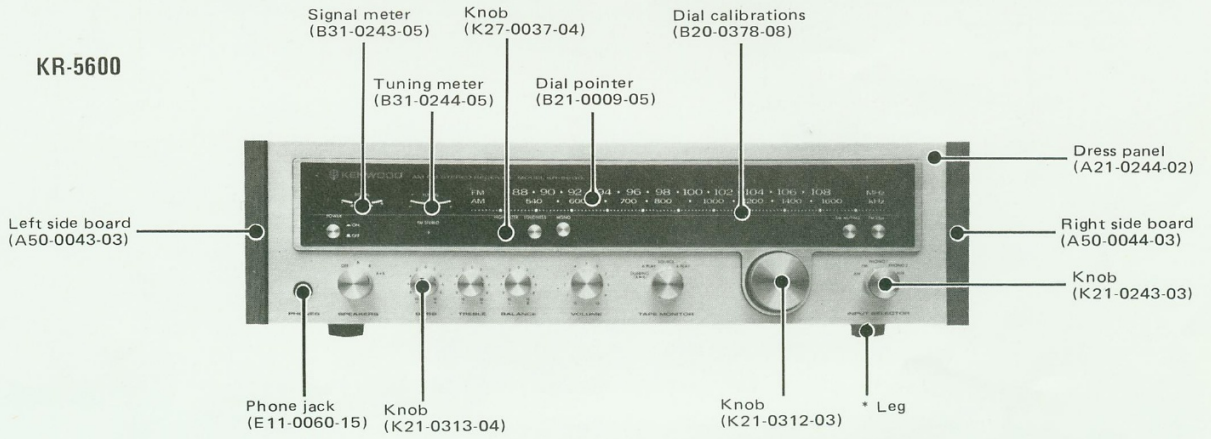
Symbol ☆ and symbol ● in parts list mean the new parts and the parts not being kept in stock, respectively.

EXTERNAL VIEW

KR-4600

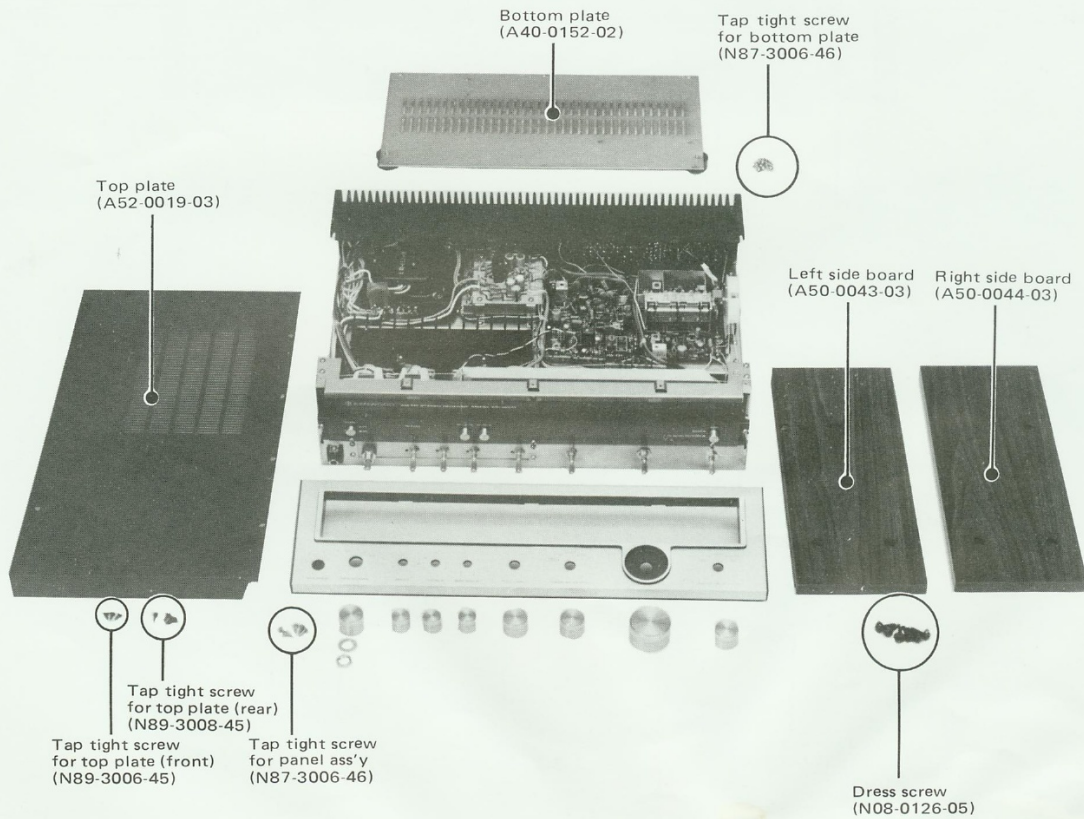
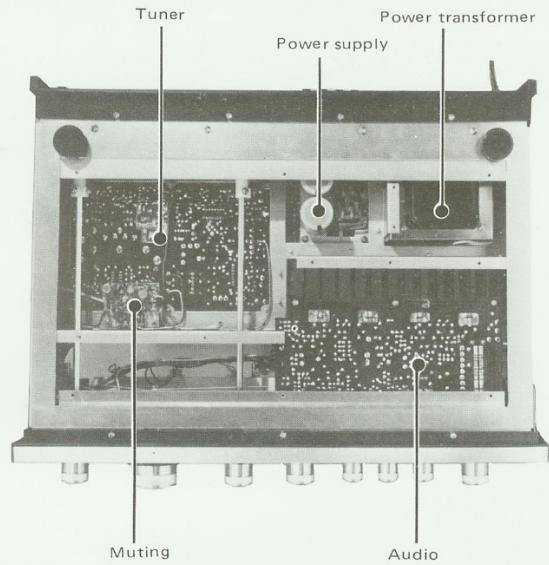
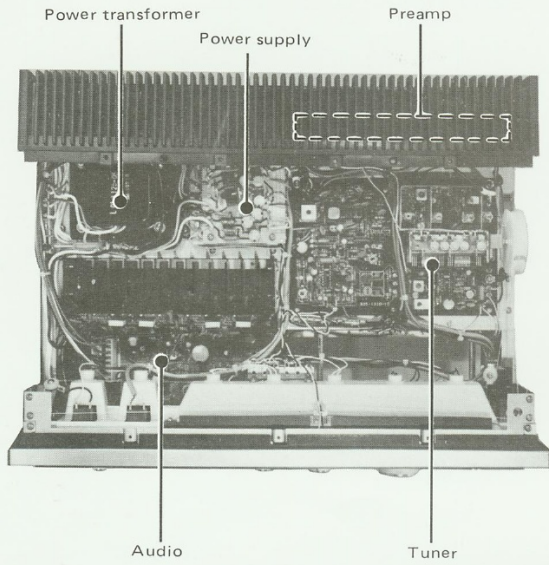


KR-5600



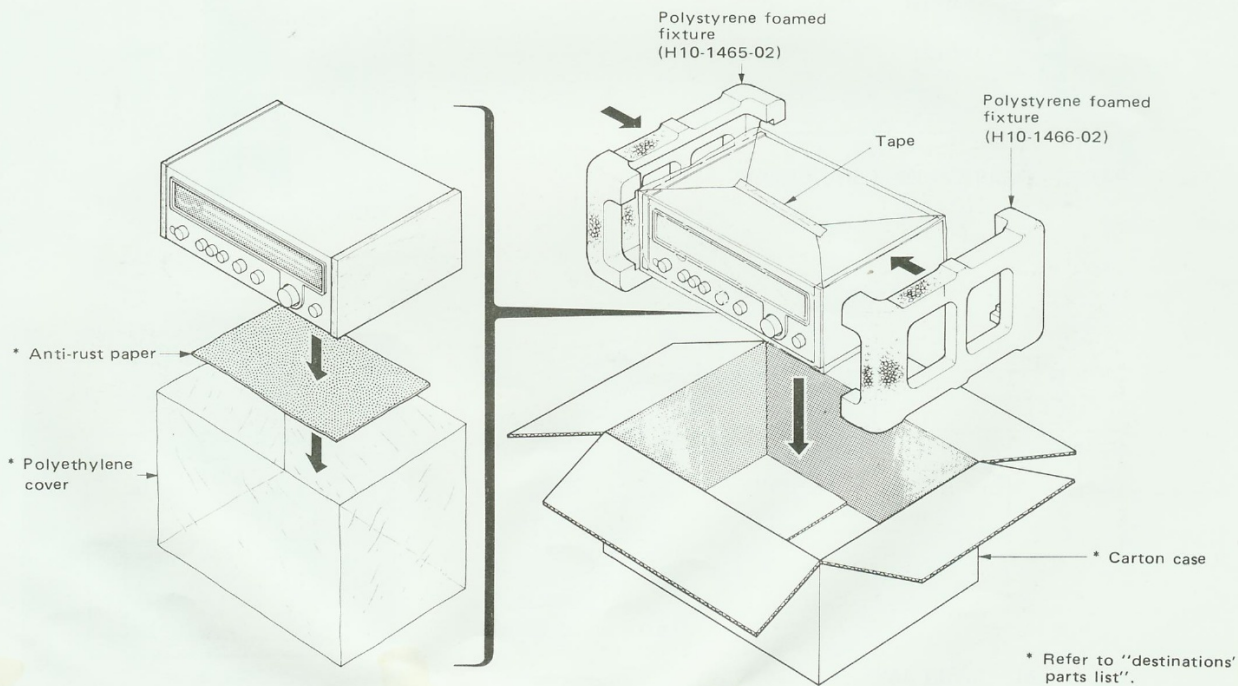
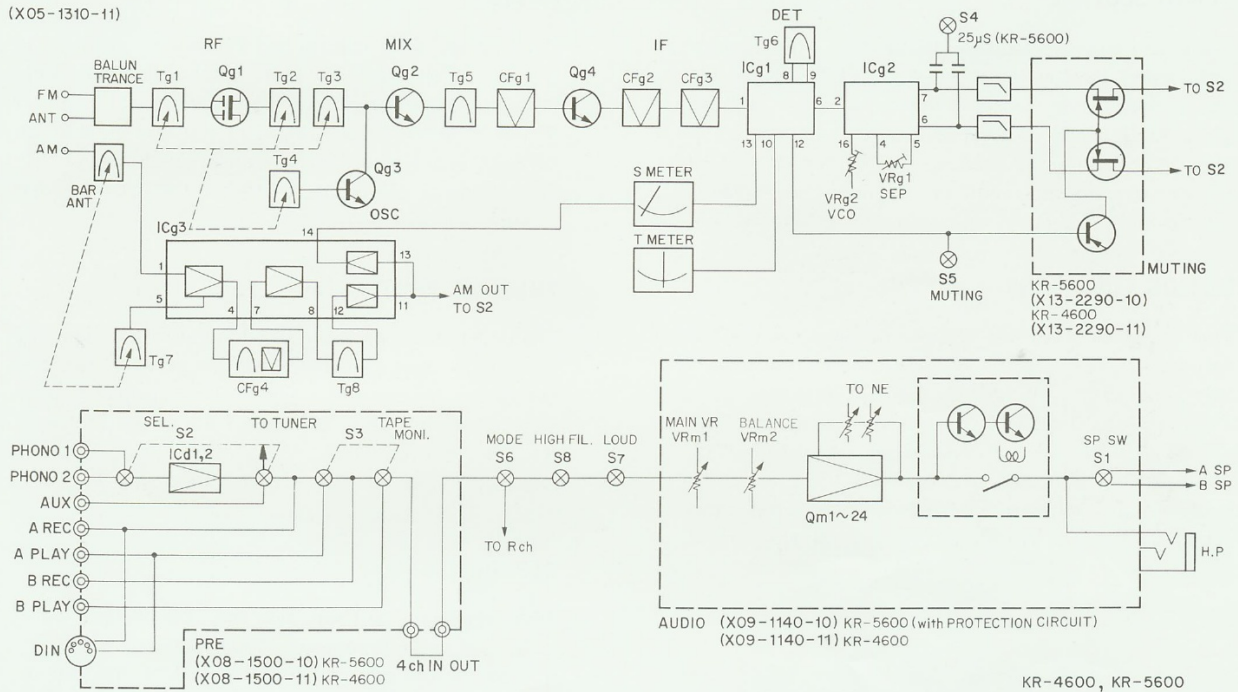
* Refer to Destinations' parts list.

INTERNAL VIEW/DISASSEMBLY



BLOCK DIAGRAM/PACKING

(X05-1310-11)



CIRCUIT DESCRIPTIONS/ADJUSTMENTS/REPAIR

TUNER SECTION

AM circuit employs exclusive IC for AM. RF circuit of FM section employs Dual-gate MOS FET. IF section uses a wide range "Quadrature-type detector" and ceramic filter, which is an excellent phase characteristics. Multiplex circuit also employs PLL-IC, which is hard for temperature and humidity variations. KR-5600 is provided with FM-Dolby emphasis selector switch.

MUTING FUNCTIONS

This circuit employs two FETs to be functioned as the switching element. Muting function is decided by the gate voltage of FET. This voltage is controlled by Qh1. Qh1 is done by the voltage of ICg1 (No. 12 pin). When the unit receiving FM broadcasts correctly, the voltage of ICg1 (at No. 12 pin) is 0 volt. When it is in de-tune, there is a positive voltage at ICg1 (at No. 12 pin). These voltages control Qh1

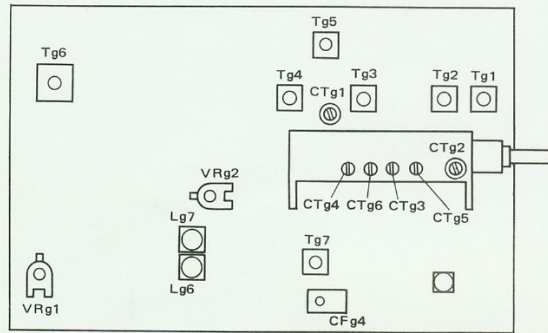


Fig. 1 PARTS LOCATION OF TUNER UNIT

AUDIO

Power amp, Tone control and Preamp are involved in this circuit. IC TA7136P (Qd1, Qd2) is used in Preamp. Pure complementary OCL circuit with ASO current limiter protection is employed in Power amp, and also KR-5600 is provided with DC protection circuit. Tone control operation is effected by changing NF amount of Power amp.

THERMAL PROTECTOR

The unit for Europe, Scandinavia, and England is provided with the thermal protector in the primary circuit of the power transformer. The thermal protector automatically functions to disconnect the power line when the unit is overheated. It functions to connect the power line when the temperature in the unit falls.

REPAIR

When replacing and repairing the preamp, rear panel ass'y, and so forth, unscrew 4 screws fixed the bottom side of the rear panel and 2 screws done the side of that, respectively. Refer to the figure.

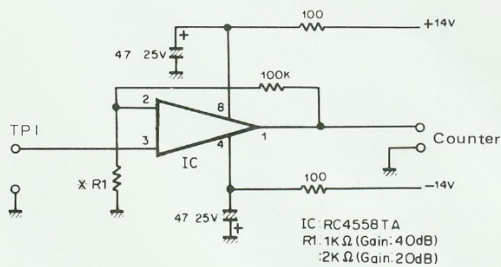
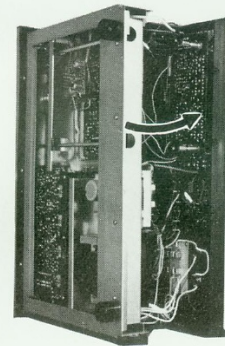
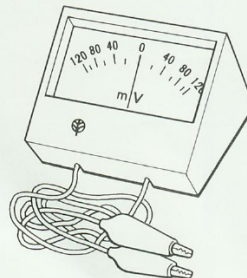


Fig. 2 20 ~ 30 dB AMP



BIAS current meter (B31-0125-05)

Fig. 3

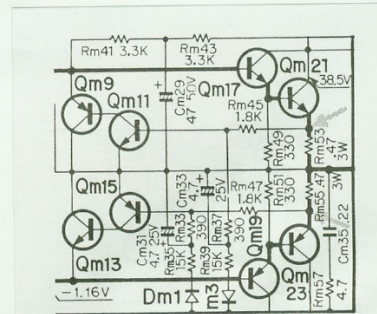


Fig. 4 BIAS CURRENT ADJ. POINTS

ADJUSTMENTS

TEST EQUIPMENTS

RF signal generator	RF-SG
Oscilloscope	scope
Solid state volt meter	SSVM
FM stereo generator	MPX-SG
Frequency counter	

NOTE

- * Tuning dial is set to the proper point corresponding to no radio stations.
- * RF-SG is set to the lowest response possible on oscilloscope.
- * The output level of RF-SG is made a 6 dB drop by the dummy ant.
- * The input level 60 dB means 66 dB read on RF-SG.
- * Repeat TRACKING adjustment several times and confirm the reception of broadcasting.
- * Test point is shown in the schematic diagram.

No.	ALIGN	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	RF-SG to ANT terminal via dummy ant.	98 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	98 MHz	SSVM & scope to REC jack (L)	Tg5	Maximum deflection
2		—	—	—	T meter	Tg6 (bottom)	Make the pointer position in the center of the meter
3		RF-SG to ANT terminal via dummy ant.	98 MHz (60dB) 1 kHz (Mod) 75 kHz (Dev)	98 MHz	SSVM & scope to REC jack (L)	Tg6 (top)	Maximum deflection & minimum distortion
4	OUTPUT	ditto	98 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB (Input)	98 MHz	ditto	—	Confirm output voltage is 700 mV
5	TRACKING	ditto	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	ditto	Tg1 ~ 4	Maximum deflection
6			108 MHz 1 kHz (Mod) 75 kHz (Dev)	108 MHz		CTg1 ~ 4	
7	VCO (Fig. 2)	—	—	—	Freq. counter via 20 ~ 30 dB amp to TP1	VRg1	Counter indicates 76 kHz
8	SEPARATION	MPX-SG to RF-SG ext. jack	98 MHz 1 kHz (Mod) 68.25 kHz (Dev) L or R (Select) 60 dB (Input)	98 MHz	SSVM & scope to REC jack (L)	VRg1	Minimum cross-talk (Maximum separation)
9	DISTORTION	ditto	98 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	98 MHz	ditto	Tg5	Maximum deflection
AM SECTION							
1	IF	RF-SG to ANT terminal via dummy ant.	1000 kHz 400 Hz, 30% (Mod) 100 dB	1000 kHz	SSVM & scope to REC jack (L)	CFg4	Maximum deflection
2	TRACKING	ditto	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	ditto	Tg7 Bar antenna	ditto
3			1400 kHz 400 Hz, 30% (Mod) 100 dB	1400 kHz		CTg5, 6	
AUDIO SECTION							
1	BIAS	—	—	VOLUME is its min.	Volt meter or B31-0125-05	VRm5, 6	Meter indicates 40 mV. (Fig. 3, 4)

DESTINATIONS' PARTS LIST

Symbol ☆ : new parts, Symbol ● : the parts not being kept in stock.

Ref. No.	U.S.A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	England (T)	Scandinavia (L)	Other Area (M)	Description
—	A70-0092-05	A70-0099-05	A70-0093-05	A70-0093-05	A70-0094-05	A70-0094-05	A70-0094-05	A70-0093-05	Dial board ass'y (KR-5600) ☆
—	A70-0099-05	A70-0099-05	A70-0100-05	A70-0100-05	A70-0102-05	A70-0102-05	A70-0102-05	A70-0100-05	Dial board ass'y (KR-4600) ☆
—	B10-0199-03	B10-0199-03	B10-0199-03	B10-0199-03	B10-0199-03	B10-0200-03	B10-0199-03	B10-0199-03	Front glass (KR-5600) ☆
—	B10-0202-03	B10-0202-03	B10-0202-03	B10-0202-03	B10-0202-03	B10-0203-03	B10-0202-03	B10-0202-03	Front glass (KR-4600) ☆
—	B41-0220-04	B41-0220-04	—	—	—	—	—	—	Caution sticker ●
—	B42-0439-04	B42-0439-04	—	—	B42-0574-04	—	—	—	FTZ sticker ●
—	B42-0439-04	B42-0439-04	—	—	B42-0024-04	—	—	—	Fuse sticker ●
—	B42-0421-04	—	—	—	—	—	—	—	SEV sticker ●
—	B42-0612-04	—	—	—	—	—	—	—	UL sticker ●
—	B46-0056-00	—	—	—	—	—	—	—	Material sticker ●
—	B46-0055-10	—	B46-0050-00	—	—	—	—	—	Warranty card ●
—	B50-1489-00	B50-1489-00	B46-0051-00	—	—	—	—	—	Warranty card ●
—	B50-1507-00	B50-1489-00	B50-1489-00	B50-1489-00	B50-1489-00	B50-1490-00	B50-1489-00	B50-1489-00	Instruction manual (KR-5600) ☆
—	B58-0043-00	B50-1507-00	B50-1507-00	B50-1507-00	B50-1507-00	B50-1508-00	B50-1507-00	B50-1507-00	Instruction manual (KR-4600) ☆
—	—	B58-0043-00	—	B58-0003-00	B58-0156-00	—	—	—	Carton case caution card ●
—	—	—	B58-0139-00	B58-0101-00	B58-0157-00	B58-0214-04	—	—	Power supply caution card ●
—	—	—	B58-0144-00	B58-0101-00	—	—	—	—	Power voltage selector caution card ●
—	—	—	—	—	—	—	—	—	Power cord caution card ●
—	—	—	B59-0018-00	—	—	—	—	—	KENWOOD service stations' list
C5	C91-0001-05	C91-0001-05	—	—	—	—	—	—	Capacitor 0.01μF 125WV
C5	—	—	CK45E3D-103PMU	CK45E3D-103PMU	CK45E3D-103PMU x2	CK45E3D-103PMU x2	CK45E3D-103PMU x2	CK45E3D-103PMU	Capacitor 0.01μF 2000WV
—	—	—	D32-0075-04	D32-0075-04	D32-0075-04	—	—	D32-0075-04	Switch stopper (power voltage selector)
—	—	—	F09-0033-05	F09-0033-05	F09-0033-05	F09-0033-05	F09-0033-05	F09-0033-05	Capacitor cap
—	—	—	H01-1621-04	H01-1620-04	H01-1620-04	H01-1622-04	H01-1620-04	H01-1620-04	Carton case (KR-5600) ☆
—	H01-1623-04	H01-1624-04	H01-1624-04	H01-1623-04	H01-1623-04	H01-1625-04	H01-1623-04	H01-1623-04	Carton case (KR-4600) ☆
—	—	H03-0546-04	—	—	—	—	—	—	Carton case (KR-5600) ☆
—	—	H03-0547-04	—	—	—	—	—	—	Carton case (KR-4600) ● ☆
—	☆ H20-0440-04	☆ H20-0440-04	☆ H20-0440-04	☆ H20-0440-04	☆ H20-0440-04	☆ H20-0440-04	☆ H20-0440-04	H20-0415-04	Polyethylene cover
—	—	—	—	—	—	—	—	H40-0004-04	Anti-rust paper
—	J02-0073-04	J02-0049-14	J02-0049-14	J02-0049-14	J02-0049-14	J02-0049-14	J02-0049-14	J02-0049-14	Leg x 4
—	S40-2073-05	S40-2073-05	S40-2074-05	S40-2074-05	S40-2075-05	S40-2075-05	S40-2075-05	S40-2074-05	Pushbutton switch (POWER)
S9	—	—	—	—	—	—	—	—	—
—	X90-1230-10	X90-1231-01	X90-1230-81	X90-1230-71	X90-1230-61	X90-1230-51	X90-1231-71	X90-1230-21	Tuner ass'y (KR-5600) ● ☆
—	X90-1240-10	X90-1241-01	X90-1240-81	X90-1240-71	X90-1240-61	X90-1240-51	X90-1241-71	X90-1240-21	Tuner ass'y (KR-4600) ● ☆

DESTINATIONS' PARTS LIST FOR TUNER-ASS'Y

Ref. No.	U.S.A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	England (T)	Scandinavia (L)	Other Area (M)	Description
—	A23-0655-05	A23-0655-05	A23-0656-05	A23-0709-05	A23-0657-05	A23-0673-05	A23-0658-05	A23-0709-05	Rear panel ass'y ☆
—	A23-0651-08	A23-0651-08	A23-0652-08	A23-0652-08	A23-0653-08	A23-0672-08	A23-0654-08	A23-0652-08	Rear panel ● ☆
—	B40-1343-04	B40-1343-04	B40-1344-04	B40-1346-04	B40-1437-04	B40-1345-04	B40-1348-04	B40-1346-04	Model name plate (KR-5600) ● ☆
—	B40-1362-04	B40-1362-04	B40-1363-04	B40-1367-04	B40-1365-04	B40-1364-04	B40-1366-04	B40-1367-04	Model name plate (KR-4600) ● ☆
—	B41-0142-04	B41-0142-04	B41-0143-04	B41-0144-04	B41-0141-04	—	—	B41-0142-04	Fuse sticker (4A) (KR-5600) ● ☆
—	B41-0140-04	B41-0140-04	B41-0140-04	B41-0140-04	B41-0164-04	—	—	B41-0140-04	Fuse sticker (3A) (KR-4600)
—	—	—	B41-0138-04	B41-0138-04	B41-0137-04	B41-0137-04	B41-0135-04	B41-0138-04	Fuse sticker (2A) (KR-5600)
—	—	—	B41-0162-04	B41-0162-04	B42-0024-04	B41-0135-04	—	B41-0162-04	Fuse sticker (1.5A) (KR-4600)
—	—	—	—	—	—	—	—	—	SEV sticker ●
C2	C91-0001-05	C91-0001-05	—	—	—	—	—	—	Capacitor 0.01μF 125WV
C2	—	—	CK45E3D-103PMU	CK45E3D-103PMU	CK45E3D-103PMU	CK45E3D-103PMU	CK45E3D-103PMU	CK45E3D-103PMU	Capacitor 0.01μF 2000WV
—	E03-0002-05	E03-0002-05	E03-0002-05	E03-0002-05	—	—	—	E03-0002-05	AC outlet x 2 ☆
—	—	—	—	—	E08-0226-05	—	E08-0226-05	—	DIN FM antenna terminal
—	—	—	—	—	E08-0227-05	—	E08-0227-05	—	DIN AM antenna terminal
—	E30-0181-05	E30-0181-05	E30-0545-05	E30-0185-05	E30-0459-05	040-0304-05	E30-0292-05	E30-0545-05	Power cord
—	F05-4021-05	F05-4021-05	F05-4022-05	F05-4022-05	F05-4025-05	—	—	F05-4022-05	Fuse (4A) (KR-5600)
—	F05-3021-05	F05-3021-05	F05-3022-05	F05-3022-05	F05-3121-05	—	—	F05-3022-05	Fuse (3A) (KR-4600)
—	—	—	F05-2023-05	F05-2023-05	F06-2021-05	F06-2021-05	—	F05-2023-05	Fuse (2A) (KR-5600)
—	—	—	F05-1521-05	F05-1521-05	F05-1623-05	F05-1623-05	—	F05-1521-05	Fuse (1.5A) (KR-4600)
—	F05-2021-05	F05-2021-05	F05-2023-05	F05-2023-05	F05-2029-05	F05-2029-05	—	F05-2023-05	Fuse (2A)
—	—	—	F09-0033-05	—	F09-0033-05	F09-0033-05	—	—	Capacitor cap
—	—	—	—	—	F09-0044-05	—	—	—	Thermal protector
—	J13-0040-05	J13-0040-05	J13-0040-05 x 2	J13-0040-05 x 2	J13-0027-05	J13-0027-05	—	J13-0040-05 x 2	Fuse holder
—	J21-1580-04	J21-1580-04	J21-1580-04	J21-1581-04	J21-1581-04	J21-1581-04	—	J21-1580-04	Fuse mounting hardware ●
—	J42-0072-05	J42-0072-05	J42-0072-05	J42-0074-05	J42-0074-05	J42-0074-05	—	J42-0072-05	Power cord bushing
—	L01-1071-05	L01-1071-05	L01-1075-05	L01-1075-05	L01-1076-05	L01-1077-05	L01-1072-05	L01-1075-05	Power transformer (KR-5600) ☆
—	L01-1121-05	L01-1121-05	L01-1121-05	L01-1121-05	L01-1126-05	L01-1127-05	L01-1122-05	L01-1125-05	Power transformer (KR-4600) ☆
R1	RC05GF2H-225K	RC05GF2H-225K	—	—	—	—	—	—	Carbon resistor 2.2MΩ ±10% 1/2W
—	—	—	S31-2001-05	S31-2001-05	S31-2001-05	—	—	S31-2001-05	Slide switch (power voltage selector)
—	X00-1730-10	X00-1730-10	X00-1730-10	X00-1730-10	X00-1730-61	X00-1730-61	X00-1730-61	X00-1730-10	Power supply unit (KR-5600) ☆
—	X00-1750-10	X00-1750-10	X00-1750-10	X00-1750-10	X00-1750-61	X00-1750-61	X00-1750-61	X00-1750-10	Power supply unit (KR-4600) ☆
—	X05-1310-11	X05-1310-11	X05-1310-11	X05-1310-12	X05-1310-12	X05-1310-12	X05-1310-12	X05-1310-11	Tuner unit (KR-5600) ☆
—	X05-1310-10	X05-1310-10	X05-1310-10	X05-1310-61	X05-1310-61	X05-1310-61	X05-1310-61	X05-1310-10	Tuner unit (KR-4600) ☆

PARTS LIST

Symbol ☆ new parts, Symbol ● : the parts not being kept in stock.

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
C1	CE04W1A470	Electrolytic 47 μ F 10WV	
C4	CK45E1H403M	Ceramic 0.04 μ F \pm 20%	
C11,12	CQ93M1H822J	Mylar 0.0082 μ F \pm 5%	
C13,14	CC45SL1H471J	Ceramic 470pF \pm 5%	
C15,16	CQ93M1H273J	Mylar 0.027 μ F \pm 5%	
RESISTOR			
R11,12	PD14CY2E222J	Carbon 2.2k Ω \pm 5% 1/4W	
R13,14	PD14CY2E103J	Carbon 10k Ω \pm 5% 1/4W	
SEMICONDUCTOR			
D4	V11-0434-05	LED GD-4-208CD	
SWITCH (KR-5600)			
S2	S01-1040-05	Rotary (SELECTOR)	☆
S4,5	S42-2009-05	Pushbutton (2 key) MUTING, FM 25 μ S	☆
S6~8	S42-2008-05	Pushbutton (3 key) HIGH FIL, LOUDNESS, MODE	☆
SWITCH (KR-4600)			
S2	S01-1040-05	Rotary (SELECTOR)	
S6	S42-4022-05	Pushbutton (1 key) MODE	☆
S7,8	S42-2010-05	Pushbutton (2 key) HIGH FIL LOUDNESS	☆
MISCELLANEOUS			
—	A20-1031-05	Panel	● ☆
—	A20-1033-03	Panel ass'y	☆
—	A21-0244-02	Dress panel	☆
—	A21-0257-08	Dress plate (KR-5600)	☆
—	A21-0261-08	Dress plate (KR-4600)	☆
—	A22-0197-08	Sub panel	● ☆
—	A30-0108-08	Dial board	● ☆
—	A40-0152-02	Bottom plate	● ☆
—	A50-0043-03	Left side board	☆
—	A50-0044-03	Right side board	☆
—	A52-0019-03	Top plate	☆
—	B07-0181-08	Pushbutton ring x 6 (KR-5600)	☆
—	B07-0181-08	Pushbutton ring x 4 (KR-4600)	☆
—	B20-0378-08	Dial calibrations	☆
—	B21-0009-05	Dial pointer	☆
—	B30-0120-08	Pilot lamp (8V, 300mA) x 5	☆
—	B30-0121-08	Pilot lamp (8V, 200mA) x 2	☆
—	B31-0243-05	Signal meter	☆
—	B31-0244-05	Tuning meter	☆
—	B42-0009-04	Passed sticker	●
—	B42-0473-14	Serial No. sticker	●
—	D15-0160-04	Small pulley x 3	☆
—	D15-0164-04	Dial pulley	☆
—	D20-0123-03	Dial shaft ass'y	☆
—	D21-0418-04	Shaft	☆
—	D22-0031-04	Coupler	☆
—	E11-0060-15	Phone jack	☆
—	G01-0045-24	Dial spring	☆
—	H10-1465-02	Left polystyrene foamed fixture	☆
—	H10-1466-02	Right polystyrene foamed fixture	☆
—	H25-0078-00	Instruction bag	☆
—	J12-0084-04	Short pin x 2	● ☆
—	J21-1517-03	Case mounting hardware	● ☆
—	J21-1518-04	Left panel mounting hardware	● ☆
—	J21-1519-04	Right panel mounting hardware	● ☆
—	J25-1400-08	PC board	☆
—	J90-0077-08	Dial pointer rail	☆

Ref. No.	Parts No.	Description	Re- marks
—	K21-0312-03	Knob (TUNING)	
—	K21-0313-04	Knob (TONE, BALANCE) x 3	
—	K23-0243-03	Knob (SPEAKERS, VOLUME, MONITOR, SELECTOR) x4	☆
—	K27-0037-04	Knob (Pushbutton)x6 (KR-5600)	☆
—	K27-0037-04	Knob (Pushbutton)x4 (KR-4600)	
—	N08-0126-05	Dress screw x 6	
—	T90-0002-05	FM indoor antenna	
—	X09-1140-10	AUDIO unit (KR-5600)	☆
—	X09-1140-11	AUDIO unit (KR-4600)	☆

TUNER ASS'Y (KR-5600; X90-1230-10) (KR-4600; X90-1240-10)

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
C3	CE04W1H470	Electrolytic 47 μ F 50WV (KR-5600)	
RESISTOR			
R2	RN14AB3D102J	Metal film 1k Ω \pm 5% 2W (KR-5600)	
SEMICONDUCTOR			
D1	V11-0295-05	Diode W06B	
MISCELLANEOUS			
—	A10-0491-12	Sub-chassis	● ☆
—	A10-0493-11	Chassis	● ☆
—	D15-0160-04	Small pulley	
—	E21-0002-08	Terminal screw x 5	☆
—	E21-0003-05	Push terminal x 2	☆
—	F20-0116-04	Insulater board	☆
—	L19-0009-05	Balun transformer	
—	T90-0080-05	Ferrite antenna	☆
—	X08-1500-10	Preamp unit (KR-5600)	☆
—	X08-1500-11	Preamp unit (KR-4600)	☆
—	X13-2290-10	Muting unit (KR-5600)	☆
—	X13-2290-11	Muting unit (KR-4600)	☆

POWER SUPPLY (KR-5600; X00-1730-10, -61) (KR-4600; X00-1750-10, -61)

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
Ck1~4	CK45E1H103P	Ceramic 0.01 μ F +100%, -0%	
Ck5,6	C90-0333-05	Electrolytic 7500 μ F 50WV (KR-5600)	
	C90-0311--05 or	Electrolytic 6800 μ F 42WV	
	C90-0388-05	Electrolytic 6800 μ F 42WV (KR-4600)	
Ck7	CE04W1E101	Electrolytic 100 μ F 25WV (KR-5600)	
	CE04W1E331	Electrolytic 330 μ F 35WV (KR-4600)	
Ck8	CE04W1E101	Electrolytic 100 μ F 25WV	

PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
Ck9	CE04W1V101	Electrolytic 100 μ F 35WV	
Ck10,11	CE04W1E101	Electrolytic 100 μ F 25WV	
Ck12	CE04W1C221	Electrolytic 220 μ F 16WV	
Ck13	CK45E1H103P	Ceramic 0.01 μ F +100%, -0%	
RESISTOR			
Rk1	RN14AB3A391J(B)	Metal film 390 Ω \pm 5% 1W (KR-5600)	
	RC05GF2H222K	Carbon 2.2k Ω \pm 10% 1/2W (KR-4600)	
Rk2	RN14AB3A391J(B)	Metal film 390 Ω \pm 5% 1W	
Rk3	RN14AB3A471J(B)	Metal film 470 Ω \pm 5% 1W (KR-5600)	
	RC05GF2H123K	Carbon 12k Ω \pm 10% 1/2W (KR-4600)	
Rk4	RN14AB3A471J(B)	Metal film 470 Ω \pm 5% 1W	
Rk5,6	PD14BY2E821J(B)	Carbon 820 Ω \pm 5% 1/4W	
Rk7	PD14BY2E561J	Carbon 560 Ω \pm 5% 1/4W	
Rk8	PD14BY2E471J	Carbon 470 Ω \pm 5% 1/4W	
Rk9	RN14AB3A560J(B)	Metal film 56 Ω \pm 5% 1W	
SEMICONDUCTOR			
Qk1	V03-0343-05	Transistor 2SC1419 (B) or (C)	
Dk1	V11-0413-05	Diode M4B-3 (KR-5600)	
Dk1~4	V11-0270-05	Diode U05B (KR-4600)	
Dk5	V11-0254-05	Zener diode YZ-140	
Dk6	V11-0295-05	Diode W06B	
MISCELLANEOUS (KR-5600)			
-	F01-0252-04	Heat sink	• ☆
-	J13-0039-05	Fuse clip (X00-1730-61) x 2	
-	J13-0041-05	Fuse clip (X00-1730-10) x 2	
Lk1	L40-1092-03	Ferri-inductor	
MISCELLANEOUS (KR-4600)			
-	F01-0299-14	Heat sink	
-	J13-0039-05	Fuse clip (X00-1750-61) x 2	
-	J13-0041-05	Fuse clip (X00-1750-10) x 2	
Lk1	L40-1092-03	Ferri-inductor	

TUNER (KR-4600; X05-1310-10, -61) (KR-5600; X05-1310-11, -12)

Ref. No.	Parts No.	Description	Re- marks
CAPACITOR			
Cg1	CC45SG1H150K	Ceramic 15pF \pm 10%	
Cg2~4	CK45F1H223Z	Ceramic 0.022 μ F +80%, -20%	
Cg5	CC45SG1H180K	Ceramic 18pF \pm 10%	
Cg6	CC45SG1H150K	Ceramic 15pF \pm 10%	
Cg7	CC45SL1H120K	Ceramic 12pF \pm 10%	
Cg8	CC45SL1H100D	Ceramic 10pF \pm 0.5pF	
Cg9	CC45SL1H221K	Ceramic 220pF \pm 10%	
Cg10	CC45PG1H020C	Ceramic 2pF \pm 0.25pF	
Cg11~13	CK45F1H223Z	Ceramic 0.022 μ F +80%, -20%	
Cg14	CC45RH1H180K	Ceramic 18pF \pm 10%	
Cg15	CC45SG1H100K	Ceramic 10pF \pm 10%	
Cg16	CC45SG1H390K	Ceramic 39pF \pm 10%	
Cg17	CC45SG1H150K	Ceramic 15pF \pm 10%	
Cg18	CK45F1H223Z	Ceramic 0.022 μ F +80%, -20%	
Cg19~23	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg25	CC45SL1H101K	Ceramic 100pF \pm 10%	
Cg26	CE04W1E4R7	Electrolytic 4.7 μ F 25WV	
Cg27	CE04W1H010	Electrolytic 1 μ F 50WV	

Ref. No.	Parts No.	Description	Re- marks
Cg28,29	CK45F1H473Z	Ceramic 0.047 μ F +80%, -20%	
Cg30,31	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg32	CE04W1E3R3	Electrolytic 3.3 μ F 25WV	
Cg33	CK45F1H473Z	Ceramic 0.047 μ F +80%, -20%	
Cg34	CE04W1C100	Electrolytic 10 μ F 16WV	
Cg35	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg36	CK45F1H473Z	Ceramic 0.047 μ F +80%, -20%	
Cg37	CQ93M1H122K	Mylar 1200pF \pm 10%	
Cg38	CE04W1C221	Electrolytic 220 μ F 16WV	
Cg39,40	CE04W1C100	Electrolytic 10 μ F 16WV	
Cg41,42	CQ93M1H272J	Mylar 2700pF \pm 5% (X05-1310-10)	
	CQ93M1H122J	Mylar 1200pF \pm 5% (X05-1310-11, -12)	
	CQ93M1H222J	Mylar 2200pF \pm 5% (X05-1310-61)	
Cg43	CQ93M1H473K	Mylar 0.047 μ F \pm 10%	
Cg44	CQ09S1H361J	Polystyrol 360pF \pm 5%	
Cg45	CS15E1E3R3M	Tantalum 3.3 μ F 25WV	
Cg46	CS15E1E1R5M	Tantalum 1.5 μ F 25WV	
Cg47	CQ92M1H334MDA	Mylar 0.33 μ F \pm 20%	
Cg48,49	CE04W1E3R3	Electrolytic 3.3 μ F 25WV	
Cg50	CC45SL1H150K	Ceramic 15pF \pm 10%	
Cg51	CQ09S1H361J	Polystyrol 360pF \pm 5%	
Cg52,53	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg54	CE04W1C101	Electrolytic 100 μ F 16WV	
Cg55	CE04W1C100	Electrolytic 10 μ F 16WV	
Cg56,57	CC45SL1H150K	Ceramic 15pF \pm 10%	
Cg58,59	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg60	CC45SL1H470K	Ceramic 47pF \pm 10%	
Cg61	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg62	CE04W1C100	Electrolytic 10 μ F 16WV	
Cg63	CE04W1H010	Electrolytic 1 μ F 50WV	
Cg64	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg65	CQ93M1H102K	Mylar 0.001 μ F \pm 10%	
Cg66	CK45F1H103Z	Ceramic 0.01 μ F +80%, -20%	
Cg67	CQ93M1H683K	Mylar 0.068 μ F \pm 10%	
Cg68	CC45SL1H331K	Ceramic 330pF \pm 10%	
Cg69,70	CQ93M1H222J	Mylar 2200pF \pm 5% (X05-1310-11)	
	CQ93M1H102J	Mylar 1000pF \pm 5% (X05-1310-12)	
Cg71,72	CS15E1ER47	Tantalum 0.47 μ F 25WV	
Cg73	CE04W1C470	Electrolytic 47 μ F 16WV	
RESISTOR			
Rg1	PD14CY2E683J	Carbon 68k Ω \pm 5% 1/4W	
Rg2	PD14CY2E124J	Carbon 120k Ω \pm 5% 1/4W	
Rg3	PD14CY2E820J	Carbon 82 Ω \pm 5% 1/4W	
Rg4	PD14CY2E223J	Carbon 22k Ω \pm 5% 1/4W	
Rg5	PD14CY2E332J	Carbon 3.3k Ω \pm 5% 1/4W	
Rg6	PD14BY2E102J	Carbon 1k Ω \pm 5% 1/4W	
Rg7	PD14BY2E101J	Carbon 100 Ω \pm 5% 1/4W	
Rg8	PD14BY2E123J	Carbon 12k Ω \pm 5% 1/4W	
Rg9	PD14BY2E103J	Carbon 10k Ω \pm 5% 1/4W	
Rg10	PD14CY2E272J	Carbon 2.7k Ω \pm 5% 1/4W	
Rg11	PD14BY2E561J	Carbon 560 Ω \pm 5% 1/4W	
Rg12	PD14BY2E332J	Carbon 3.3k Ω \pm 5% 1/4W	
Rg13	PD14BY2E561J	Carbon 560 Ω \pm 5% 1/4W	
Rg14	PD14BY2E331J	Carbon 330 Ω \pm 5% 1/4W	
Rg15	PD14BY2E100J	Carbon 10 Ω \pm 5% 1/4W	
Rg16	PD14BY2E391J	Carbon 390 Ω \pm 5% 1/4W	
Rg17	PD14BY2E331J	Carbon 330k Ω \pm 5% 1/4W	
Rg20	PD14BY2E332J	Carbon 3.3k Ω \pm 5% 1/4W	
Rg21	PD14BY2E183J	Carbon 18k Ω \pm 5% 1/4W	
Rg22	PD14BY2E123J	Carbon 12k Ω \pm 5% 1/4W	
Rg23	PD14BY2E102J	Carbon 1k Ω \pm 5% 1/4W	
Rg24	PD14BY2E822J	Carbon 8.2k Ω \pm 5% 1/4W	
Rg25	PD14BY2E222J	Carbon 2.2k Ω \pm 5% 1/4W	
Rg26	PD14BY2E273J	Carbon 27k Ω \pm 5% 1/4W	
Rg27	PD14BY2E222J	Carbon 2.2k Ω \pm 5% 1/4W	
Rg28	PD14BY2E473J	Carbon 47k Ω \pm 5% 1/4W	
Rg29	PD14BY2E101J	Carbon 100 Ω \pm 5% 1/4W	

PARTS LIST

Symbol ☆ : new parts, Symbol ● : the parts not being kept in stock.

Ref. No.	Parts No.	Description	Re-remarks
Rg30	PD14BY2E333J	Carbon 33kΩ ±5% 1/4W	
Rg31	PD14BY2E153J	Carbon 15kΩ ±5% 1/4W	
Rg32	PD14BY2E681J	Carbon 680Ω ±5% 1/4W	
Rg33	PD14BY2E183J	Carbon 18kΩ ±5% 1/4W	
	PD14BY2E163J	Carbon 16kΩ ±5% 1/4W	
Rg34,35	PD14BY2E432J	Carbon 4.3kΩ ±5% 1/4W	
	PD14BY2E332J	Carbon 3.3kΩ ±5% 1/4W	
Rg36,37	PD14BY2E303J	Carbon 30kΩ ±5% 1/4W	
	PD14BY2E243J	Carbon 24kΩ ±5% 1/4W	
Rg38	PD14BY2E183J	Carbon 18kΩ ±5% 1/4W	
	PD14BY2E163J	Carbon 16kΩ ±5% 1/4W	
Rg39	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rg40	PD14BY2E223J	Carbon 22kΩ ±5% 1/4W	
Rg41	PD14BY2E102J	Carbon 1kΩ ±5% 1/4W	
Rg42	PD14BY2E104J	Carbon 100kΩ ±5% 1/4W	
Rg43,44	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rg45,46	PD14BY2E332J	Carbon 3.3kΩ ±5% 1/4W	
Rg47	PD14BY2E223J	Carbon 22kΩ ±5% 1/4W	
Rg48	PD14BY2E101J	Carbon 100Ω ±5% 1/4W	
Rg49	PD14BY2E682J	Carbon 6.8kΩ ±5% 1/4W	
Rg51	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rg52	PD14BY2E122J	Carbon 1.2kΩ ±5% 1/4W	
Rg53	PD14BY2E272J	Carbon 2.7kΩ ±5% 1/4W	
Rg54,55	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
Rg56	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rg57,58	PD14BY2E153J	Carbon 15kΩ ±5% 1/4W	
Rg59	PD14BY2E564J	Carbon 560kΩ ±5% 1/4W	
SEMICONDUCTOR			
Qg1	V09-0070-05	FET 3SK45 (B) or (C)	
Qg2	V03-0092-05	Transistor 2SC381 (O) or	
	V03-0444-05	Transistor 2SC1674 (L) or (K)	☆
Qg3	V03-0357-05	Transistor 2SC1342 (A) or (B)	
Qg4	V03-0092-05	Transistor 2SC381 (O) or	
	V03-0444-05	Transistor 2SC1674 (L) or (K)	☆
Qg5	V03-0270-05	Transistor 2SC945 (Q)	
Dg1~3	V11-0073-05	Diode 1S2076 or	
	V11-0076-05	Diode 1S1555	
ICg1	V30-0133-05	IC HA-1137W	
ICg2	V30-0155-05	IC HA-1196	
ICg3	V30-0134-05	IC HA-1151	
COIL / TRANS / FILTER			
Tg1	L31-0372-05	FM-ANT coil	☆
Tg2	L31-0373-05	FM-RF1 coil	☆
Tg3	L31-0374-05	FM-RF2 coil	☆
Tg4	L32-0192-05	FM-OSC coil	☆
Tg5	L30-0257-05	FM-IFT	
Tg6	L30-0205-05	FM-IFT	
Tg7	L32-0181-05	AM-OSC coil	
Tg8	L30-0284-05	AM-IFT	
Lg1	L40-1091-41	Ferri-inductor (1mH)	
Lg2	L40-1805-61	Ferri-inductor (18μH)	
Lg3,4	L40-1512-03	Ferri-inductor (150μH)	
Lg5	L40-1092-44	Ferri-inductor (1μH)	
Lg6	L79-0029-05	Low-pass filter	☆
Lg7	L79-0030-05	Low-pass filter	☆
Lg8	L40-1021-03	Ferri-inductor (1mH)	
Lg9	L40-1022-03	Ferri-inductor (1mH)	
CFg1~3	L72-0034-05	FM ceramic filter	
CFg4	L72-0036-05	AM ceramic filter	

Ref. No.	Parts No.	Description	Re-remarks
POTENTIOMETER			
VRg1	R12-5017-05	PC trimmer 200kΩ (B) SEPARATION	
VRg2	R12-3030-05	PC trimmer 10kΩ (B) VCO	
MISCELLANEOUS			
—	C01-0192-05	Variable capacitor	☆
CTg1	C05-0055-05	Ceramic trimmer	
—	F10-0393-04	Shield plate	● ☆
—	F11-0219-05	Shield case	●

PREAMP (KR-5600; X08-1500-10) (KR-4600; X08-1500-11)

Ref. No.	Parts No.	Description	Re-remarks
CAPACITOR			
Cd1,2	CE04W1E3R3MBR	Electrolytic 3.3μF 25WV	
		(X08-1500-10)	
	CE04W1H010MBR	Electrolytic 1μF 50WV	
		(X08-1500-11)	
Cd3,4	CE04W1A470MBR	Electrolytic 47μF 10WV	
		(X08-1500-10)	
	CE04W1C100MBR	Electrolytic 10μF 16WV	
		(X08-1500-11)	
Cd5,6	CQ93M1H272J	Mylar 0.0027μF ±5%	
Cd7,8	CQ93M1H103J	Mylar 0.01μF ±5%	
Cd9,10	CE04W1E100	Electrolytic 10μF 25WV	
		(X08-1500-10)	
	CE04W1H010	Electrolytic 1μF 50WV	
		(X08-1500-11)	
Cd11,12	CE04W1E470	Electrolytic 47μF 25WV	
		(X08-1500-10)	
Cd13~16	CK45D1H561M	Ceramic 560pF ±20%	
Cd17,18	CC45SL1H100K	Ceramic 10pF ±10%	
Cd19,20	CC45SL1H470K	Ceramic 47pF ±10%	
Cd21,22	CK45F1H403Z	Ceramic 0.04μF +80%, -20%	
Cd23,24	CC45SL1H470K	Ceramic 47pF ±10%	
RESISTOR			
Rd1,2	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rd3~6	PD14CY2E104J	Carbon 100kΩ ±5% 1/4W	
Rd7,8	PD14CY2E561J	Carbon 560Ω ±5% 1/4W	
Rd9,10	PD14CY2E104J	Carbon 100kΩ ±5% 1/4W	
Rd11,12	PD14CY2E273J	Carbon 27kΩ ±5% 1/4W	
Rd13,14	PD14CY2E334J	Carbon 330kΩ ±5% 1/4W	
		(X08-1500-10)	
	PD14CY2E684J	Carbon 680kΩ ±5% 1/4W	
		(X08-1500-11)	
Rd15,16	PD14CY2E563J	Carbon 56kΩ ±5% 1/4W	
Rd17,18	PD14BY2E561JB	Carbon 560Ω ±5% 1/4W	
		(X08-1500-10)	
Rd19~22	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rd23,24	PD14BY2E394J	Carbon 390kΩ ±5% 1/4W	
Rd25,26	PD14BY2E104J	Carbon 100kΩ ±5% 1/4W	
Rd27,28	PD14BY2E472J	Carbon 4.7kΩ ±5% 1/4W	
Rd29,30	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
SEMICONDUCTOR			
Dd1,2	V11-0051-05	Diode 1N60	
ICd1,2	V30-0122-05	IC TA7136P	
SWITCH			
S2	S29-1086-05	Slide-rotary (INPUT)	☆
S3	S29-1089-05	Slide-rotary (MONITOR)	☆

PARTS LIST

Ref. No.	Parts No.	Description	Re-marks
MISCELLANEOUS			
—	E06-0507-05	DIN connector	☆
—	E13-0114-05	Pin jack x 19	☆

AUDIO (KR-5600; X09-1140-10) (KR-4600; X09-1140-11)

Ref. No.	Parts No.	Description	Re-marks
CAPACITOR			
Cm1,2	CC45SL1H101K	Ceramic 100pF ±10%	
Cm3,4	CE04W1HR47MBR	Electrolytic 0.47μF 50WV	
Cm5,6	CC45SL1H220K	Ceramic 22pF ±10%	
Cm7,8	CC45SL1H050D	Ceramic 5pF ±0.5pF	
Cm9,10	CE04W1A101	Electrolytic 100μF 10WV	
Cm11,12	CE04W1C100NP	Non-pole electrolytic 10μF 16WV	
Cm13,14	CE04W0J221	Electrolytic 220μF 6.3WV	
Cm15,16	CQ93M1H333K	Mylar 0.033μF ±10%	
Cm17~20	CQ93M1H224K	Mylar 0.22μF ±10%	
Cm21~24	CE04W1H3R3MBR	Electrolytic 3.3μF 50WV	
Cm25,26	CE04W1C100NP	Non-pole electrolytic 10μF 16WV	
Cm27,28	CC45SL1H101K	Ceramic 100pF ±10%	
Cm29,30	CE04W1H470	Electrolytic 47μF 50WV	
Cm31~34	CE04W1E4R7	Electrolytic 4.7μF 25WV	
Cm35,36	CQ93M1H224M	Mylar 0.22μF ±20%	
Cm37	CE04W1C101NP	Non-pole electrolytic 100μF 16WV (X09-1140-10)	
Cm38	CE04W1E101MBR	Electrolytic 100μF 25WV (X09-1140-11)	
Cm39	CE04W1C101MBR	Electrolytic 100μF 16WV	
Cm40	C90-0342-05	Electrolytic 220μF 50WV	
Cm41,42	CE04W1H010	Electrolytic 1μF 50WV	
Cm43	CE04W2A470	Electrolytic 47μF 100WV (X09-1140-11)	
RESISTOR			
Rm1	PD14CY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rm2	PD14BY2E562J	Carbon 5.6kΩ ±5% 1/4W	
Rm3,4	PD14CY2E104J	Carbon 100kΩ ±5% 1/4W	
Rm5,6	PD14CY2E222J	Carbon 2.2kΩ ±5% 1/4W	
Rm7,8	PD14CY2E103J	Carbon 10kΩ ±5% 1/4W	
Rm9,10	PD14BY2E101JB	Carbon 100Ω ±5% 1/4W	
Rm11,12	PD14CY2E821J	Carbon 820Ω ±5% 1/4W	
Rm13,14	PD14CY2E111J	Carbon 110Ω ±5% 1/4W (X09-1140-10)	
	PD14CY2E131J	Carbon 130Ω ±5% 1/4W (X09-1140-11)	
Rm15,16	PD14CY2E683J	Carbon 68kΩ ±5% 1/4W	
Rm17,18	PD14CY2E121J	Carbon 120Ω ±5% 1/4W	
Rm19,20	PD14CY2E102J	Carbon 1kΩ ±5% 1/4W	
Rm21,22	PD14CY2E221J	Carbon 220Ω ±5% 1/4W	
Rm23,24	PD14CY2E331J	Carbon 330Ω ±5% 1/4W	
Rm25,26	PD14BY2E152J	Carbon 1.5kΩ ±5% 1/4W	
Rm27,28	PD14CY2E182J	Carbon 1.8kΩ ±5% 1/4W (X09-1140-10)	
	PD14CY2E162J	Carbon 1.6kΩ ±5% 1/4W (X09-1140-11)	
Rm29,30	PD14CY2E392J	Carbon 3.9kΩ ±5% 1/4W	
Rm31,32	PD14CY2E122J	Carbon 1.2kΩ ±5% 1/4W (X09-1140-10)	
	PD14CY2E102J	Carbon 1kΩ ±5% 1/4W (X09-1140-11)	
Rm33,34	PD14CY2E391J	Carbon 390Ω ±5% 1/4W	
Rm35,36	PD14CY2E153J	Carbon 15kΩ ±5% 1/4W	
Rm37,38	PD14CY2E391J	Carbon 390Ω ±5% 1/4W	
Rm39,40	PD14CY2E153J	Carbon 15kΩ ±5% 1/4W	

Ref. No.	Parts No.	Description	Re-marks
Rm41~44	PD14CY2E332J	Carbon 3.3kΩ ±5% 1/4W	
Rm45~48	PD14CY2E182J	Carbon 1.8kΩ ±5% 1/4W	
Rm49~52	PD14BY2E331JB	Carbon 330Ω ±5% 1/4W	
Rm53~56	R92-0111-05	Cement 0.47Ω ±5% 3W	
Rm57,58	RN14AB3D4R7JB	Metal film 4.7Ω ±5% 2W	
Rm59,60	PD14CY2E223J	Carbon 22kΩ ±5% 1/4W (X09-1140-10)	
Rm61,62	PD14CY2E682J	Carbon 6.8kΩ ±5% 1/4W (X09-1140-10)	
Rm63	PD14CY2E563J	Carbon 56kΩ ±5% 1/4W (X09-1140-10)	
Rm64	PD14CY2E273J	Carbon 27kΩ ±5% 1/4W (X09-1140-10)	
	PD14CY2E683J	Carbon 68kΩ ±5% 1/4W (X09-1140-11)	
Rm65	PD14CY2E682J	Carbon 6.8kΩ ±5% 1/4W (X09-1140-10)	
Rm66	RC05GF2H332K	Carbon 3.3kΩ ±10% 1/2W (X09-1140-10)	
	RC05GF2H222K	Carbon 2.2kΩ ±10% 1/2W (X09-1140-11)	
Rm67,68	RC05GF2H331K	Carbon 330Ω ±10% 1/2W	
Rm69	PD14BY2E101JB	Carbon 100Ω ±5% 1/4W	
Rm70	RN14AB3A391JB	Metal film 390Ω ±5% 1W (X09-1140-10)	
Rm71,72	RC05GF2H104K	Carbon 100kΩ ±10% 1/2W	
Rm82	PD14CY2E103J	Carbon 10kΩ ±10% 1/2W (X09-1140-11)	
SEMICONDUCTOR			
Qm1~4	V01-0146-05	Transistor 2SA640 (E) or (F) (X09-1140-10)	
	V01-0125-05	Transistor 2SA620WL (4) or (5) (X09-1140-11)	
Qm5,6	V03-0460-05	Transistor 2SC1904 (B) or (V) (X09-1140-10)	
	V03-0458-05	Transistor 2SC1439 (B) or (V) (X09-1140-11)	
Qm7,8	V01-0157-05	Transistor 2SA620WB (4) or (5) or (6)	
Qm9,10	V01-0084-05	Transistor 2SA733	
Qm11~14	V03-0270-05	Transistor 2SC945	
Qm15,16	V01-0084-05	Transistor 2SA733	
Qm17,18	V03-0452-05	Transistor 2SC1735	
Qm19,20	V01-0173-05	Transistor 2SA850	
Qm21,22	V04-0077-05	Transistor 2SD588 (X09-1140-10)	
	V04-0079-05	Transistor 2SD586 (X09-1140-11)	
Qm23,24	V02-0058-05	Transistor 2SB618 (X09-1140-10)	
	V02-0060-05	Transistor 2SB616 (X09-1140-11)	
Qm25	V03-0456-05	Transistor 2SC1222 (X09-1140-10)	
	V03-0405-05	Transistor 2SC945 (P) (X09-1140-11)	
Qm26	V03-0215-05	Transistor 2SC1213A (C) or (D) (X09-1140-10)	
Qm27	V01-0073-05	Transistor 2SA673A (B) or (C) (X09-1140-11)	
Dm1~4	V11-0273-05	Diode 1S2076	
Dm5	V11-0273-05	Diode 1S2076 (X09-1140-10)	
Dm6	V11-0273-05	Diode 1S2076	
Dm7	V11-0254-05	Zener diode YZ-140	
Dm8	V11-0295-15	Diode W06B (X09-1140-10)	
Dm9	V11-0273-05	Diode 1S2076 (X09-1140-10)	
Dm13,14	V11-0273-05	Diode 1S2076 (X09-1140-11)	
THm1,2	V22-0027-05	Thermistor 5TP-41L	
POTENTIOMETER			
VRm1	R06-5018-05	Potentiometer 100kΩ (B) Dual VOLUME	☆
VRm2	R01-5016-05	Potentiometer 200kΩ (W) BALANCE	☆

PARTS LIST/TROUBLESHOOTING

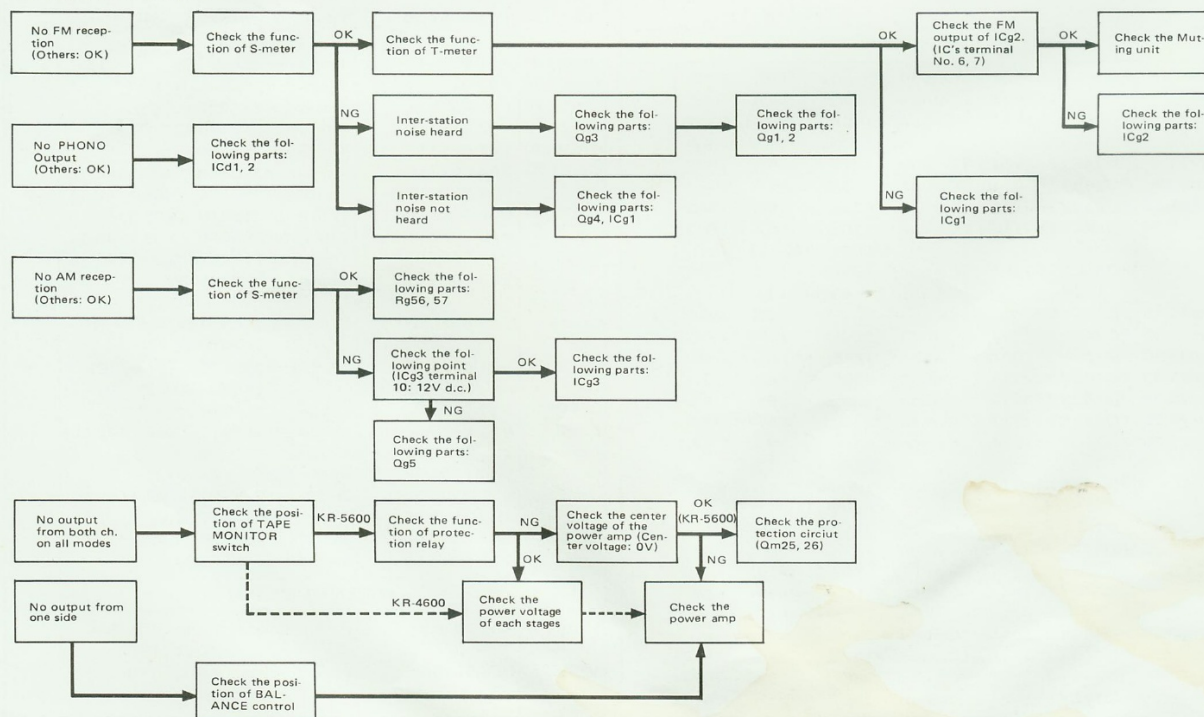
Symbol ☆ : new parts, Symbol ● : the parts not being kept in stock.

Ref. No.	Parts No.	Description	Re-marks
VRm3,4	R06-2007-05	Potentiometer 5kΩ (C) Dual TONE	☆
VRm5,6	R12-0047-05	PC trimmer 500Ω (B) BIAS	
SWITCH			
S1	S29-1083-05	Slide-rotary (SPEAKERS)	
MISCELLANEOUS			
—	E40-0501-05	Pin ass'y (5P)	
—	E40-0828-05	Pin ass'y (8P)	
—	F01-0239-03	Heat sink (X09-1140-10)	
—	F01-0240-03	Heat sink (X09-1140-11)	
—	F20-0114-05	Mica plate x 4	☆
—	J21-1489-04	Unit mounting hardware	☆
—	J21-1490-04	Left heat sink mounting hardware	☆
—	J21-1491-04	Right heat sink mounting hardware	☆
—	S51-4030-05	Rotary (X09-1140-10)	

MUTING (KR-5600; X13-2290-10) (KR-4600; X13-2290-11)

Ref. No.	Parts No.	Description	Re-marks
CAPACITOR			
Ch1	CE04W0J470BP	Electrolytic 47μF 6.3WV	
Ch2	CE04W1H3R3NP	Non-pole electrolytic 3.3μF 50WV	
Ch3	CE04W1E100	Electrolytic 10μF 25WV	
RESISTOR			
Rh1	PD14CY2E153J	Carbon 15kΩ ±5% 1/4W	
Rh2	PD14CY2E563J	Carbon 56kΩ ±5% 1/4W	
Rh3	PD14CY2E472J	Carbon 4.7kΩ ±5% 1/4W	
Rh4	PD14CY2E563J	Carbon 56kΩ ±5% 1/4W	
Rh5	PD14CY2E103J	Carbon 10kΩ ±5% 1/4W	
Rh6	PD14CY2E122J	Carbon 1.2kΩ ±5% 1/4W	
Rh7,8	PD14CY2E104J	Carbon 100kΩ ±5% 1/4W	
Rh9	PD14CY2E474J	Carbon 470kΩ ±5% 1/4W	
Rh10	PD14CY2E224J	Carbon 220kΩ ±5% 1/4W	
Rh11	RC05GF2H106K	Carbon 10MΩ ±10% 1/2W	
Rh12,13	PD14CY2E224J	Carbon 220kΩ ±5% 1/4W	
Rh14	RC05GF2H106K	Carbon 10MΩ ±10% 1/2W	
Rh15	PD14CY2E224J	Carbon 220kΩ ±5% 1/4W	
Rh16	PD14CY2E184J	Carbon 180kΩ ±5% 1/4W	
Rh17	PD14CY2E222J	Carbon 2.2kΩ ±5% 1/4W	
		(X13-2290-10)	
	PD14BY2E222J	Carbon 2.2kΩ ±5% 1/4W	
		(X13-2290-11)	
Rh18	RN14AB3A562J	Carbon 5.6kΩ ±5% 1W	
SEMICONDUCTOR			
Qh1	V01-0084-05	Transistor 2SA733	
Qh2,3	V09-0096-05	FET 2SK68 (M) or (N)	
Dh1,2	V11-0273-05	Diode 1S2076	
Dh3	V11-0273-05	Diode 1S2076 (X13-2290-11)	

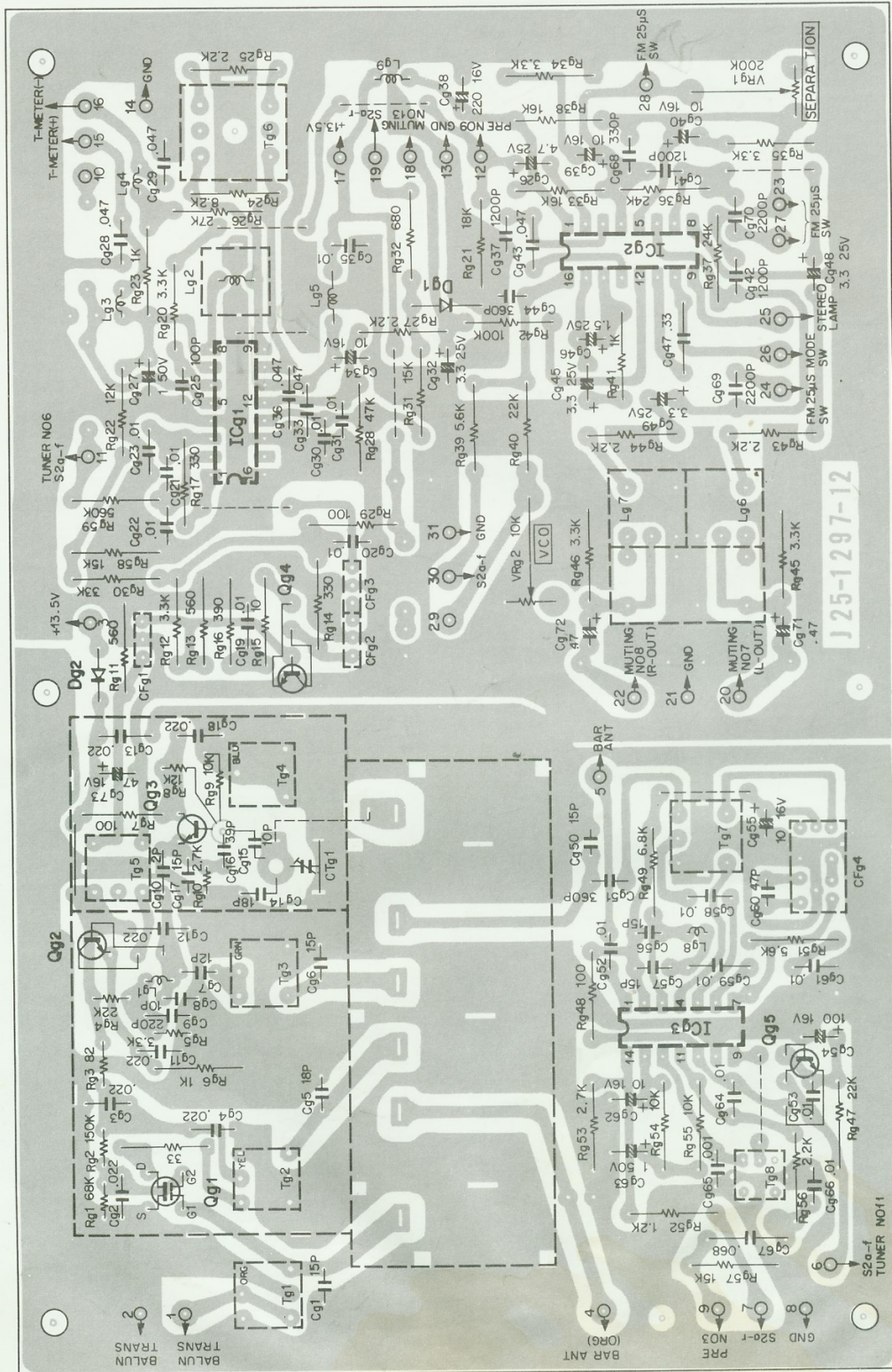
TROUBLESHOOTING



PC BOARD

▼ TUNER (X05-1310-11)

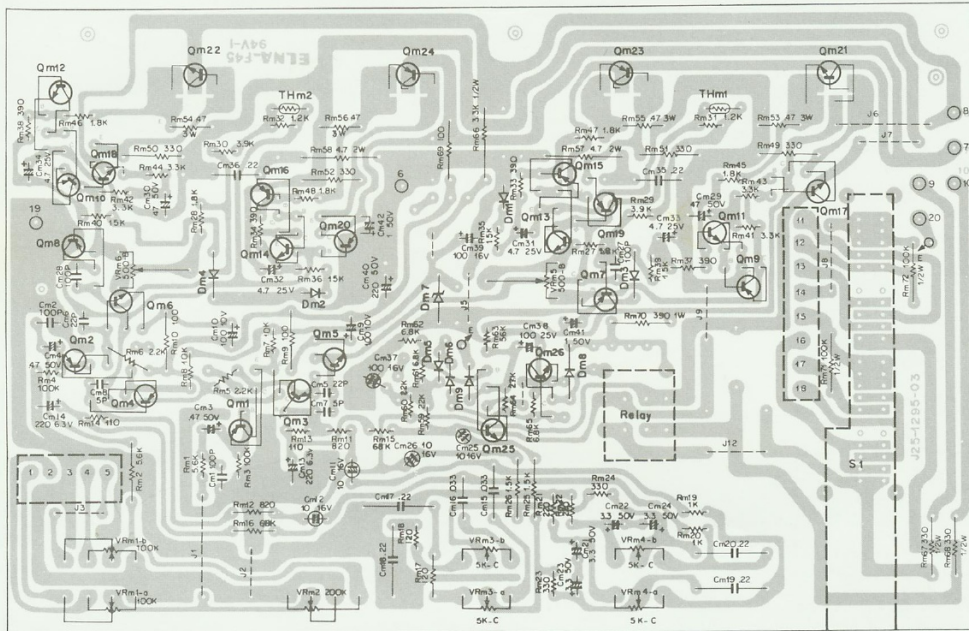
Caution: The following parts - Cg41, 42, 69, 70, and Rg33 ~ 38 - are changed with the value of them and taken off from PC board for each unit; X05-1310-10, X05-1310-11, X05-1310-12, and X05-1310-61.



Qg1:3SK45 (B) or (C), Qg2, 4:2SC381 (O) or 2SC1674 (L) or (K), Qg3:2SC1342 (A) or (B), Qg5:2SC945 (Q), ICg1:HA1137W,
 ICg2:HA1196, ICg3:HA1151, Dg1, 2:1S2076 or 1S1555

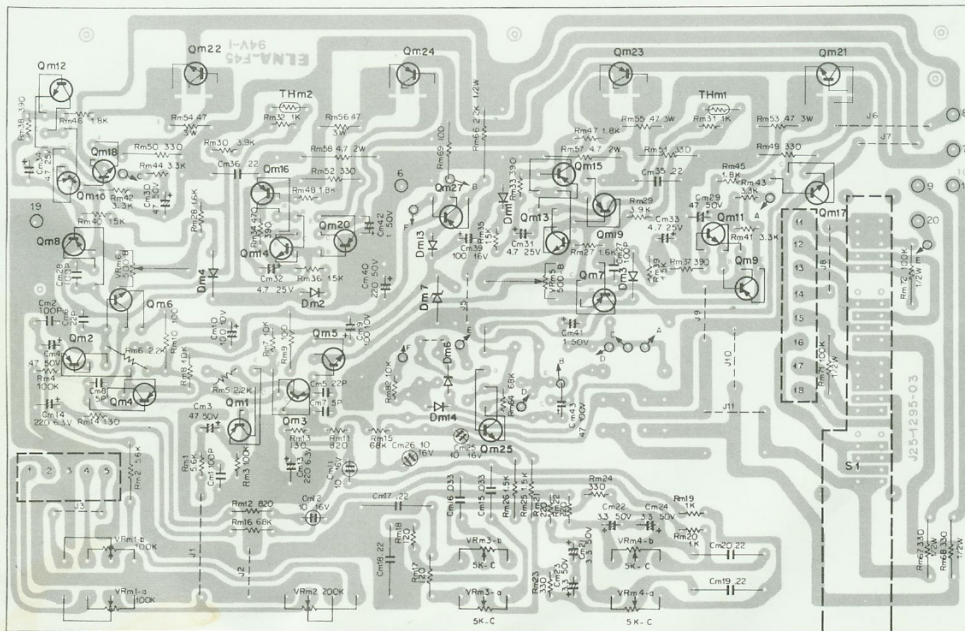
PC BOARD

AUDIO (X09-1140-10) (KR-5600)



Qm1~4:2SA640 E or F, Qm5, 6:2SC1904 B or V, Qm7, 8:2SA620WB 4 or 5 or 6, Qm9, 10, 15, 16: 2SA733, Qm11~14:2SC945, Qm17, 18:2SC1735, Qm19, 20:2SA850, Qm21, 22:2SD588, Qm23, 24: 2SB618, Qm25:2SC1222 GR or BL, Qm26:2SC1213A (C) or (D), Dm1~6, 9:1S2076, Dm7:YZ-140, Dm8:W06B, THm1, 2:5TP-41L

AUDIO (X09-1140-11) (KR-4600)

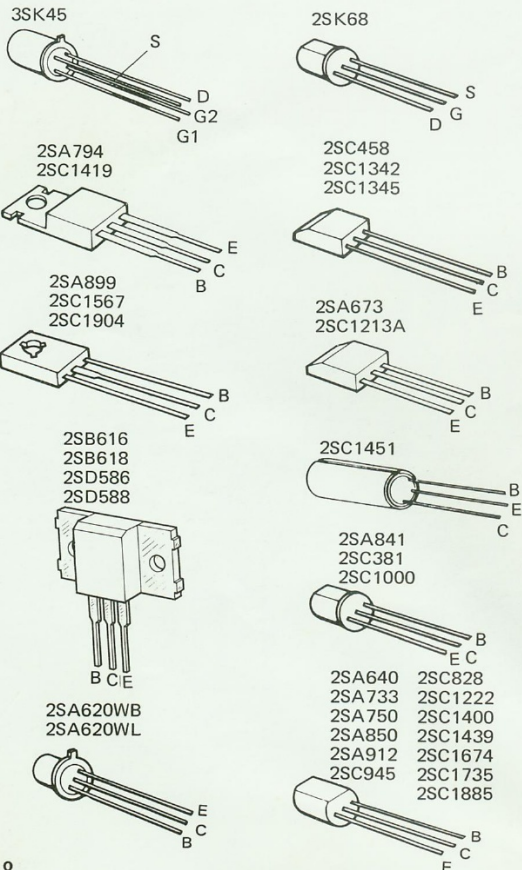
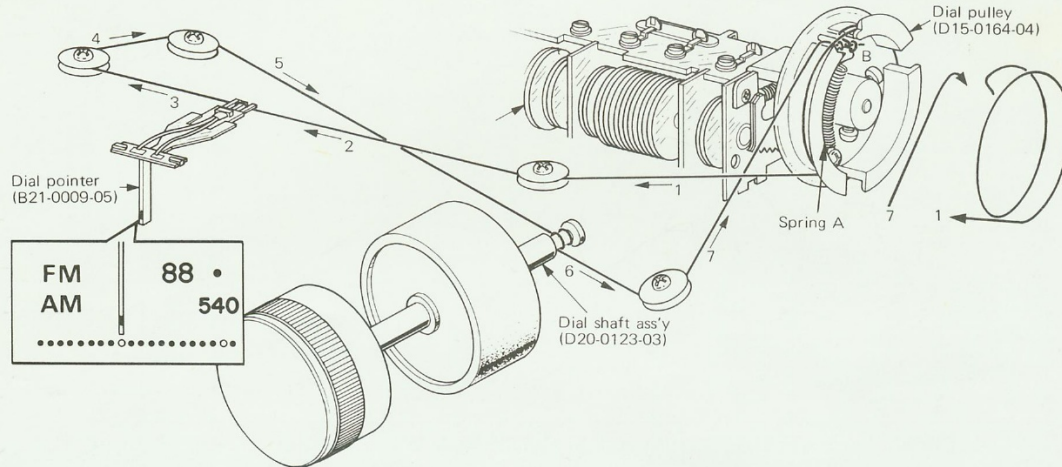


Qm1~4:2SA620WL (4) or (5), Qm5, 6:2SC1439 (B) or (V), Qm7, 8:2SA620WB 4 or 5 or 6, Qm9, 10, 15, 16:2SA733, Qm11~14:2SC945, Qm17, 18:2SC1735, Qm19, 20:2SA850, Qm21, 22:2SD586, Qm23, 24:2SB616, Qm25:2SC945 (P), Qm27:2SA673A (B) or (C), Dm1~4, 6, 13, 14:1S2076, Dm7:YZ-140, THm1, 2:5TP-41L

DIAL CORD STRINGING/SEMICONDUCTOR SUBSTITUTIONS & LEADS

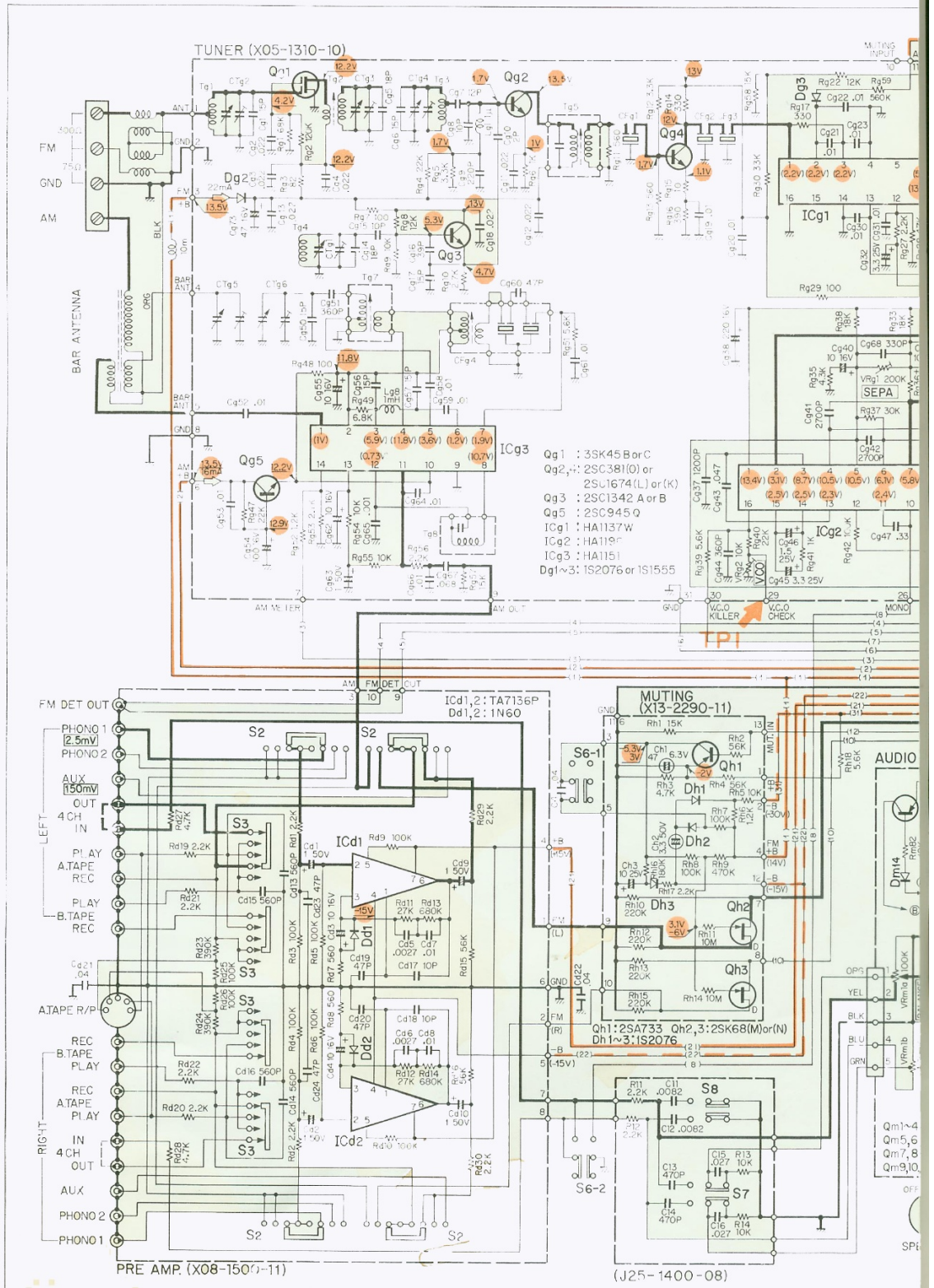
DIAL CORD STRINGING

1. Fully open the variable capacitor.
2. Fix the dial pulley to the shaft of the variable capacitor using 2 screws as shown.
3. Tie the dial cord to the dial spring A leaving a 10 cm length part of it.
4. Hook the dial spring A on the boss B, and wind it one and half turn clockwise around the dial pulley.
5. Dress the dial cord in the direction of "1" to "5".
6. Wind the dial cord 2 turns around the dial shaft starting from its lower side, then dress it in the direction of "5" to "6".
7. Tie the end of it tightly with remaining a 10 cm dial cord.
8. Remove the dial spring A from the boss B.
9. Fully close the variable capacitor.
10. Mount the dial pointer as shown in the illustration.

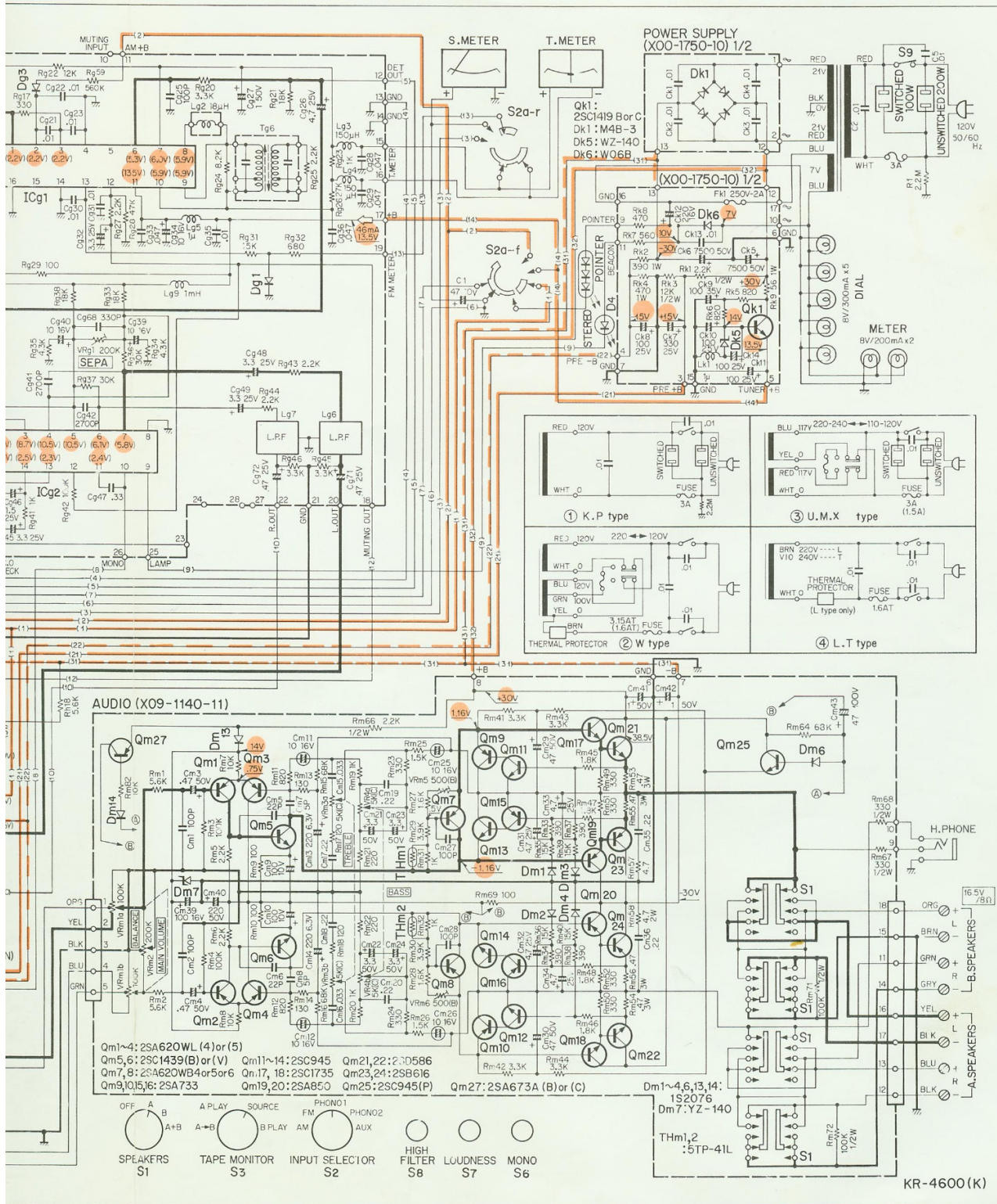


Semiconductor name	Substitutions
POWER SUPPLY (X00-1730-10)	
(X00-1750-10)	
2SC1419 (B) or (C)	—
TUNER (X05-1310-10)	
2SC381 (O)	2SC1674 (L) or (K)
2SC945 (Q)	2SC458 (C), 2SC828
2SC1342 (A) or (B)	—
3SK45 (B) or (C)	—
HA-1137W	—
HA-1196	—
HA-1151	—
PREAMP (X08-1500-10)	
TA-7136P	—
AUDIO (X09-1140-10,-11)	
2SA620WB	2SA620WL
2SA620WL (4) or (5)	—
2SA640 (E) or (F)	2SA841, 2SA750
2SA673A (B) or (C)	2SA912, 2SA850 (E)
2SA733	2SA673, 2SA673A, 2SA640, 2SA620WL
2SA850	2SA794, 2SA899
2SB616	2SB618
2SB618	—
2SC945	2SC458 (C), 2SC1000, 2SC1345
2SC1213A	2SC1735 (E), 2SC1904 (V)
2SC1222	2SC1400
2SC1439 (B) or (V)	2SC1885
2SC1735	2SC1567, 2SC1904
2SC1904	2SC1451
2SD588	—
2SD586	2SD588
MUTING (X13-2290-10)	
2SA733	2SA673, 2SA673A, 2SA640
2SK68 (M) or (N)	—

SCHEMATIC DI

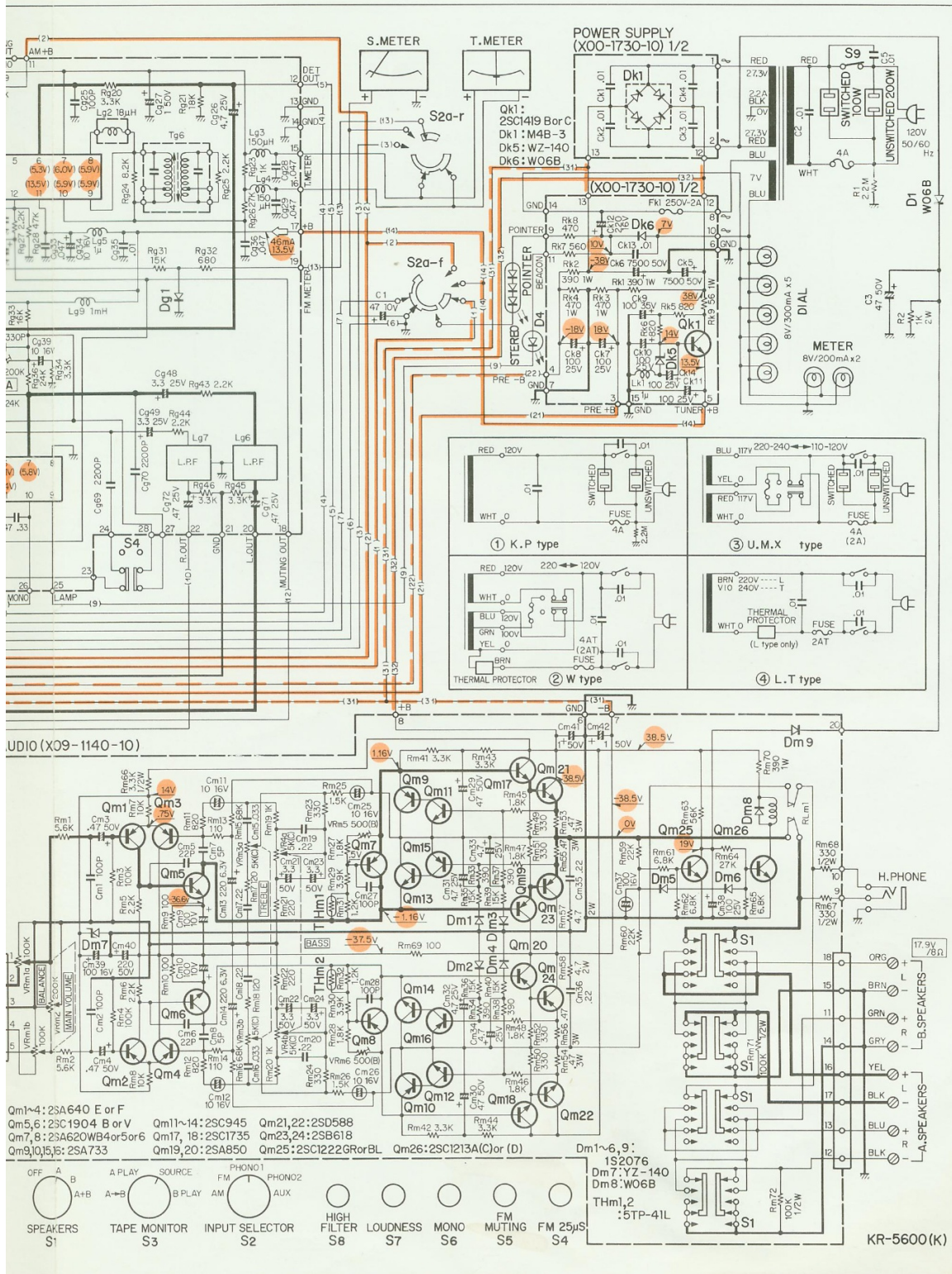


SCHEMATIC DIAGRAM (KR-4600)



DC voltage measured with 20 kΩ/V meter.

DIAGRAM (KR-5600)



DC voltage measured with 20 kΩ/V meter.

SPECIFICATIONS

FM TUNER SECTION (IHF)

Usable Sensitivity	1.8 μ V
50 dB Quieting Sensitivity	3.0 μ V (Mono) 37 μ V (Stereo)
Signal to Noise Ratio at 1mV	75 dB (Mono) 70 dB (Stereo)
T.H.Distortion at 1mV	0.15% (Mono) 0.25% (Stereo)
Frequency Response	20 Hz to 15,000 Hz +0.5dB, -1.5 dB
Capture Ratio	1.5 dB
Alternate Channel Selectivity	80 dB
Spurious Response Ratio	85 dB
Image Response Ratio	85 dB
IF Response Ratio (Balanced)	100 dB
AM Suppression Ratio	65 dB
Stereo Separation	40 dB at 1,000 Hz, 35 dB from 50 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 88.5 MHz to 108 MHz (FTZ approved)

AM TUNER SECTION

Usable Sensitivity (IHF)	20 μ V
Signal to Noise Ratio	50 dB
Image Rejection	45 dB
Selectivity (IHF)	35 dB
IF Rejection	35 dB

POWER AMPLIFIER SECTION

30 watts per channel minimum, RMS at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.5% total harmonic distortion.
(KR-4600)

40 watts per channel minimum, RMS at 8 ohms from 20 Hz to 20,000 Hz with no more than 0.5% total harmonic distortion.
(KR-5600)

Both Channel Driven	32 + 32 watts 8 ohms at 1,000 Hz (KR-4600) 43 + 43 watts 8 ohms at 1,000 Hz (KR-5600) 34 + 34 watts 4 ohms at 1,000 Hz (KR-4600) 48 + 48 watts 4 ohms at 1,000 Hz (KR-5600)
Dynamic Power Output	105 watts (8 ohms), 120 watts (4 ohms) (KR-4600) 120 watts (8 ohms), 165 watts (4 ohms) (KR-5600)
Total Harmonic Distortion	0.5% at rated power into 8 ohms 0.07% at 1/2 rated power into 8 ohms at 1,000 Hz (KR-4600) 0.06% at 1/2 rated power into 8 ohms at 1,000 Hz (KR-5600)

Intermodulation Distortion (60 Hz : 7 kHz 4 : 1)	0.5% at rated power into 8 ohms 0.2% at 1/2 rated power into 8 ohms (KR-4600) 0.15% at 1/2 rated power into 8 ohms (KR-5600)
Power Bandwidth	7 Hz to 35,000 Hz
Damping Factor	35 at 8 ohms
Speaker Impedance	Accept 4 ohms to 16 ohms

PRE AMPLIFIER SECTION

Input Sensitivity/Impedance/Signal to Noise Ratio (IHF A CURVE)	
Phono 1, 2	2.5 mV / 50 k ohms / 70 dB
Aux	150 mV / 45 k ohms / 90 dB
Tape	150 mV / 45 k ohms / 90 dB

Maximum Input Level	
Phono	170 mV (rms) T.H.D. 0.1% at 1,000 Hz

Output Level/Impedance	
Tape REC (Pin)	150 mV / 100 ohms
(Din)	30 mV / 80 k ohms

Frequency Response	
Phono	RIAA standard curve \pm 0.5 dB
Aux & Tape	20 Hz to 50,000 Hz $+0.7$ -1.2 dB (KR-4600) 20 Hz to 50,000 Hz $+0.6$ -1.0 dB (KR-5600)

Tape Control	
Base	\pm 8 dB at 100 Hz
Treble	\pm 8 dB at 10,000 Hz
Loudness Control (-30 dB)	+8 dB at 100 Hz, +5 dB at 10,000 Hz
High Filter	-10 dB at 10 kHz, 6 dB / oct

GENERAL

Power Requirement	AC 50/60 Hz 110~120V, 220~240V
Power Consumption	230 watts at full power (KR-4600) 300 watts at full power (KR-5600)
AC Outlet	Switched 1, Unswitched 1
Dimensions	W 20-1/2" (500 mm) H 5-11/16" (140 mm) D 13-5/8" (334 mm) (Knob +25 mm)
Weight	23.32 lbs. (10.6 kg) (KR-4600) 24.64 lbs. (11.2 kg) (KR-5600)

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