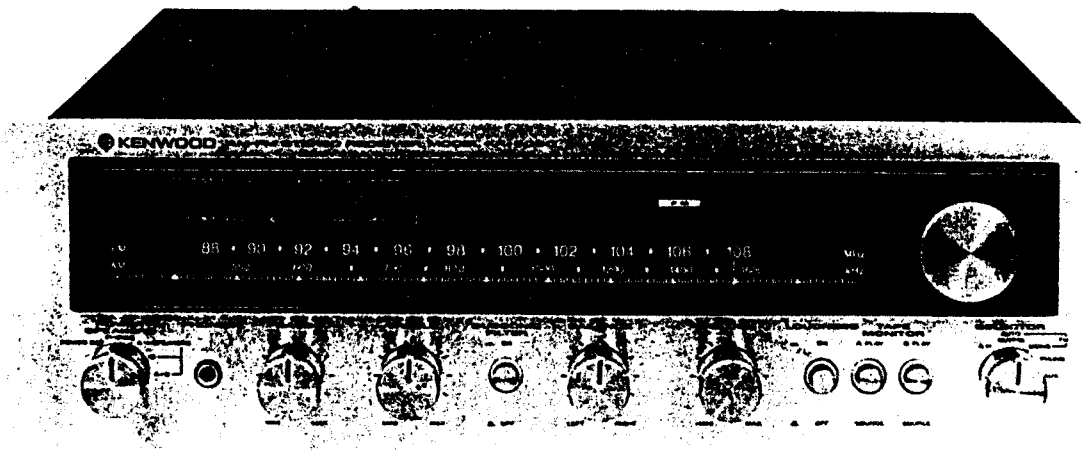
KENWOOD

HI/FI STEREO COMPONENTS

SERVICE MANUAL

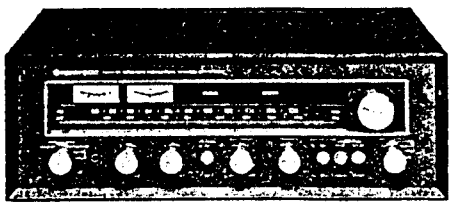
KR-5030
(KR-5330)



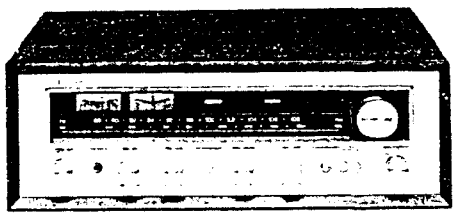
AM-FM STEREO RECEIVER

KR-5030

CONTENTS



KR-5330 has the black panel and the cabinet.

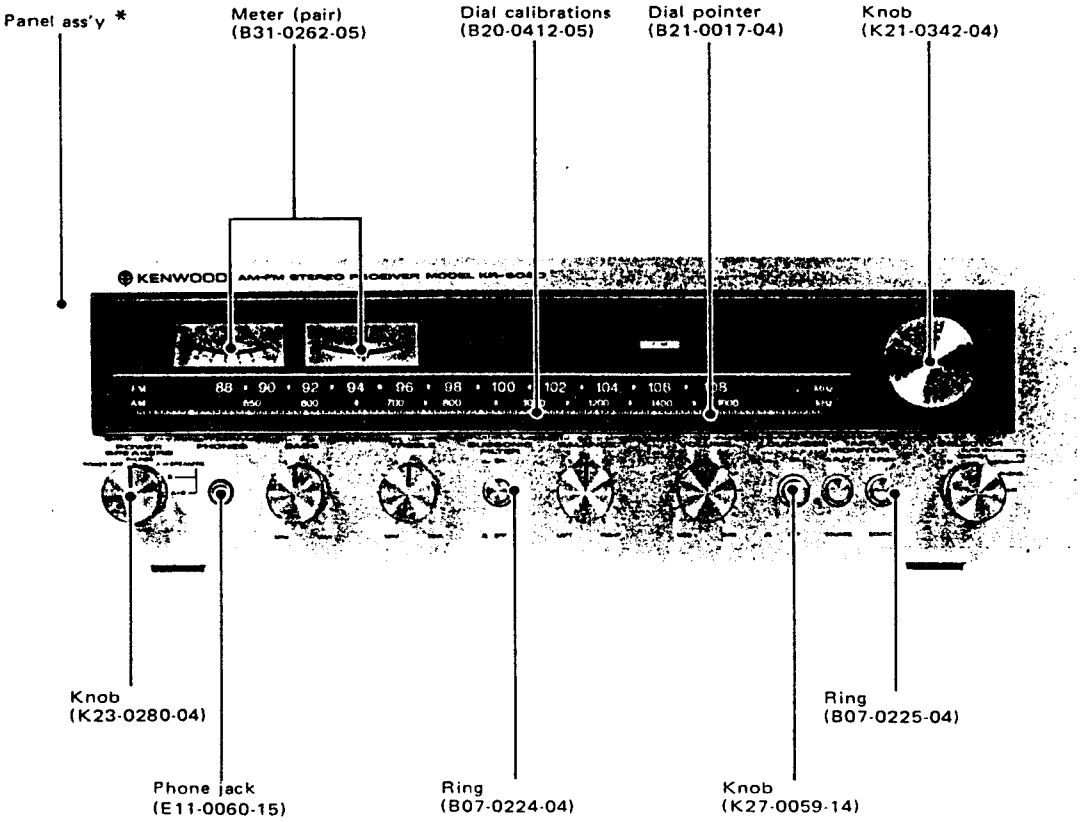


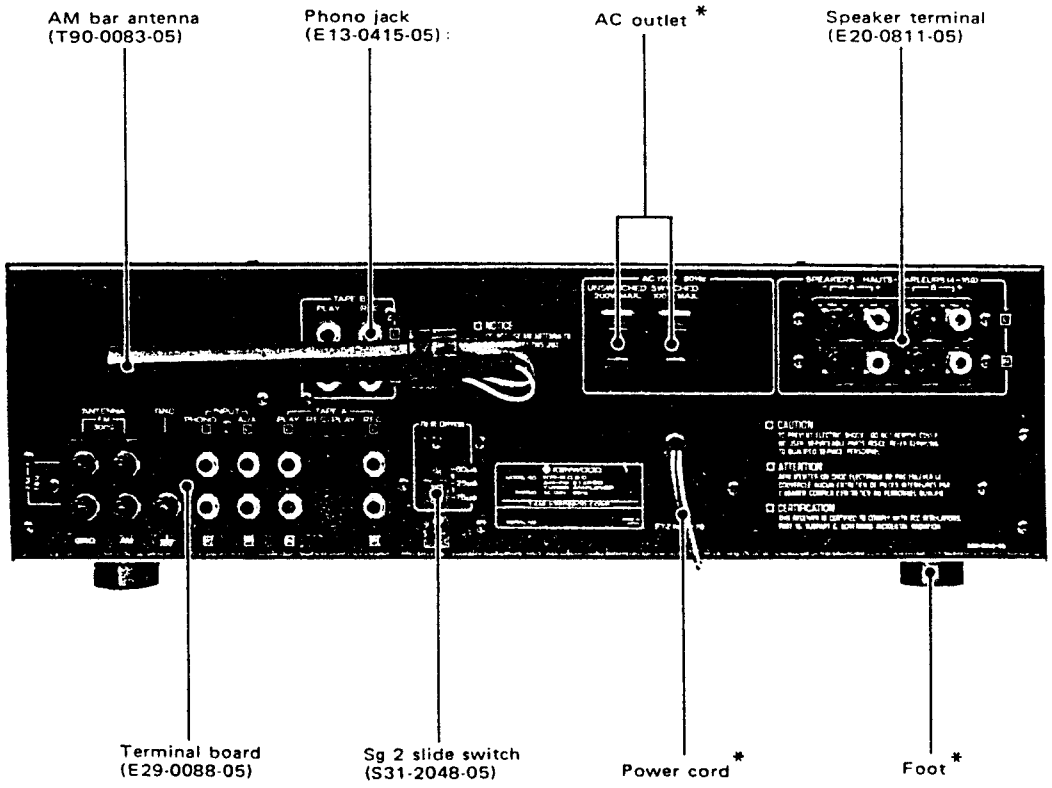
The unit for PX has the cabinet.

Note:
The products are subject to modification in components and circuits in different countries and regions. This is because each product 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
South Africa	S
Other Areas	M
Audio Club	KR-5330

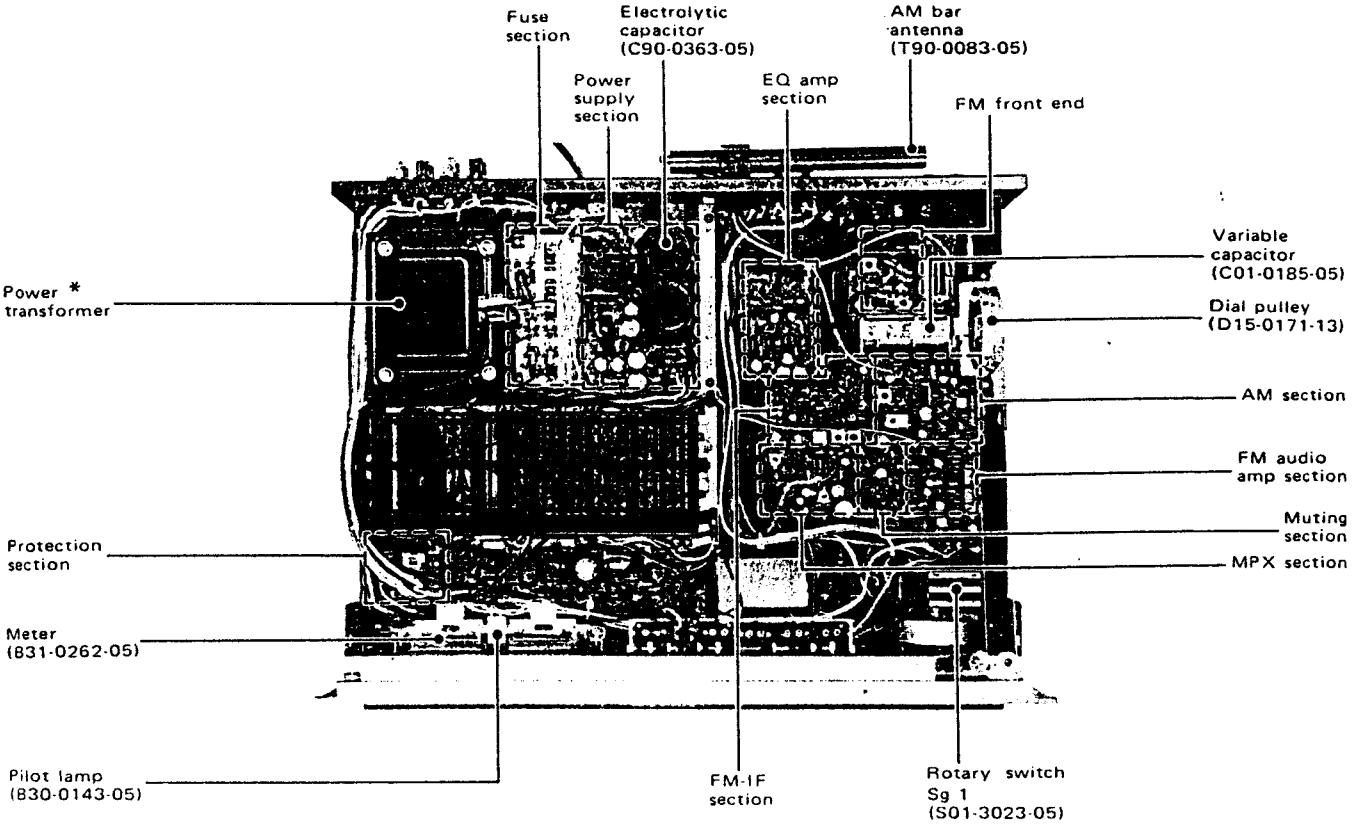
EXTERNAL VIEW





* Refer to Destinations' Parts List.

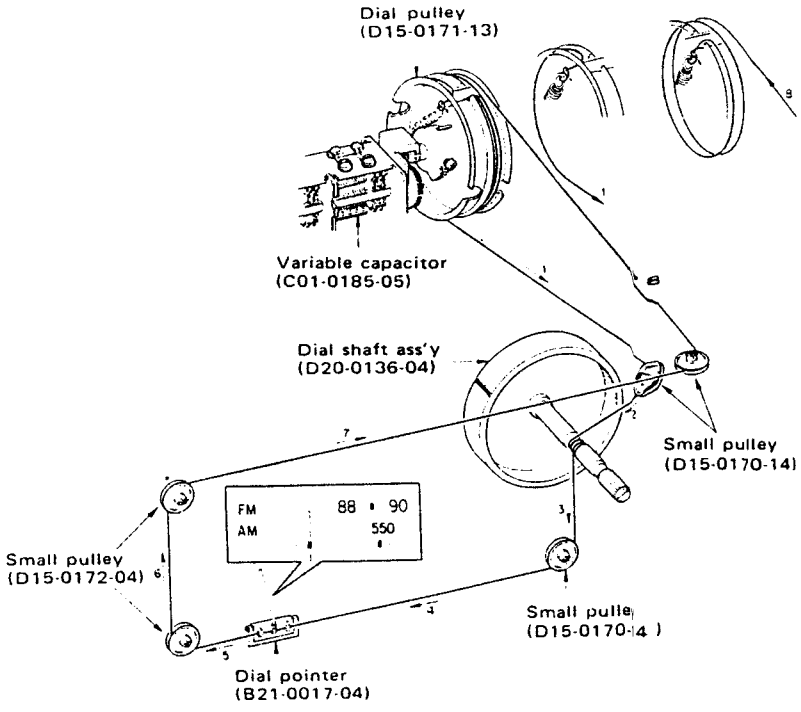
INTERNAL VIEW/DIAL CORD STRINGING



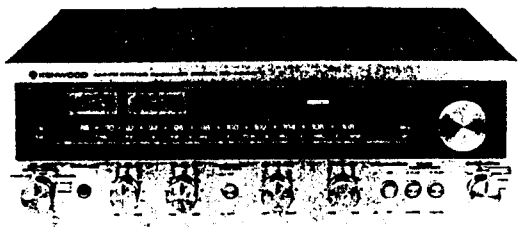
* Refer to Destinations' Parts List.

DIAL CORD STRINGING

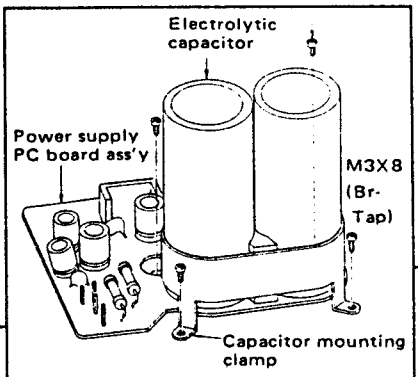
1. Fully close the variable capacitor.
2. Fix the dial pulley to the shaft of the variable capacitor using 2 screws as shown.
3. Tie the dial cord to the dial spring leaving a 10 cm length part of it.
4. Hook the dial spring on the boss, and wind it half turn counterclockwise around the dial pulley.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



DISASSEMBLY F

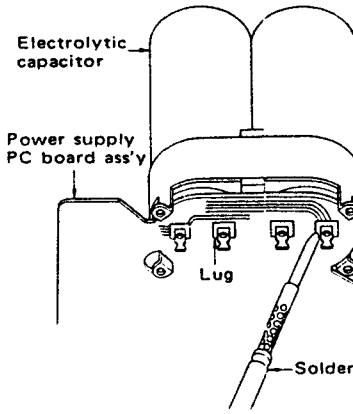


POWER SUPPLY

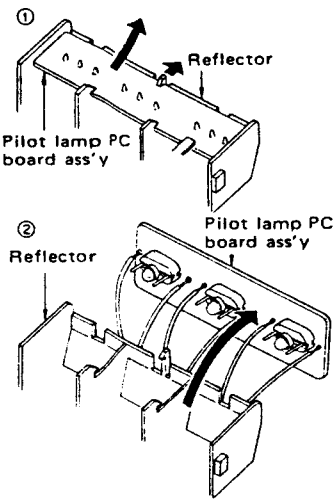


When removing the power supply PC board ass'y, remove the four screws fixing electrolytic capacitor mounting clamp.

When removing the filter capacito
unsolder the lug of that.



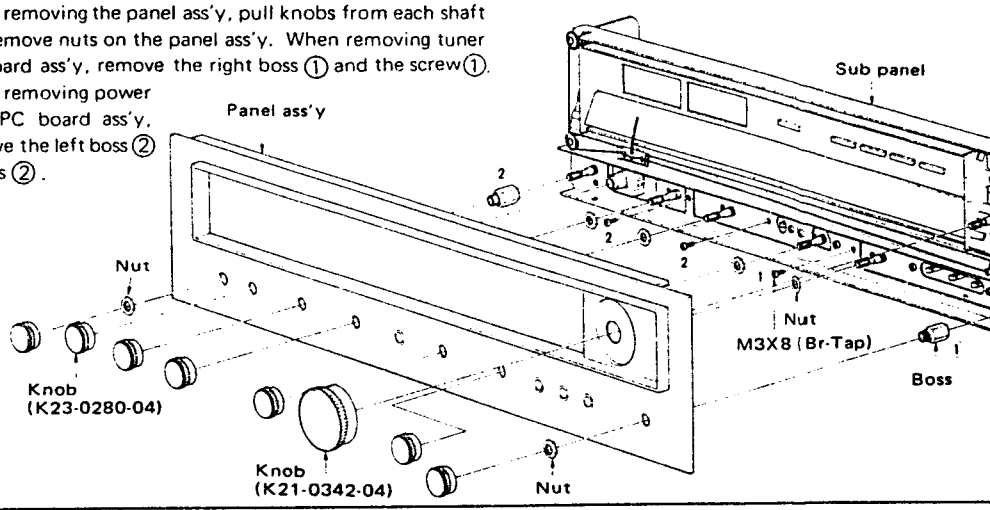
PILOT LAMP PC BOARD ASS'Y



When removing the pilot lamp PC board ass'y, pull the hook of reflector toward the arrow direction and turn the PC board.

PANEL ASS'Y

When removing the panel ass'y, pull knobs from each shaft and remove nuts on the panel ass'y. When removing tuner PC board ass'y, remove the right boss ① and the screw ①. When removing power amp PC board ass'y, remove the left boss ② screws ② .

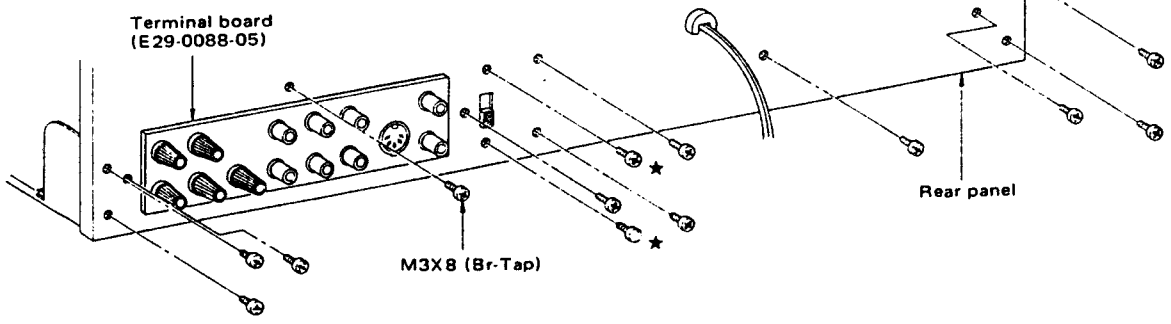


REAR PANEL ASS'Y

When removing the rear panel, remove the screws fixing the rear panel to chassis and phono jack terminal.

Note:

Should not remove the star- marked screws (★).

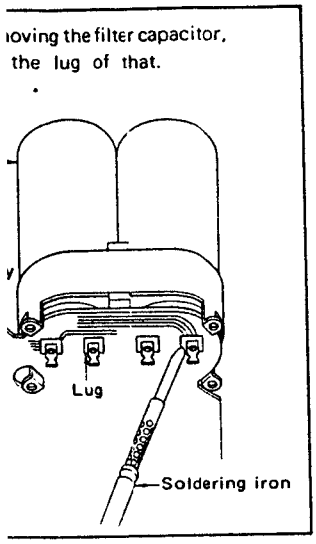


TUNER PC BOAR

When r
remove
variable
fixing P

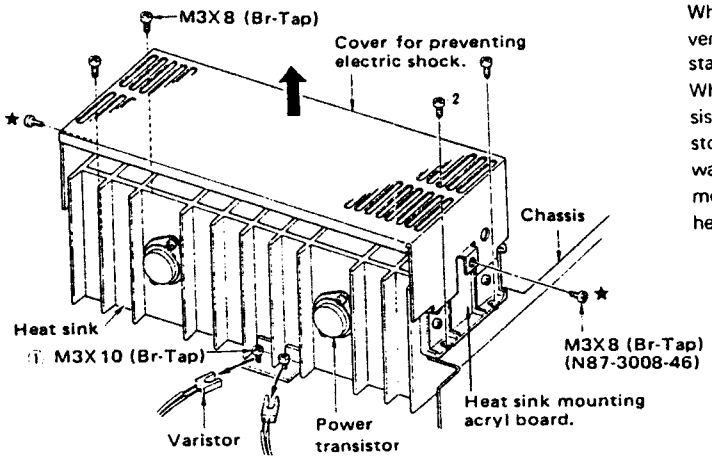
SSEMBLY FOR REPAIR

Caution:
When repairing or checking the internal parts, should not touch the heat sink by reason that it has the dual power voltage during operation of amplifier.

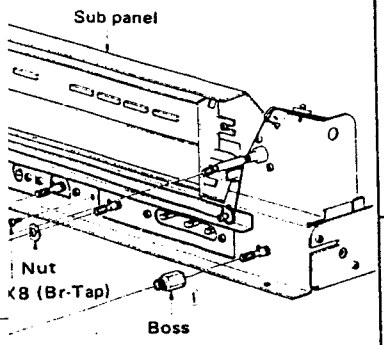


ioving the filter capacitor,
the lug of that.

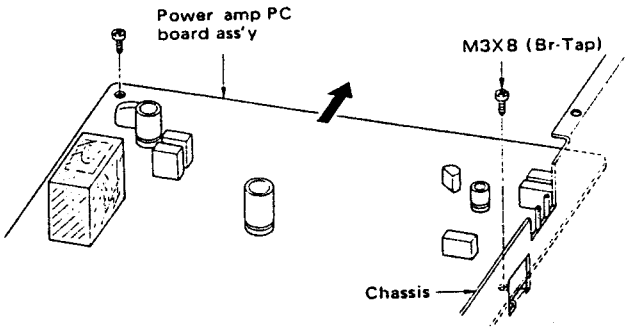
POWER TRANSISTOR BLOCK



When removing the cover for preventing electric shock, remove the star-marked screws (★) in the figure. When removing the power transistor block, first, remove the varistor from varistor mounting hardware on the heat sink, next, remove the four screws fixing the heat sink mounting acryl board.

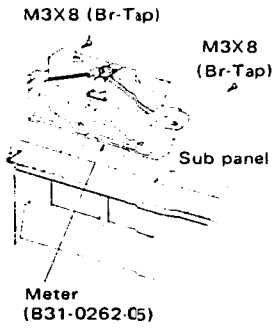


POWER AMP PC BOARD ASS'Y



When removing the power amp PC board ass'y, remove the panel ass'y and the power transistor block, and then remove the screw fixing the PC board ass'y.

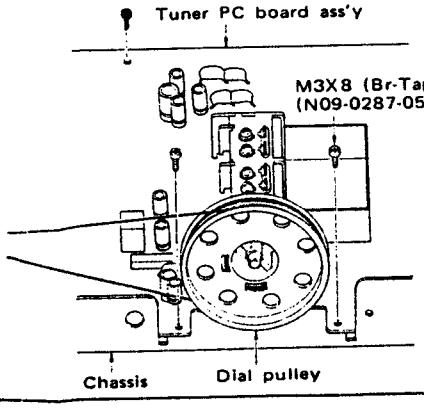
METER



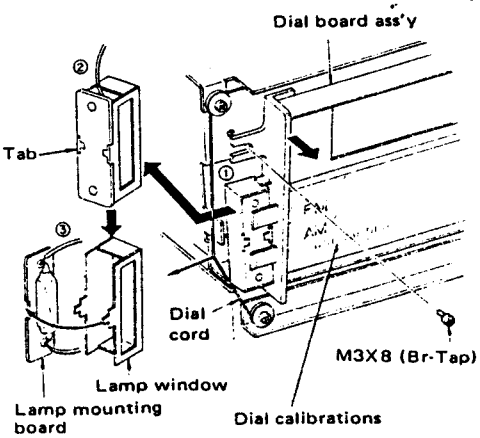
When repairing the meter, should remove the cover on the heat sink. The meter ass'y is mounted by 2 screws.

TUNER PC BOARD ASS'Y

When removing the tuner PC board ass'y, remove the dial pulley from the shaft of variable capacitor and screw and push rivet fixing PC board ass'y.



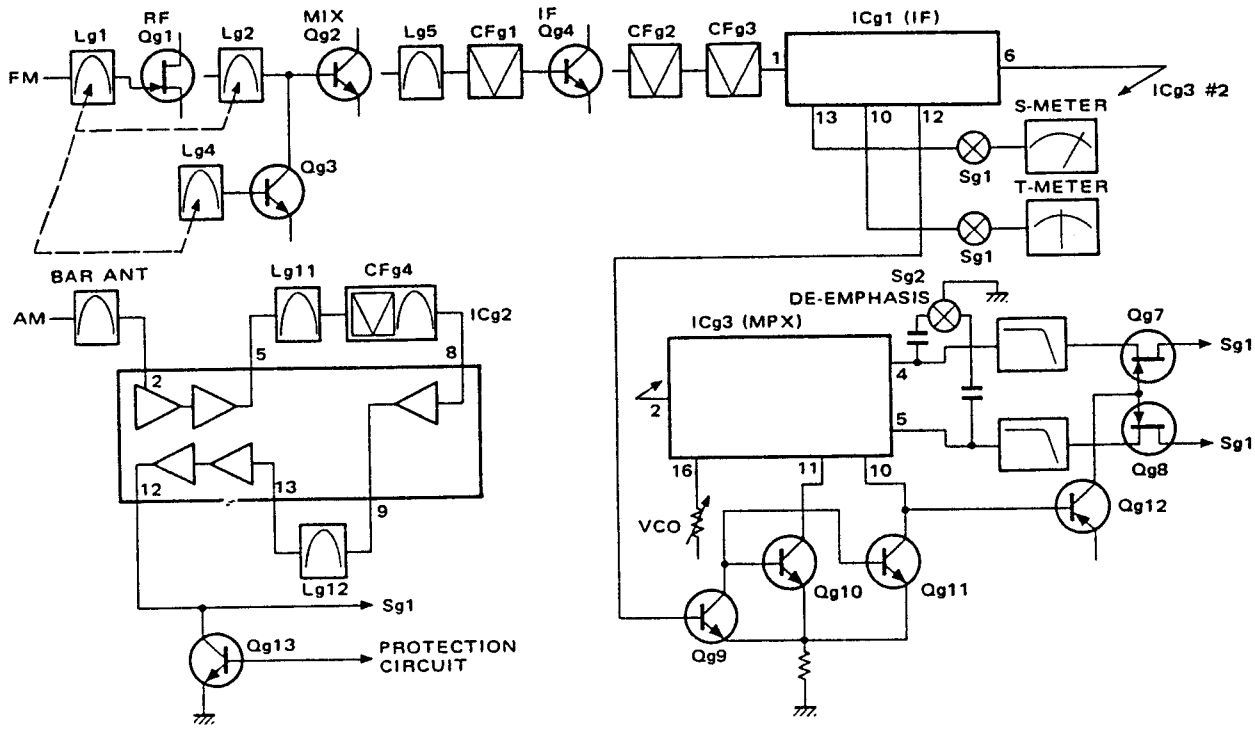
DIAL CALIBRATIONS' PILOT LAMP

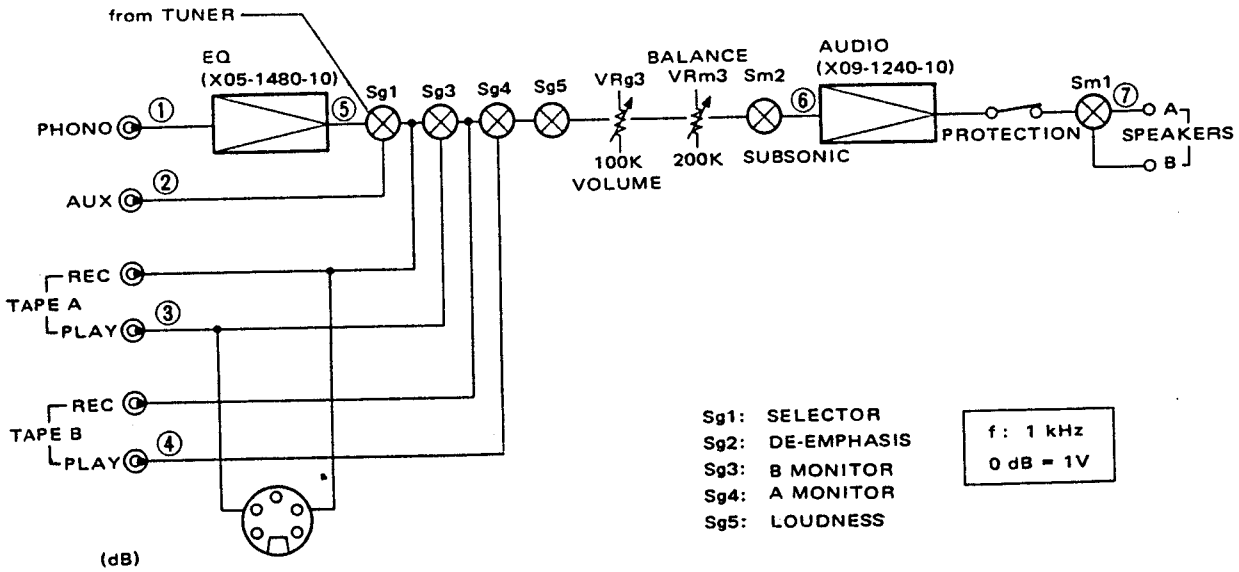


When removing the pilot lamp for dial calibrations, loosen the screw fixing the dial board ass'y and take out the lamp window from dial board ass'y. Next extend the lamp window tabs and separate the pilot lamp from the lamp window. When replacing the dial calibrations, remove the dial board ass'y and the lamp window. Next pull out the dial calibrations from dial board ass'y toward right or left.

KR-5030

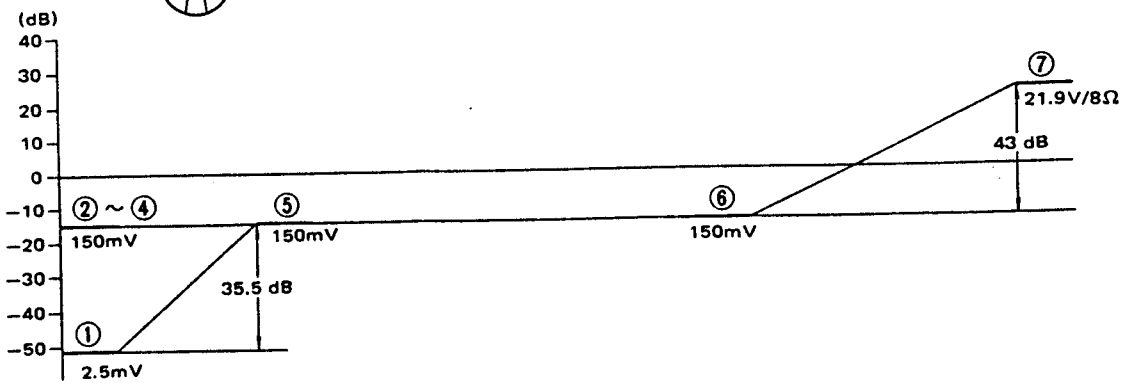
BLOCK AND LEVEL DIAGRAM





Sg1: SELECTOR
Sg2: DE-EMPHASIS
Sg3: B MONITOR
Sg4: A MONITOR
Sg5: LOUDNESS

f : 1 kHz
0 dB = 1V



CIRCUIT DESCRIPTION

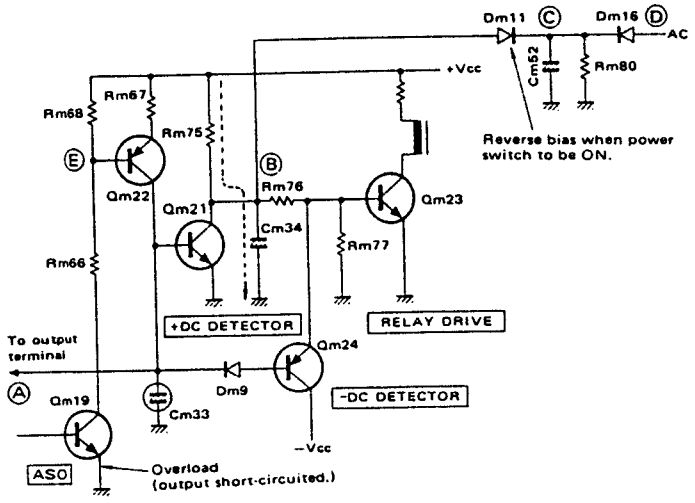


Fig. 1

Fig. 1 shows a protection circuit used in the KR-5030. This circuit operates for ASO, DC detection, and prevention of shock noise generated during ON-OFF operation of the POWER switch.

POWER-ON

When the POWER switch is turned on, charging current flows into Cm34 by the effect of +Vcc. Since Qm23 does not turn on unless Cm34 is completely charged and the base potential exceeds 0.6 volt, time constant of Cm34 and Rm75 is made to be more than the time necessary for circuit stabilization. Thus shock noise cannot appear at the output circuit.

POWER-OFF

When the POWER switch is turned off, voltage at point B quickly lowers to 0 volt and the base potential of Qm23 is reduced to turn off Qm23 itself. This causes the relay to release and generation of shock noise is prevented. While the power supply circuit is live, potential at point C is higher than that at point B. Namely, Dm11 is reverse bias. However, when the POWER switch is turned off, potential at point C immediately tends to lower to 0 volt due to discharge through Rm80. On the other hand Cm34 has a large static capacity and it is in the same power supply system as for the power amplifier. Therefore if there is no circuit of Dm11, etc., discharge time of Cm34 becomes longer and the relay cannot release immediately. Thus shock noise is generated.

ASO

When the output terminals are short-circuited, overcurrent flows into power transistors and ASO detection transistor Qm19 is turned on. The Qm19 turned on lowers base potential E of Qm22 which is thereby turned on. The Qm22 turned on causes Qm21 to turn on and it lowers potential at point B, thus turning off Qm23. This makes the relay released and the overload is reduced.

DC DETECTION

The relay is released when DC voltage appears at the output terminals. Thus the loadspeaker system can be protected. When positive (+) potential is generated at the output terminals, Qm21 is turned on to lower potential at point B and the relay is released. When negative (−) potential appears at the output terminals, Qm24 is turned on and −Vcc is applied to the base potential of Qm23. This causes Qm23 to turn off and the relay to be released.

AM-MUTING

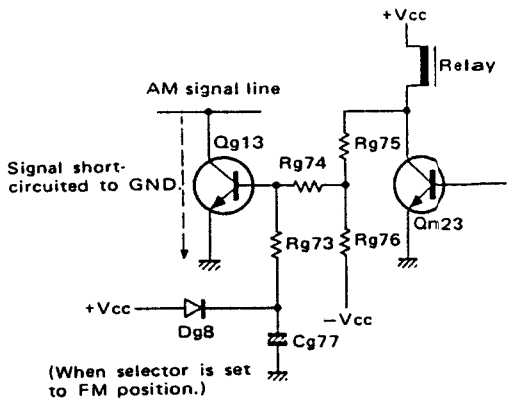


Fig. 2

Transistor Qg13 composes an AM muting circuit. When the SELECTOR switch is set in the FM (and also MONO) position, +Vcc is applied to the anode of Dg8. Then voltage is applied to the base of Qg13 to turn it on. The AM signal is transferred to the GND circuit and the tuner output cannot be fed to the preamplifier. In the AM position, voltage to the base is applied from the -Vcc and Qg13 is turned off. The signal is then fed to the preamplifier. When the POWER switch is turned off while the SELECTOR switch is in the AM position, there may be a signal leakage if a good timing with the relay function s not secured. To avoid leakage the AM signal is transferred to the ground circuit simultaneously when the POWER switch is turned off. When the POWER switch is off, the relay driving transistor Qm23 is also off and the collector potential is raised as a result. This potential is applied to the base of Qg13 through Rg75, and the AM signal is led to the ground circuit as described previously.

CIRCUIT DESCRIPTION

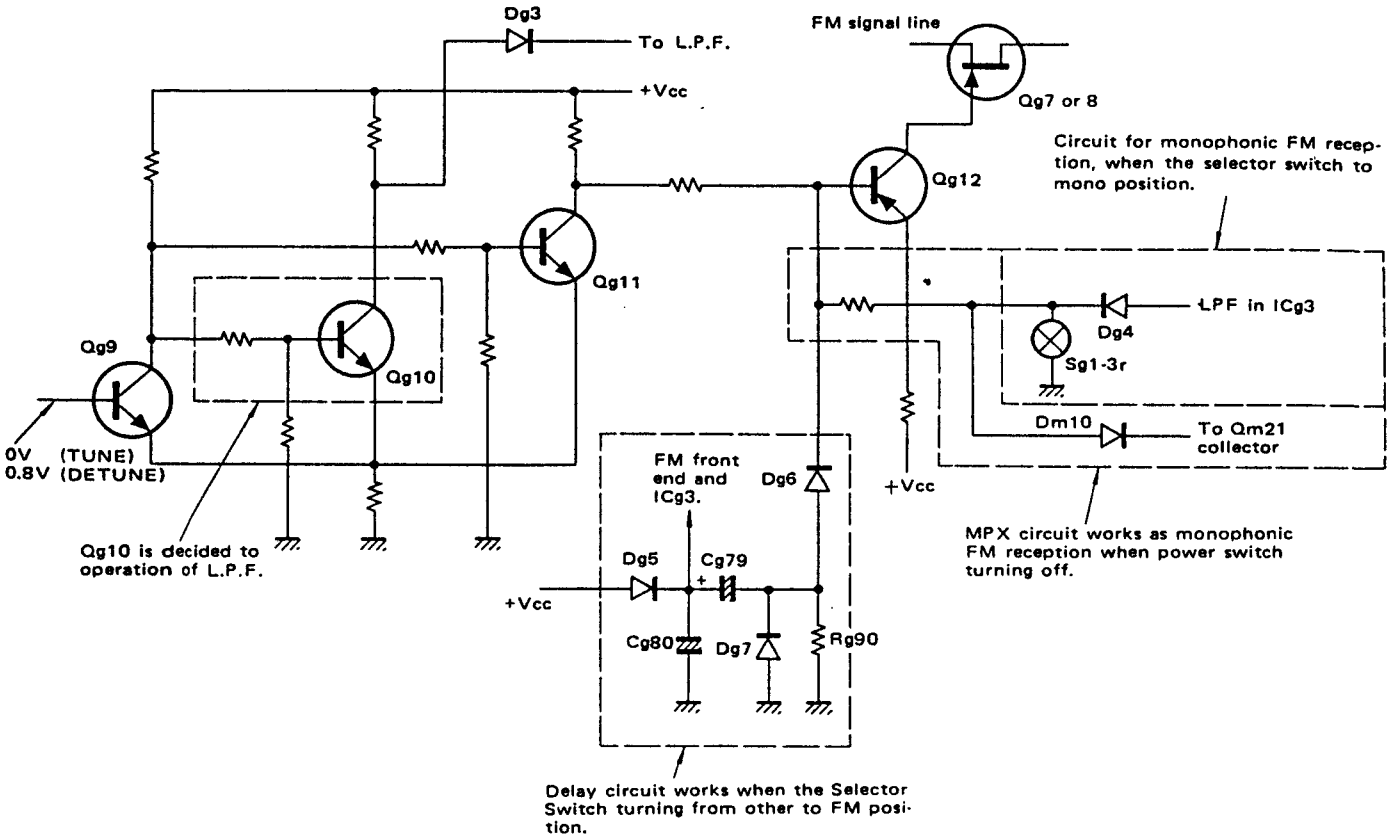


Fig. 3

Fig. 3 shows an FM muting circuit, which is controlled by No. 12 terminal voltage of IC HA1137W for IF. Voltage at No. 12 terminal is 0 volt during tuning and 0.8 volt during detuning.

TUNING

Qg9 is turned off during tuning and Qg10 and Qg11 are turned on at that time. When Qg10 is turned on, Dg3 is reverse bias and ICg3 works as stereo operation. Since Qg11 is turned on, Qg12 is also turned on to make Qg7 and Qg8 turn on. Thus the FM signal can be fed to the preamplifier.

DETUNING

Qg9 is turned on during detuning and both Qg10 and Qg11 are turned off at that time. When Qg10 is turned off, Dg3 is forward bias and the ICg3 does not work as stereo operation. Since Qg11 is turned off, Qg12 and also Qg7 and Qg8 are turned off and the signal cannot be fed to the preamplifier.

MONO operation takes place in the FM-MONO position since the 19 kHz pilot signal is forcedly led to the grounded circuit.

DELAY CIRCUIT

Switching over from AM to FM makes +Vcc pass through Dg5 and power is supplied to the FM front-end circuit. Since charging current flows into Cg79 at that time, Qg12 is turned off. When Cg79 has been charged up completely, Qg12 is controlled by collector voltage of Qg11 and switch Sg1-3r.

Capacitor Cg79 which has been charged up during FM mode then discharges and the delay circuit waits for switching over from AM to FM again.

When the POWER switch is turned off during FM stereo reception, it takes much time until the relevant circuit stops functioning completely. This may make the FM stereo lamp left unlit even after the POWER switch has been turned off. Therefore, this lamp is unlit by the forced MONO circuit.

Symbol ☆ : New parts

Ref. No.	U.S.A. (K)	Canada (P)	PX (U)	Australia (X)	Europe (W)	Scandinavia (L)	England (T)	General Export (M)	Audio Club (KR-5330)	Description
–	A01-0328-02	A01-0328-02	A01-0392-02	A01-0328-02	A01-0328-02	A01-0328-02	A01-0328-02	A01-0328-02	A01-0329-02	Metal case ☆
–	–	–	A03-0229-02	–	–	–	–	–	A03-0229-02	Cabinet ☆
–	A20-1223-03	A20-1223-03	A20-1223-03	A20-1223-03	A20-1223-03	A20-1223-03	A20-1224-03	A20-1223-03	A20-1225-03	Panel ass'y ☆
–	B42-0674-04	–	–	–	–	–	–	–	–	UL passed sticker
–	B46-0061-10	B46-0055-20	B46-0062-10 B46-0063-00	–	–	–	B46-0060-00	–	B46-0062-10	Warranty card
–	B50-1685-00	B50-1687-00	B50-1685-00	B50-1685-00	B50-1685-00	B50-1685-00	B50-1686-00	B50-1685-00	B50-1688-00	Instruction manual ☆
–	–	–	B58-0144-00	B58-0101-00	–	–	–	B58-0101-00	B58-0101-00	Caution card (power voltage)
–	–	–	B59-0018-00	–	–	–	–	–	–	Kenwood service stations' list.
–	–	–	D32-0075-04	D32-0075-04	D32-0075-04	–	–	D32-0075-04	D32-0075-04	Switch stopper (power voltage)
–	–	–	–	–	E04-0003-05	E04-0003-05	E04-0003-05	–	–	DIN type coaxial connector ☆
–	E08-0225-05	E08-0225-05	E08-0225-05	E08-0225-05	E08-0225-05	–	–	E08-0225-05	E08-0225-05	AC outlet X 2
–	E30-0181-05	E30-0181-05	E30-0545-05	E30-0185-05	E30-0459-05	E30-0292-05	E30-0602-05	E30-0545-05	E30-0459-05	AC power cord
–	H01-1769-04	H01-1770-04	H01-1773-14	H01-1769-04	H01-1769-04	H01-1769-04	H01-1771-04	H01-1769-04	H01-1772-14	Carton case ☆
–	H10-1505-02	H10-1505-02	H10-1507-02	H10-1505-02	H10-1505-02	H10-1505-02	H10-1505-02	H10-1505-02	H10-1505-02	Polystyrene foamed fixture ☆
–	H10-1506-02	H10-1506-02	H10-1507-02	H10-1506-02	H10-1506-02	H10-1506-02	H10-1506-02	H10-1506-02	H10-1506-02	Polystyrene foamed fixture ☆
–	H20-0394-04	H20-0394-04	H20-0445-04	H20-0394-04	H20-0394-04	H20-0394-04	H20-0394-04	H20-0416-04	H20-0394-04	Protection cover
–	H21-0211-04	H21-0211-04	–	H21-0211-04	H21-0211-04	H21-0211-04	H21-0211-04	H21-0211-04	H21-0211-04	Protection seat
–	–	–	–	–	–	–	–	H40-0004-04	–	Anti-rust paper
–	J02-0092-05 ☆	J02-0092-05 ☆	J02-0049-14	J02-0092-05 ☆	J02-0092-05 ☆	J02-0092-05 ☆	J02-0092-05 ☆	J02-0092-05 ☆	J02-0092-05 ☆	Foot X 4
–	J41-0034-05	J41-0034-05	J41-0034-05	J41-0024-15	J41-0033-05	J41-0033-05	J41-0024-15	J41-0034-05	J41-0033-05	Power cord bushing
–	–	–	–	–	–	J61-0038-05	–	–	–	Cord band
–	L01-1441-05	L01-1441-05	L01-1445-05	L01-1445-05	L01-1446-05	L01-1442-05	L01-1447-05	L01-1445-05	L01-1445-05	Power transformer ☆
–	N08-0125-05	N08-0125-05	–	N08-0125-05	N08-0125-05	N08-0125-05	N08-0125-05	N08-0125-05	N08-0125-05	Dress screw X 4
–	–	–	N09-0290-05	–	–	–	–	–	–	Screw with square washer X 5
–	–	–	S31-2001-05	S31-2001-05	S31-2001-05	S31-2001-05	–	S31-2001-05	S31-2001-05	Slide switch
–	X00-1950-10	X00-1951-01	X00-1950-81	X00-1950-81	X00-1950-61	X00-1950-51	X00-1950-51	X00-1950-81	X00-1950-81	Power supply PC board ass'y ☆
–	X05-1480-10	X05-1480-10	X05-1480-81	X05-1480-81	X05-1480-61	X05-1480-61	X05-1480-61	X05-1480-81	X05-1480-81	Tuner PC board ass'y ☆
–	X09-1240-10	X09-1240-10	X09-1240-10	X09-1240-10	X09-1240-61	X09-1240-61	X09-1240-61	X09-1240-10	X09-1240-10	Audio PC board ass'y ☆

PARTS LIST

TOTAL

☆ : New parts

Ref. No.	Parts No.	Description	Remarks
		SEMICONDUCTOR	
Q1	V03-2261-10	Transistor 2SC2261(O), (Y)	☆
Q2	V01-0981-10	Transistor 2SA981(O), (Y)	☆
Q3	V03-2261-10	Transistor 2SC2261(O), (Y)	☆
Q4	V01-0981-10	Transistor 2SA981(O), (Y)	☆
		MISCELLANEOUS	
–	A30-0133-05	Back board	☆
–	B01-0114-03	Dial escutcheon	☆
–	B07-0224-04	Pushbutton ring (single)	☆
–	B07-0225-04	Pushbutton ring (triple)	☆
–	B08-3013-05	Indication board	☆
–	B20-0412-05	Dial calibrations	☆
–	B21-0017-04	Dial pointer	
–	B30-0137-05	Lamp X 2 (8V, 200mA)	☆
–	B30-0143-05	Lamp (300mA, METER)	☆
–	B31-0262-05	Meter	
–	B41-0230-04	Caution sticker X 2	☆
–	B42-0009-04	Passed sticker	
–	B42-0473-24	Serial number seal	
–	D15-0170-14	Small pulley X 3	
–	D15-0171-13	Dial pulley	
–	D15-0172-04	Small pulley X 2	☆
–	D19-0050-14	Pushbutton stopper board X 4	
–	D20-0136-04	Dial shaft	☆
–	D32-0084-04	Switch stopper (DE-EMPHASIS)	☆
–	E02-0202-05	Transistor socket X 4	
–	E13-0415-05	Phono jack (4P)	
–	E20-0811-05	SP terminal (8P)	
–	G01-0045-24	Dial spring (pulley)	
–	G01-0312-04	Spring X 4	
–	H25-0078-00	Bag for instruction manual	
–	J19-0306-05	Wire holder	
–	J19-0507-05	Antenna holder	
–	J21-1676-04	Heat sink mounting resin	
–	J61-0045-15	Combex X 12	☆
–	J90-0086-03	Dial pointer rail	
–	K21-0342-04	Knob (TUNING)	
–	K23-0280-04	Knob X 6	
–	K27-0059-14	Knob X 4 (pushbutton)	
–	N09-0293-05	Screw X 5 (pulley)	
–	N10-2090-46	Hex. nut X 2 (panel)	
–	N14-0115-05	Flange nut X4 (power transformer)	
–	T90-0083-05	AM bar antenna	
–	T90-0202-05	FM indoor antenna	

POWER SUPPLY (X00-1950, 1951-)

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
Ck1	C91-0001-05	Ceramic 0.01μF AC125V	
	C90-0145-05	or film 0.01μF AC125V (X00-1950-10)	
	C91-0025-05	Film 0.01μF AC 125V (X00-1951-01)	
	C91-0023-05	Ceramic 0.01μF AC 250V (X00-1950-81)	
	CK45E3D103PMU	Ceramic 0.01μF +100%,–0% (X00-1950-61, -1951-71)	
		RESISTOR	
Rk1	RC05GF2H225M	Carbon 2.2MΩ ±20% 1/2W (X00-1950-10, -1951-01)	
		MISCELLANEOUS	
Fk1	F05-5021-05	Fuse 5A (pri) (X00-1950-10, -1951-01)	
Fk1	F05-2528-05	Fuse 2.5A (pri) (X00-1951-71)	
Fk1, 2	F05-2521-05	Fuse 2.5A (pri) (X00-1950-81)	
Fk1, 2	F05-2528-05	Fuse 2.5A (pri) (X00-1950-61)	
Fk3	F05-1021-05	Fuse 1A (pilot) (X00-1950-10, -1951-01)	
Fk3	F05-1023-05	Fuse 1A (pilot) (X00-1950-81)	
Fk3	F06-1021-05	Fuse 1A (pilot) (X00-1950-61, -1951-71)	
–	J13-0055-05	Fuse clip X 4 (X00-1950-10, -1951-01, -71)	
–	J13-0055-05	Fuse clip X 6 (X00-1950-61, -81)	

TUNER (X05-1480-10, -61, -81)

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
Cg1	CC45SL1H101K	Ceramic 100pF ±10%	
Cg2	CC45SL1H150K	Ceramic 15pF ±10%	
Cg3	CK45F1H103Z	Ceramic 0.01μF +80%,–20%	
Cg4	CC45SL1H150K	Ceramic 15pF ±10%	
Cg5	CC45SL1H100D	Ceramic 10pF ±0.5pF	
Cg6	CC45SL1H221K	Ceramic 220pF ±10%	
Cg7, 8	CK45F1H103Z	Ceramic 0.01μF +80%,–20%	
Cg9	CC45LG1H220J	Ceramic 22pF ±5% Refer to Note of Lg4.	
Cg10	CC45SH1H080D	Ceramic 8pF ±0.5pF	
Cg11	CC45CH1H390K	Ceramic 39pF ±10%	
Cg12	CC45CH1H150K	Ceramic 15pF ±10%	
Cg13	CK45F1H103Z	Ceramic 0.01μF +80%,–20%	
Cg14	C91-0037-05	Low capacitive 0.47pF	
Cg15~19	CK45F1H103Z	Ceramic 0.01μF +80%,–20%	
Cg20	CC45SL1H101K	Ceramic 100pF ±10%	
Cg21	CK45F1H473Z	Ceramic 0.047μF+80%,–20%	
Cg22	CE04W1HR47	Electrolytic 0.47μF 50WV	
Cg23,24	CK45F1H103Z	Ceramic 0.01μF +80%,–20%	
Cg25	CE04W1H010	Electrolytic 1μF 50WV	
Cg26, 27	CK45F1H473Z	Ceramic 0.047μF+80%,–20%	
Cg28	CC45UJ1H180K	Ceramic 18pF ±10%	
Cg29	CQ09FS1H361J	Polystyrene 360pF ±5%	
Cg30	CC45SL1H470K	Ceramic 47pF ±10%	

PARTS LIST

☆ : New parts

Ref. No.	Parts No.	Description	Remarks
Cg31, 32	C90-0245-05	Semiconductor ceramic 0.01μF ±20%	
Cg33	CK45B1H102K	Ceramic 1000pF ±10%	
Cg34	CE04W1E100	Electrolytic 10μF 25WV	
Cg35, 36	C90-0245-05	Semiconductor ceramic 0.01μF ±20%	
Cg37	CQ93M1H473K	Mylar 0.047μF ±10%	
Cg38	CE04W1E100	Electrolytic 10μF 25WV	
Cg39	CE04W1H010	Electrolytic 1μF 50WV	
Cg40	CK45B1H102K	Ceramic 1000pF ±10%	
Cg41, 42	C90-0245-05	Semiconductor ceramic 0.01μF ±20%	
Cg43	CQ93M1H104M	Mylar 0.1μF ±20%	
Cg44	CQ93M1H103J	Mylar 0.01μF ±5%	
Cg45	CE04W1C101	Electrolytic 100μF 16WV	
Cg46	CQ93M1H473K	Mylar 0.047μF ±10%	
Cg47, 48	CE04W1E100	Electrolytic 10μF 25WV	
Cg49	CE04W1C221	Electrolytic 220μF 16WV	
Cg50	CQ09FS1H152J	Polystyrene 1500pF ±5%	
Cg51	CE04AW1HR47M	Electrolytic 0.47μF 50WV	
Cg52	CE04AW1HR22M	Electrolytic 0.22μF 50WV	
Cg53	CE04W1H010	Electrolytic 1μF 50WV	
Cg54	CE04W1E221	Electrolytic 220μF 25WV	
Cg55~58	CQ93M1H682J	Mylar 6800pF ±5%	
Cg59, 60	CQ93M1H153J	Mylar 0.015μF ±5%	
Cg61, 62	CQ92M1H124KDA	Mylar 0.12μF ±10%	
Cg63, 64	CQ93M1H822J	Mylar 8200pF ±5%	
Cg65, 66	CQ92M1H124KDA	Mylar 0.12μF ±10%	
Cg67, 68	CK45B1H681K	Ceramic 680pF ±10%	
Cg69, 70	CE04W1A470	Electrolytic 47μF 10WV	
Cg71, 72	CQ93M1H272J	Mylar 2700pF ±5%	
Cg73~76	CE04W1E100	Electrolytic 10μF 25WV	
Cg77	CE04W1C330	Electrolytic 33μF 16WV	
Cg78	CE04W1E100	Electrolytic 10μF 25WV	
Cg79	CE04W1C470	Electrolytic 47μF 16WV	
Cg80	CE04W1C330	Electrolytic 33μF 16WV	
Cg81	CE04W1E101	Electrolytic 100μF 25WV	
Cg82	CE04W1A101	Electrolytic 100μF 10WV	
Cg83, 84	CC45SL1H470K	Ceramic 47pF ±10%	
Cg85, 86	CS15E1A3R3M	Tantalum 3.3μF 10WV	
Cg87, 88	CE04W1A470	Electrolytic 47μF 10WV	
Cg89, 90	CC45SL1H101K	Ceramic 100pF ±10%	
Cg91, 92	CC45SL1H220K	Ceramic 22pF ±10%	
Cg93, 94	CQ93M1H272J	Mylar 2700pF ±5%	
Cg95, 96	CQ93M1H103J	Mylar 0.01μF ±5%	
Cg97, 98	CE04AW1H4R7MCC	Electrolytic 4.7μF 50WV	
Cg99, 100	CK45B1H471K	Ceramic 470pF ±10%	
Cg103,104	CE04W1E101	Electrolytic 100μF 25WV	
Cg105	CK45F1H473Z	Ceramic 0.047μF +80%,−20%	
Cg106	CC45SL1H22.1K	Ceramic 220pF ±10% (X05-1480-61)	
Cg107~109	CK45F1H473Z	Ceramic 0.047μF +80%,−20%	
RESISTOR			
Rg8,12,18	RD14GY2E101J	Carbon 100Ω ±5% 1/4W	
Rg39	RD14GY2E680J	Carbon 68Ω ±5% 1/4W	
Rg40	RD14GY2E220J	Carbon 22Ω ±5% 1/4W	
Rg43, 44	RD14GY2E680J	Carbon 68Ω ±5% 1/4W	
Rg48	RD14GY2E331J	Carbon 330Ω ±5% 1/4W	
Rg71, 72	RC05GF2H106M	Carbon 10MΩ ±20% 1/2W	
Rg121,122	RD14GY2E101J	Carbon 100Ω ±5% 1/4W	
SEMICONDUCTOR			
Qg1	V09-0124-10	FET 2SK61(GR), (Y)	
Qg2	V03-0104-05	Transistor 2SC535(A)	
Qg3	V03-0357-05	Transistor 2SC1342(B)	
Qg4	V03-1923-10	Transistor 2SC1923(R), (O)	
Qg5, 6	V03-1890-20	Transistor 2SC1890(E), (F)	

Ref. No.	Parts No.	Description	Remarks
Qg7, 8	V09-0126-50	FET 2SK117(Y), (GR)	
	V09-0127-10	or 2SK105(F), (H)	☆
Qg9~11	V03-0270-05	Transistor 2SC945	
	V03-0504-05	or 2SC828A	
Qg12	V01-0084-05	Transistor 2SA733	
		or 2SA564A	
Qg13	V03-0270-05	Transistor 2SC945	
	V03-0504-05	or 2SC828A	
ICg1	V30-0133-05	IC HA1137W	
ICg2	V30-0196-05	IC HA1197	
	V30-0245-10	or LA-1240	
ICg3	V30-0244-10	IC LA3350S-L6	
ICg5, 6	V30-0264-10	IC HA1457	☆
Dg1~8	V11-0271-05	Diode 1S2076	
	V11-0076-05	or 1S1555	
POTENTIOMETER			
VRg1	R12-2016-05	Trimming 5kΩ (B) VCO	
VRg2	R12-1021-05	Trimming 1kΩ (B)SEPARATION	
VRg3	R06-5026-05	Potentiometer 100kΩ VOLUME	
VC/TRIMMER			
–	C01-0185-05	Variable capacitor	
CTg1	C05-0055-05	Ceramic trimmer 6pF	
SWITCH			
Sg1	S01-3023-05	Rotary switch SELECTOR	☆
Sg2	S31-2048-05	Slide switch DE-EMPHASIS	☆
Sg3~5	S42-2019-05	Push switch TAPE, LOUDNESS	☆
IFT/COIL/INDUCTOR/FILTER			
Lg1	L31-0361-05	FM ANT coil	
Lg2	L31-0410-05	FM RF coil	☆
Lg3	L40-1091-41	Inductor 1μH	
Lg4	L32-0187-05	FM OSC coil	
	FM OSC coil Lg4 can match both parts No. L32-0187-05 and L32-0210-05. When using L32-0210-05 to Lg4, replace the capacitor Cg9 with parts No. CC45-PG1H220J: 22pF ±5%		
Lg5	L30-0282-05	FM IFT	
Lg6	L40-2205-25	Inductor 22μH	
Lg7	L30-0309-05	FM IFT	☆
Lg8	L30-0310-05	FM IFT	☆
Lg9	L40-2201-03	Inductor 22μH	
Lg10	L40-1092-44	Inductor 1μH	
Lg11	L32-0205-15	AM OSC coil	
Lg12	L30-0284-05	AM detector coil	
Lg13	L40-1021-03	Inductor 1 mH	
Lg14	L40-2292-44	Inductor 2.2μH	
	L40-2292-02	or 2.2μH (X05-1480-61)	
CFg1~3	L72-0052-05	FM ceramic filter	
CFg4	L72-0036-05	AM ceramic filter	
MISCELLANEOUS			
–	B30-0084-05	Lamp X 5 8V 0.05A	
–	E29-0088-05	Terminal board	

PARTS LIST

AUDIO UNIT (X09-1240-10, -61)

☆ : New parts

Ref. No.	Parts No.	Description	Remarks
CAPACITOR			
Cm1, 2	CS15E1E2R2M	Tantalum 2.2μF 25WV	
Cm3, 4	CS15E1ER22M	Tantalum 0.22μF 25WV	
Cm5, 6	CC45SL1H150K	Ceramic 15pF ±10%	
Cm7, 8	CE04BW1C470M	Electrolytic 47μF 16WV	
Cm9, 10	CQ93M1H274K	Mylar 0.27μF ±10%	
Cm11, 12	CE04AW1H010M	Electrolytic 1μF 50WV	
Cm13, 14	CQ93M1H683K	Mylar 0.068μF ±10%	
Cm15, 16	CQ93M1H274K	Mylar 0.27μF ±10%	
Cm17, 18	CE04W1E100	Electrolytic 10μF 25WV	
Cm19, 20	CE04W1A101	Electrolytic 100μF 10WV	
Cm21, 22	CE04W1E100	Electrolytic 10μF 25WV	
Cm24	CE04W1H331	Electrolytic 330μF 50WV	
Cm25, 26	CQ93M1H104K	Mylar 0.1μF ±10%	
Cm27, 28	CE04W1H010	Electrolytic 1μF 50WV	
Cm29, 30	CC45SL1H101K	Ceramic 100pF ±10%	
Cm31, 32	CC45SL1H010D	Ceramic 1pF ±0.5pF	
Cm33	CE04BW1A470M	Electrolytic 47μF 10WV	
Cm34	C90-0349-05	Electrolytic 100μF 25WV	
Cm35	CQ93M1H104K	Mylar 0.1μF ±10%	
Cm37, 38	CC45SL1H100K	Ceramic 10pF ±10%	
Cm45~48	C91-0039-05	Metalized polyester 0.1μF 250WV	☆
Cm49, 50	C90-0363-05	Electrolytic 10000μF 50WV	☆
Cm51	CK45E2H103P	Ceramic 0.01μF +100%,−0%	
Cm52	CE04W1H220	Electrolytic 22μF 50WV	
Cm53	CE04W1H101	Electrolytic 100μF 50WV	
Cm54	CK45B1H561K	Ceramic 560pF ±10%	
Cm55	CE04W1C221	Electrolytic 220μF 16WV	
Cm56	CE04W1C101	Electrolytic 100μF 16WV	
Cm57, 58	CE04W1V221	Electrolytic 220μF 35WV	
RESISTOR			
Rm13, 14	RD14GY2E151J	Carbon 150Ω ±5% 1/4W	
Rm23~26	RD14GY2E271J	Carbon 270Ω ±5% 1/4W	
Rm27~30	R92-0167-05	Cement 0.22Ω 3W	
Rm31, 32	RS14GB3D4R7J	Metal film 4.7Ω ±5% 2W	
Rm33, 34	RC05GF2H100K	Carbon 10Ω ±10% 1/2W	
Rm35, 36	RS14AB4A331J	Metal film 330Ω ±5% 1W	
Rm62	RD14GY2E560J	Carbon 56Ω ±5% 1/4W	
Rm71, 72	RC05GF2H561K	Carbon 560Ω ±10% 1/2W	
Rm73	RS14GB3D681J	Metal film 680Ω ±5% 2W	
Rm81	RS14GB3D561J	Metal film 560Ω ±5% 2W	
Rm82	RS14GB3D181J	Metal film 180Ω ±5% 2W	
Rm83, 84	RC05GF2H122K	Carbon 1.2kΩ ±10% 1/2W	
Rm86, 87	RS14GB3D821J	Metal film 820Ω ±5% 2W	
SEMICONDUCTOR			
Qm1~4	V01-0152-05	Transistor 2SA750(I)E	
Qm5~8	V03-0481-05	Transistor 2SC1775A(E),(F)	
Qm9, 10	V01-0200-05	Transistor 2SA872A(E), (F)	
Qm11, 12	V04-0600-10	Transistor 2SD600K(E), (F)	☆
	V03-0454-05	or 2SC1567A(Q), (R)	
Qm13, 14	V02-0631-10	Transistor 2SB631K(E), (F)	☆
	V01-0175-05	or 2SA794A(Q), (R)	
Qm19, 20	V03-1890-30	Transistor 2SC1890A(E), (F)	
Qm21	V03-0270-05	Transistor 2SC945(Q), (R)	
Qm22	V01-0084-05	Transistor 2SA733(Q), (R)	
Qm23	V03-0452-05	Transistor 2SC1735E	
Qm24	V01-0084-05	Transistor 2SA733(Q), (R)	
Qm25	V03-0330-05	Transistor 2SC789	
Dm1, 2	V11-0271-05	Diode 1S2076	
	V11-0076-05	or 1S1555	
Dm3, 4	V11-5100-40	Varistor STV-4HG	
Dm5, 6	V11-0271-05	Diode 1S2076	
	V11-0076-05	or 1S1555	
Dm8	V11-0219-05	Diode V06B	
Dm9, 10	V11-0271-05	Diode 1S2076	
	V11-0076-05	or 1S1555	
Dm11	V11-0273-05	Diode 1S2076A	
Dm15	V11-0421-05	Diode M4C-3	
Dm16, 17	V11-0295-05	Diode W06B	

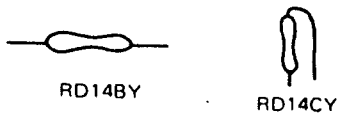
Note: When using 2SD600K as Qm11, 12, 2SB631K should be employed as Qm13, 14, also when using 2SC1567A as Qm11, 12 2SA794A should be done as Qm13, 14.

Ref. No.	Parts No.	Description	Remarks
Dm18	V11-0254-05	Zener diode YZ-140	
Dm19, 20	V11-0287-05	Zener diode WZ-240	
POTENTIOMETER			
VRm1, 2	R12-0047-05	Trimming 500Ω(B) BIAS	
VRm3	R06-5030-05	Potentiometer 200kΩ (MN) BALANCE	☆
VRm4	R06-2010-05	Potentiometer 5kΩ(C) X 2 TREBLE	
VRm5	R06-2009-05	Potentiometer 5kΩ(C) X 2 BASS	
COIL/INDUCTOR			
Lm1, 2	L39-0080-15	Phase compensator coil	
Lm3, 4	L40-1021-03	Ferri-inductor 1mH	
SWITCH/RELAY			
Sm1	S02-2004-05	Rotary switch POWER/SPEAKERS (X09-1240-10)	☆
	S02-2008-05	Rotary switch POWER/SPEAKERS (X09-1240-61)	☆
Sm2	S40-2084-05	Phsu switch SUBSONIC	☆
—	S51-4030-05 or S51-4033-05	Relay PROTECTION	
MISCELLANEOUS			
—	E11-0060-15	Phone jack	
—	J21-1677-03	Mounting hardware	☆

Note

Resistors except the special type (example: cement, metal film, etc.) are not detailed in PARTS LIST. With regard to the value, refer to the schematic diagram or the PC board illustration.
Resistors not detailed are carbon type (1/4W or 1/8W).
You should give an order for the carbon resistors according to the ways described as follows:
A carbon resistor's part number is example RD14BY 2E 222J

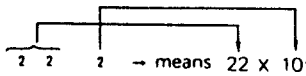
1. Kinds of the carbon resistor



2. Wattage

1/4W → 2E
1/8W → 2B

3. Resistance value



Significant figure Multiplier

Example: 221 → 220Ω
222 → 2.2kΩ
223 → 22kΩ
224 → 220kΩ
225 → 2.2MΩ

4. Tolerance

J = ±5% (Gold color)
K = ±10% (Silver color)

ADJUSTMENT

NO.	ALIGN	TEST EQUIPMENTS		RECEIVER SETTING	OUTPUT INDICATOR	ADJUSTMENT POINTS	REMARKS
		CONNECTION	SETTING				
FM SECTION							
1	IF	Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM and scope to REC jack (L)	Lg5	Maximum deflection
2		.....	.....	.....	T meter	Lg7	Make the pointer position in the center of the meter
3		Ⓐ and Ⓑ	95 MHz (60 dB) 1 kHz (Mod) 75 kHz (Dev)	95 MHz	SSVM, scope and distortion meter to REC jack (L)	Lg8	Maximum deflection and minimum distortion
4	OUTPUT	—ditto—	95 MHz 1 kHz (Mod) 75 kHz (Dev) 60 dB	—ditto—	—ditto—	.....	Confirm output voltage is 900 mV
5	TRACKING	—ditto—	90 MHz 1 kHz (Mod) 75 kHz (Dev)	90 MHz	—ditto—	Lg1, 2, 4	Maximum deflection
6			105 MHz 1 kHz (Mod) 75 kHz (Dev)	105 MHz		CTg1 ~ 3	
7	VCO	Ⓐ	95 MHz 0 (Dev) 60 dB (Input)	95 MHz	Freq. counter to TP1 Ⓕ	VRg1	Counter indicates 19 kHz
8	SEPARATION	Ⓑ and Ⓒ	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L or R (Select) 60 dB (Input)	—ditto—	SSVM, scope and distortion meter to REC jack (L)	VRg2	Minimum crosstalk (Maximum separation)
9	DISTORTION	Ⓑ and Ⓒ	95 MHz 1 kHz (Mod) 68.25 kHz (Dev) L (Select) 60 dB (Input)	—ditto—	SSVM, scope and distortion meter to REC jack (L)	Lg5	Minimum distortion
AM SECTION							
1	IF	Ⓑ and Ⓓ	1,000 kHz 400 Hz, 30% (Mod) 100 dB	1,000 kHz	SSVM and scope to REC jack (L)	CFg4	Maximum deflection
2	TRACKING	—ditto—	600 kHz 400 Hz, 30% (Mod) 100 dB	600 kHz	—ditto—	Lg11 Bar antenna	—ditto—
3			1,400 kHz 400 Hz, 30% (Mod)	1,400 kHz		CTg4, 5	
AUDIO SECTION							
1	BIAS	.....	.....	VOLUME is its min.	DC volt meter	VRm1, 2	Mete indicates 15.5 mV Ⓔ

ABSOLUTE MAX. RATINGS

TRANSISTOR	V_{CBO}	V_{EBO}	V_{CEO}	I_C	P_C	T_j	T_{stg}	f_T
2SA981	–120V	–6V	–120V	–8A	80W (Tc = 25°C)	–	–65 ~ +150°C	15 ~ 20 MHz
2SB631K	–120V	–5V	–120V	–1A	1W (Ta = 25°C) 8W (Tc = 25°C)	150°C	–55 ~ +150°C	110 MHz
2SC2261	180V	6V	120V	8A	80W (Tc = 25°C)	–	–65 ~ +150°C	10 ~ 15 MHz
2SD600K	120V	5V	120V	1A	1W (Ta = 25°C) 8W (Tc = 25°C)	150°C	–55 ~ +150°C	130 MHz
FET	**V_{GDO}**	**I_D**	**P_T**	**T_j**				
2SK105	–50V	20mA	250mW	125°C				

ADJUSTMENT

NOTE

* RF-SG is set to the lowest response possible on oscilloscope.
* The output level of RF-SG is made a loss by the dummy antenna. The loss is different from the dummy antenna, so you should take into consideration the value of the loss applicable to your case.
* Repeat TRACKING adjustment several times and confirm the reception of broadcasting.
* Test point is shown in the schematic diagram.

TEST EQUIPMENTS AND ITS SPECIFICATIONS

AUDIO SIGNAL GENERATOR (AG)

Ranges:	5 Hz ~ 500 kHz
Waveform:	Sine wave
Output:	10V r.m.s.
Distortion:	0.01% or less

SOLID STATE VOLT METER (SSVM)

Ranges:	0.3 mV ~ 100V (full scale)
Frequency response:	5 Hz ~ 500 kHz
Impedance:	1 M-ohms or more

STANDARD SIGNAL GENERATOR (RF-SG)

Ranges:	90 MHz ~ 108 MHz 150 kHz ~ 1,500 kHz
Modulation frequency:	1 kHz, 400 Hz or external input (input level: 2V or less)
Deviation:	0 ~ 150 kHz
Output:	100 mV or more
S/N:	85 dB or more
Distortion (internal):	0.5% or less

OSCILLOSCOPE (SCOPE)

Ranges:	DC ~ 10 MHz
Sensitivity:	20 mV/cm
Impedance:	1 M-ohms or more

MULTIPLEX SIGNAL GENERATOR (MPX-SG)

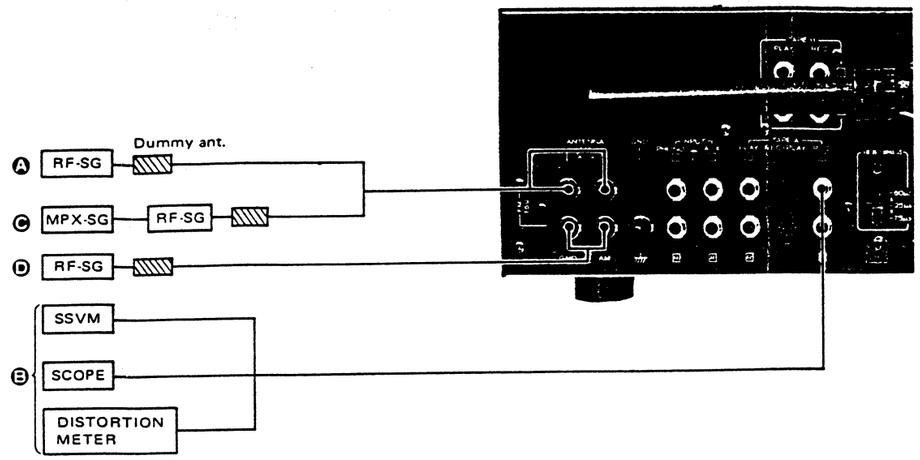
Modulation frequency:	1 kHz or external input (input level: 5V or less)
Separation:	60 dB or more
S/N:	85 dB or more

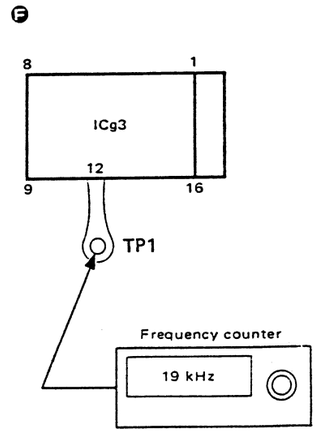
FREQUENCY COUNTER (COUNTER)

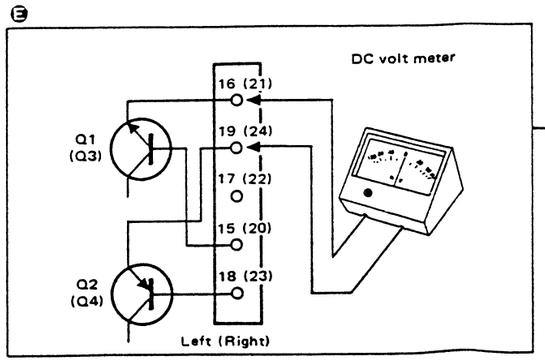
Frequency response:	10 Hz ~ 1 MHz
Sensitivity:	50 mV or more
Impedance:	1 M-ohms or more

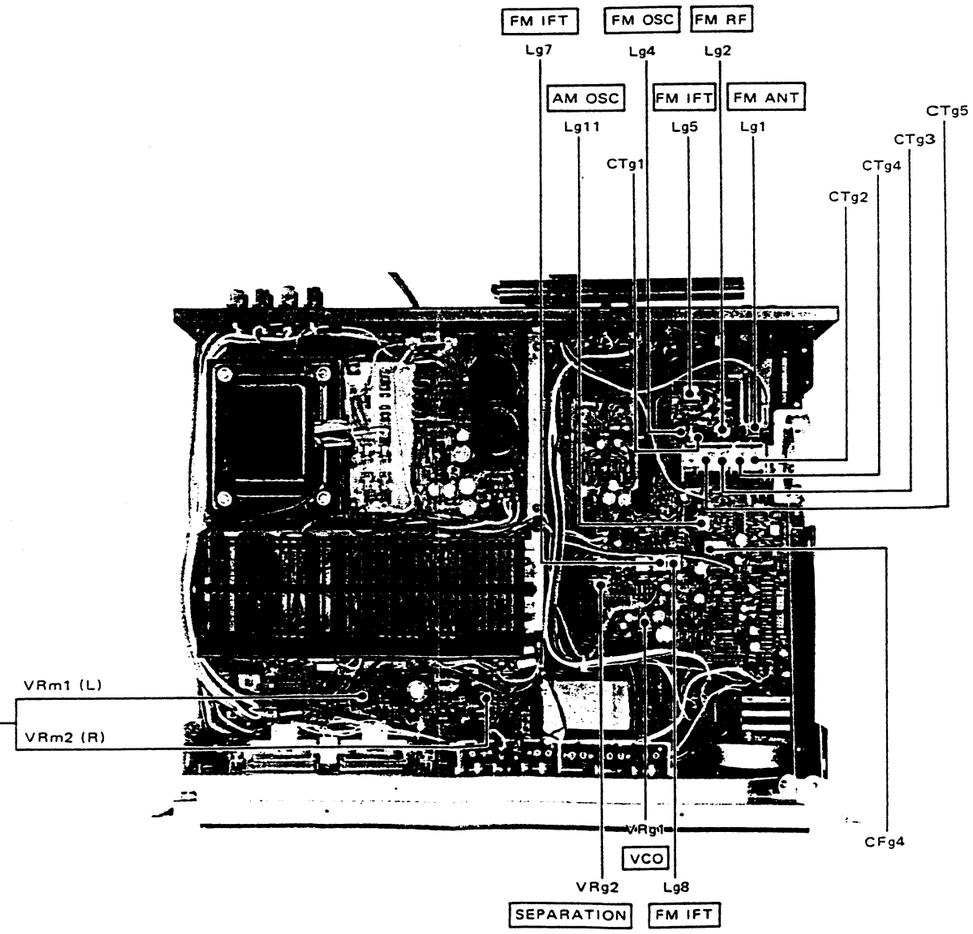
DISTORTION METER

Ranges:	0.1% ~ 0.03% (full scale)
Sensitivity:	100 mV or more









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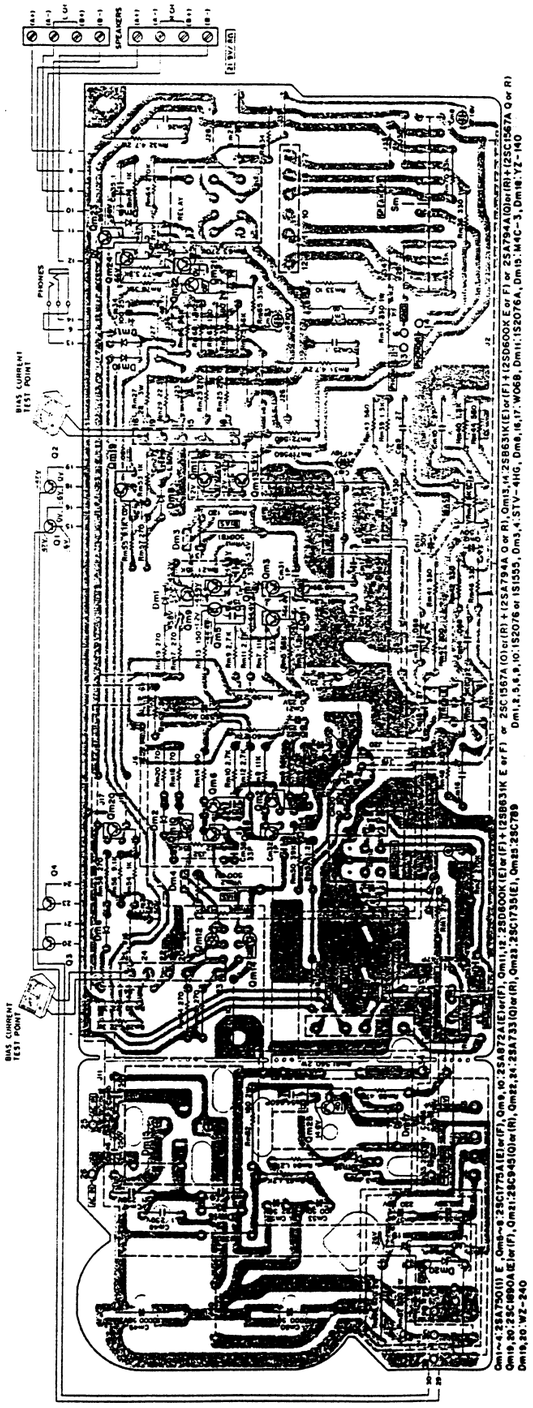
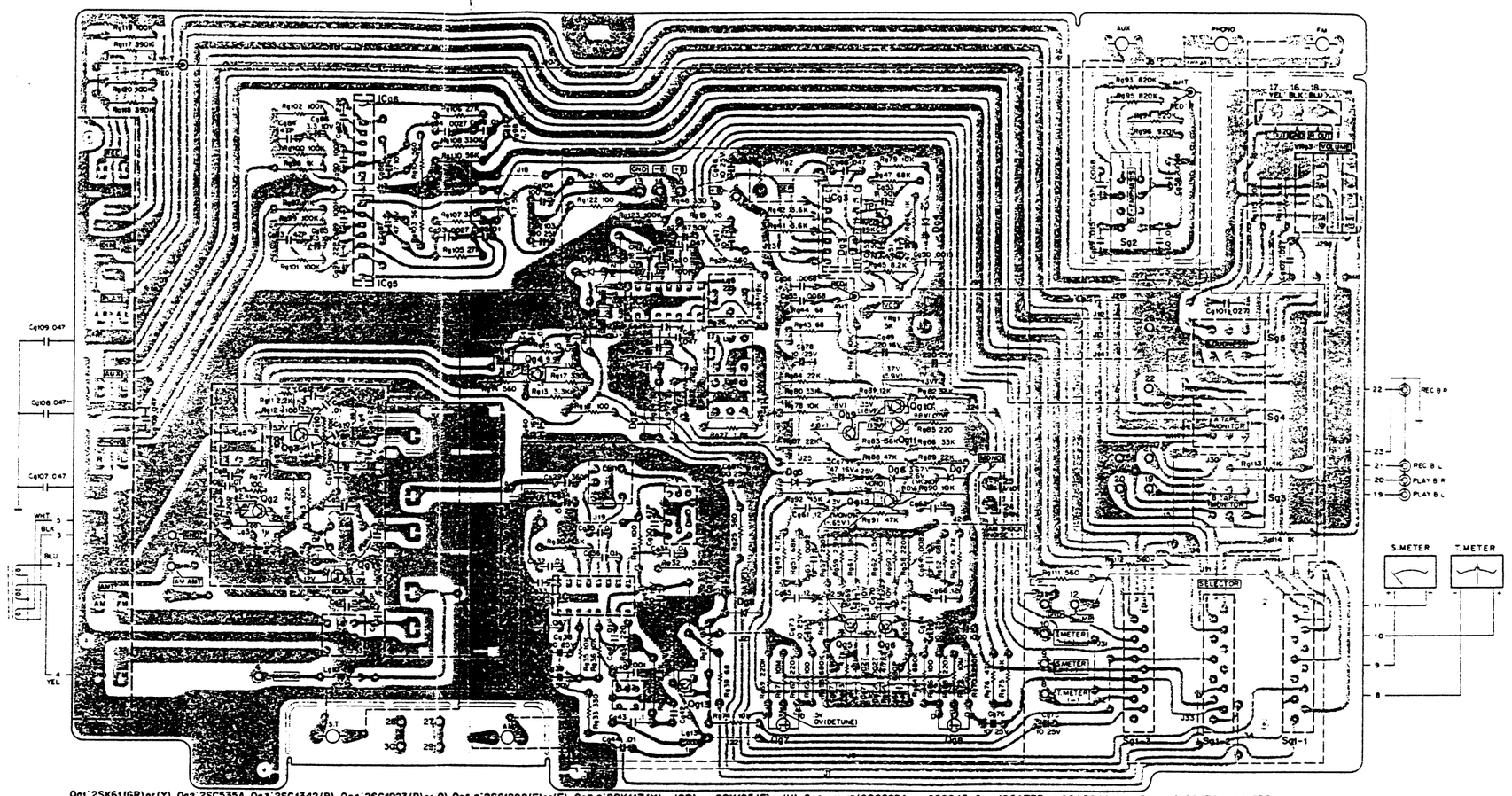
PC BOARD

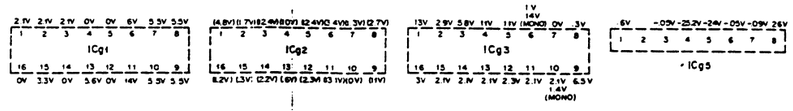
▼ AUDIO (X09-1240-10)



▼ TUNER (X05-1480-10)



Qg1:2SK61(GR) or (Y), Qg2:2SC535A, Qg3:2SC1342(B), Qg4:2SC1923(R) or (O), Qg5,6:2SC1890(E) or (F), Qg7,8:2SK117(Y) or (GR), or 2SK105(F) or (H), Qg9~11,13:2SC828A or 2SC945, Qg12:2SA733 or 2SA564A, Dg1~8:1S2076 or 1S1555
ICg1:HA1137W, ICg2:HA1197 or LA1240, ICg3:LA3350S-L6, ICg5,6:HA1457

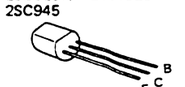


Semiconductor Name	Substitutions
2SA981	–
2SC2261	–
TUNER (X05-1480-10)	
2SA733	2SA564A
2SC535A	2SC535 (B) Check the oscillations
2SC945	2SC458, 2SC828A
2SC1342 (B)	2SC785 (R)
2SC1890 (E), (F)	2SC1222 (U)
2SC1923 (R), (O)	2SC381 (R), (O)
2SK61 (GR), (Y)	–
2SK117 (Y), (GR)	2SK105 (F), (H), 2SK68 (L), (M)
HA1137W	–
HA1197	LA1240
HA1457	–
LA-3350S-L6	–
AUDIO (X09-1240-10)	
2SA733 (O), (R)	VCEO ≧ 40V
2SA750 (I) (E)	2SA620WL, 2SA640, 2SA810
2SA872A (E), (F)	2SA750 (I), 2SA893A
2SB631K (E), (F)	2SA794A (Q), (R)
2SC945 (Q), (R)	VCEO ≧ 40V
2SC789	2SD525, 2SD526
2SC1735 (E)	2SC1509
2SC1775A (E), (F)	2SC1400, 2SC1890A
2SC1890A (E), (F)	2SC1400, 2SC1775A
2SD600K (E), (F)	2SC1567A (Q), (R)

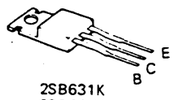
SCHEMATIC DIAGRAM

Note: When using 2SD600K as Qm11, 12, 2SB631K should be employed as Qm13, 14, also when using 2SC1567A as Qm11, 12, 2SA794A should be done as Qm13, 14.

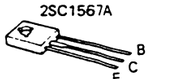
2SA564A 2SC1222
2SA640 2SC1400
2SA733 2SC1509
2SA750 2SC1775
2SA872 2SC1890
2SC828A 2SC1923
2SC945



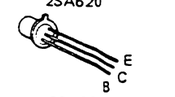
2SA794
2SC789
2SD525
2SD562



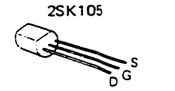
2SB631K
2SD600K
2SC1567A



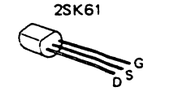
2SA620



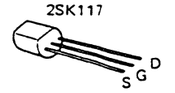
2SK68
2SK105



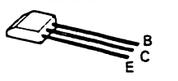
2SK61



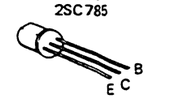
2SK117



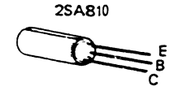
2SC458
2SC535
2SC1342



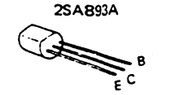
2SC381
2SC785



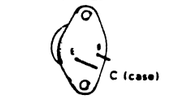
2SA810



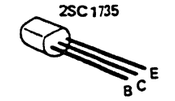
2SA893A



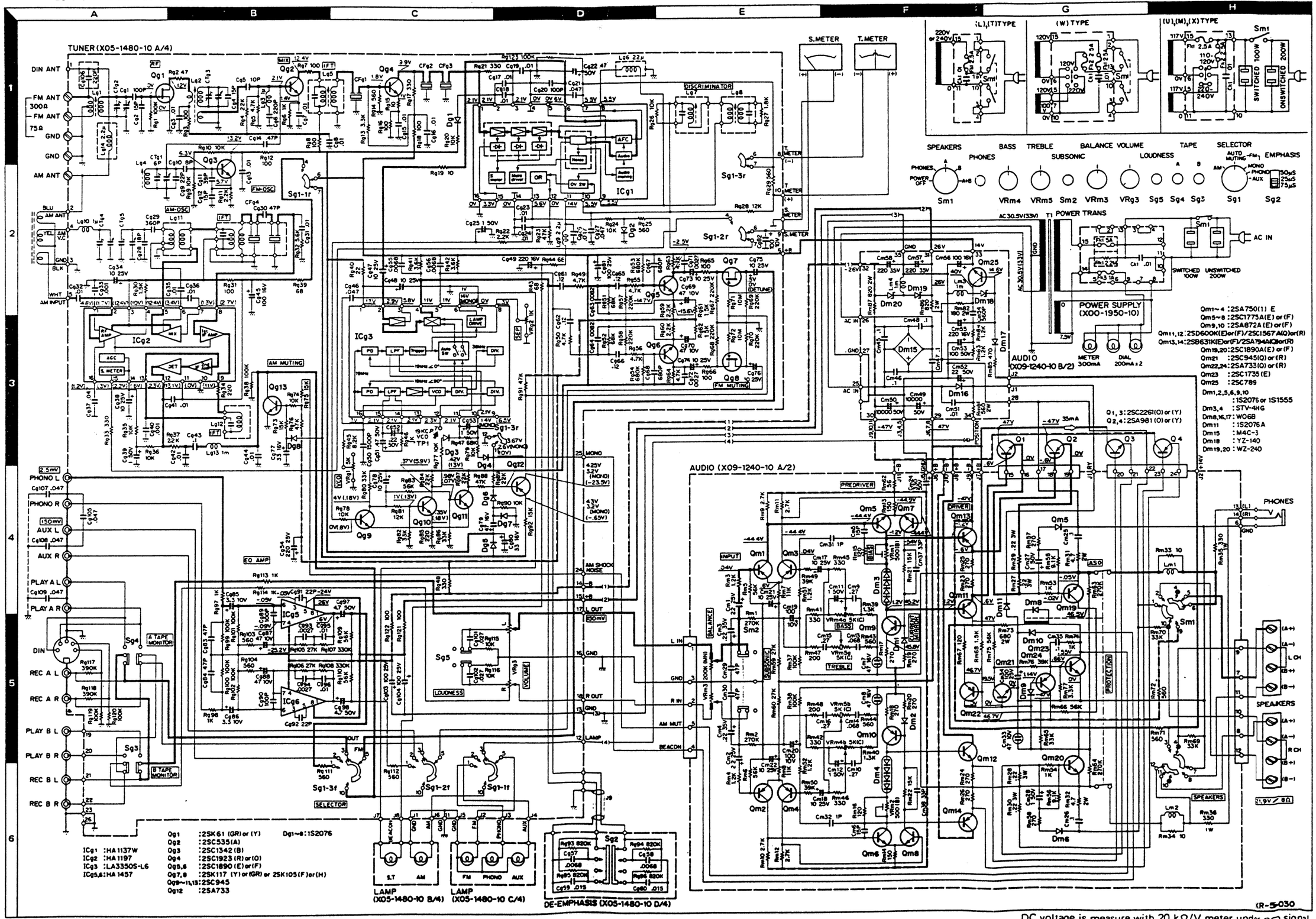
2SA981
2SC2261



2SC1735



In the case of using the substitutive semiconductor, you should confirm the lead of one.



DC voltage is measure with 20 kΩ/V meter under no signal.

KR-5030

SPECIFICATIONS

AMPLIFIER SECTION

Power Output

60 watts* per channel, minimum RMS both channels driven, at 8 ohms from 20 to 20,000 Hz with no more than 0.1% total harmonic distortion.

Both Channels Driven	68+68W 8Ω at 1,000 Hz
	80+80W 4Ω at 1,000 Hz
Dynamic Power Output	300 W 4 Ω
Total Harmonic Distortion	0.1% at rated power into 8Ω
	0.05% at 1/2 rated power into 8Ω
Intermodulation Distortion (60 Hz : 7 kHz 4 : 1)	0.1% at rated power into 8Ω
	0.05% at 1/2 rated power into 8Ω
Power Bandwidth	10 Hz to 45,000 Hz
Damping Factor	30 at 8Ω
Speaker Impedance	Accept 4Ω to 16Ω
Input Sensitivity/Impedance/Signal to Noise Ratio (IHF A curve)	
Phono	2.5 mV/50kΩ/75 dB
AUX	150 mV/45kΩ/95 dB
Tape	150 mV/45kΩ/95 dB
Maximum Input Level for Phono	250 mV (RMS), T.H.D. 0.1% at 1,000 Hz
Output Level/Impedance	
Tape REC (Pin)	150 mV/100Ω
(DIN)	30 mV/80kΩ
Frequency Response	
Phono	RIAA standard curve +0.3, −0.3 dB
AUX and Tape	10 Hz to 50,000 Hz +0, −1.0 dB
Tone Control	
Bass	±8 dB at 100 Hz
Treble	±8 dB at 10 kHz
Subsonic Filter	15 Hz (6 dB/oct.)
Loudness Control (−30 dB)	+9 dB at 100 Hz

FM TUNER SECTION (IHF)

Usable Sensitivity	10.8 dBf (1.9μV)
50 dB Quieting Sensitivity	
Mono	15.0 dBf (3.0μV)
Stereo	37.2 dBf (40μV)
Signal to Noise Ratio at 65 dBf	
Mono	73 dB
Stereo	68 dB
Total Harmonic Distrotion at 65 dBf	
Mono	0.15%
Stereo	0.25%
Frequency Response	20 Hz to 15,000 Hz +0.5, −2.0 dB
Capture Ratio	1.0 dB
Image Response Ratio	60 dB
Spurious Response Ratio	72 dB
IF Response Ratio (Balanced)	86 dB
Alternate Channel Selectivity	65 dB
AM Suppression Ratio	60 dB
Stereo Separation Ratio	45 dB at 1,000 Hz
	35 dB at 50 Hz to 15,000 Hz
Sub Carrier Product Ratio	40 dB
Antenna Impedance	300Ω balanced
	75Ω unbalanced
FM Frequency Range	88 MHz to 108 MHz

AM SECTION

Usable Sensitivity	15μV
Signal to Noise Ratio	50 dB
Image Rejection	50 dB
Selectivity	33 dB

GENERAL

Power Consumption	450W at full power	
AC Outlet	Switched 1, Unswitched 1	
Dimensions	W	18-29/32" (480 mm) <19-7/8" (505 mm)>
	H	5-7/8" (149 mm) <7-1/32" (179 mm)>
	D	15-15/16" (405 mm) <15-15/16" (405 mm)>
Weight (Net)		26.5 lb (12 kb) <30.9 lb (14 kg)>
(Gross)		30.9 lb (14 kg) <35.3 lb (16 kg)>

< > U.S. Military Type

* Measured pursuant to Federal Trade Commission'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.