KENWOOD

HI/FI STEREO COMPONENTS

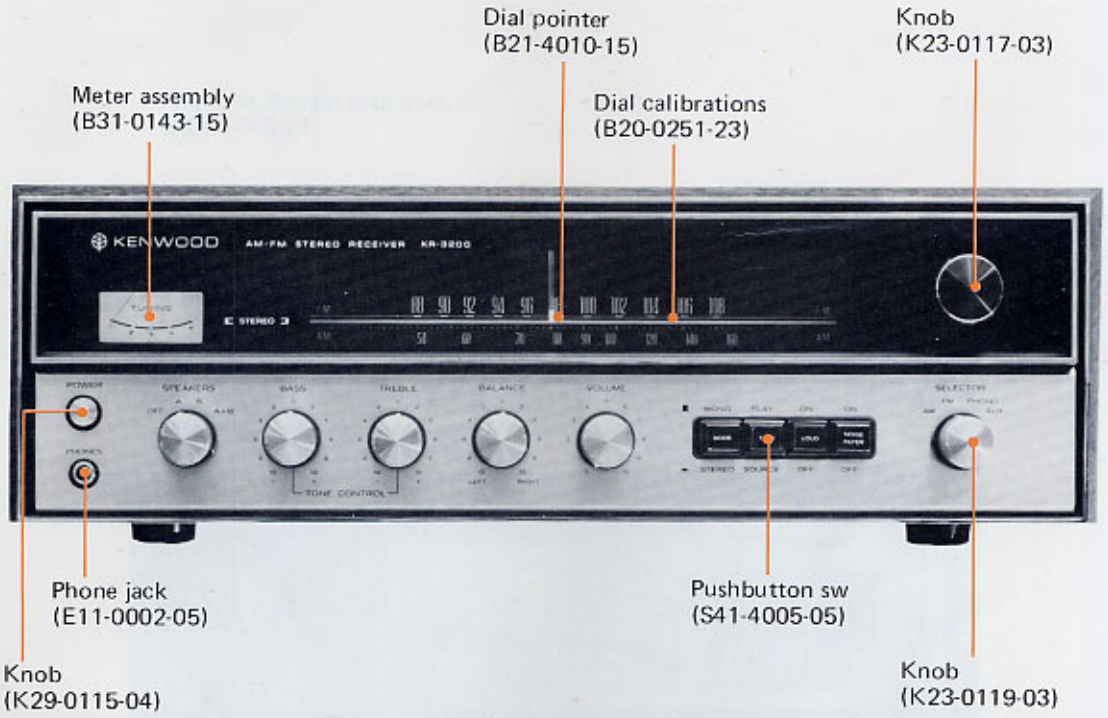
SERVICE MANUAL

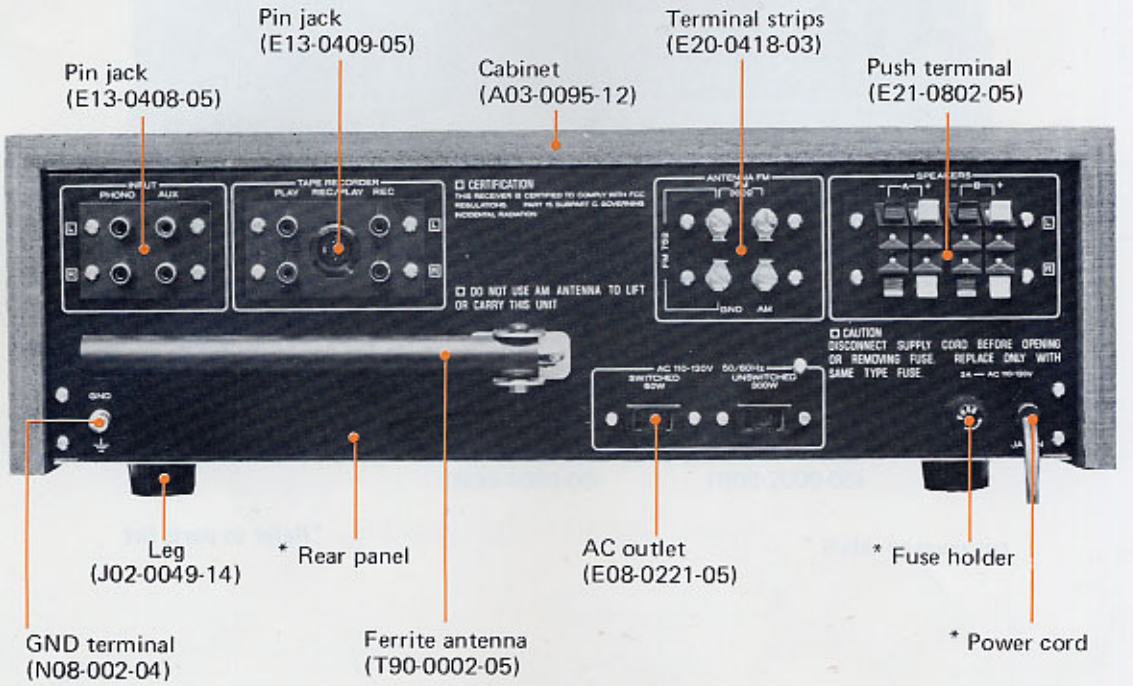
KR - 3200

STEREO RECEIVER

CONTENTS

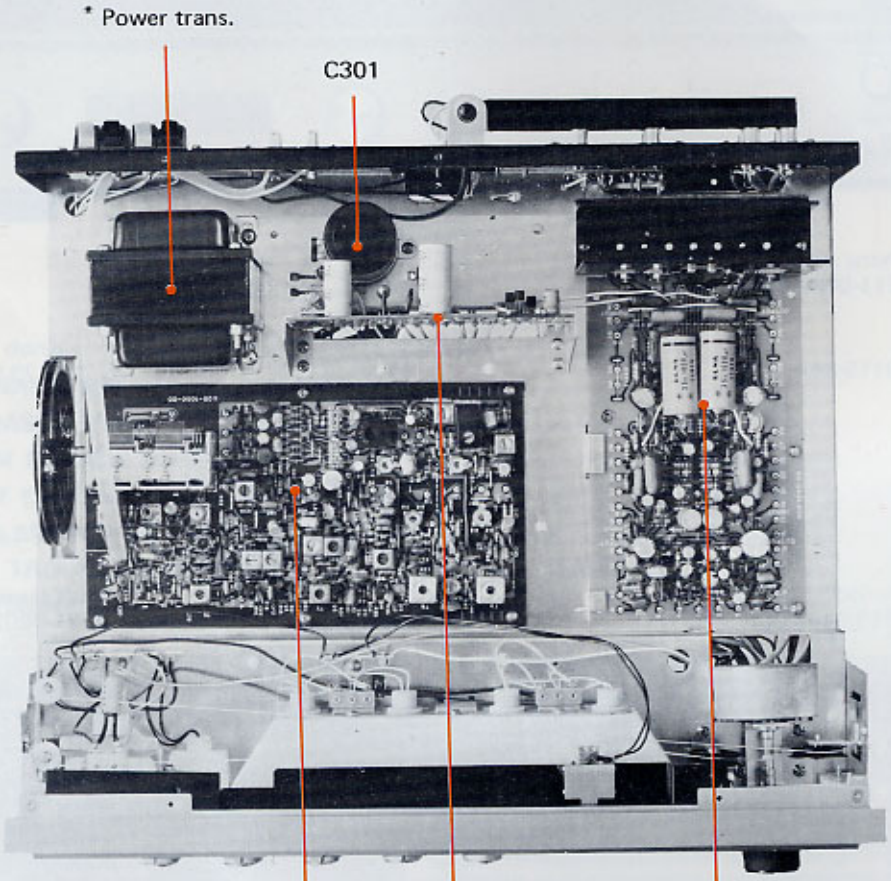
EXTERNAL VIEW





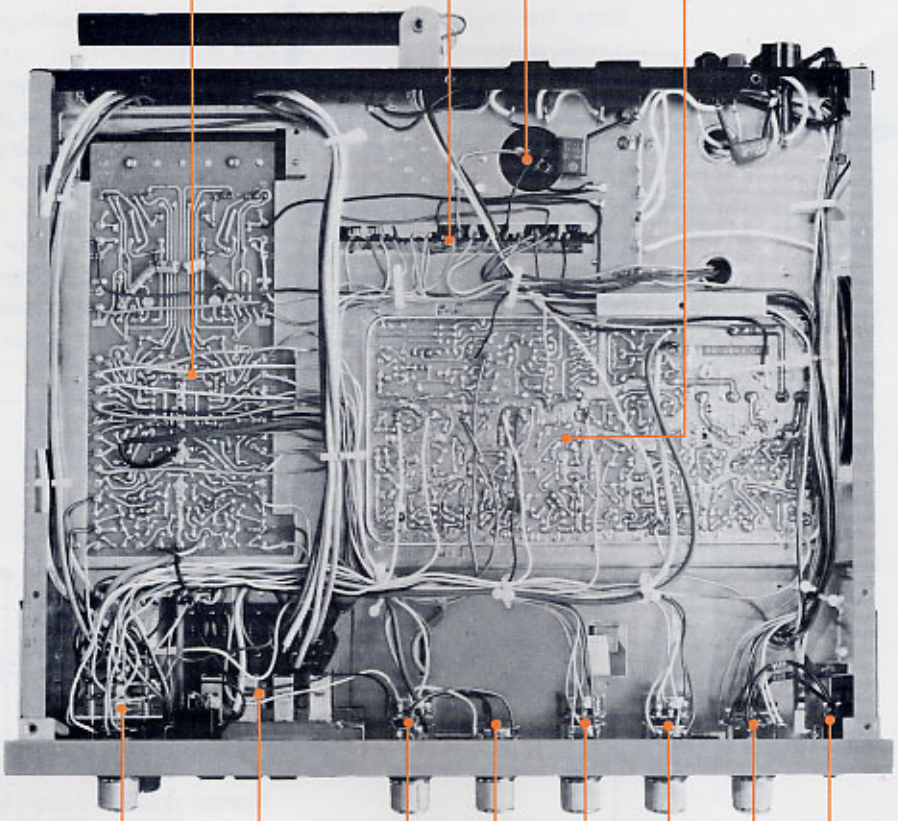
* Refer to parts list

TOP CHASSIS VIEW



*Refer to parts list

BOTTOM CHASSIS VIEW



* Refer to parts list

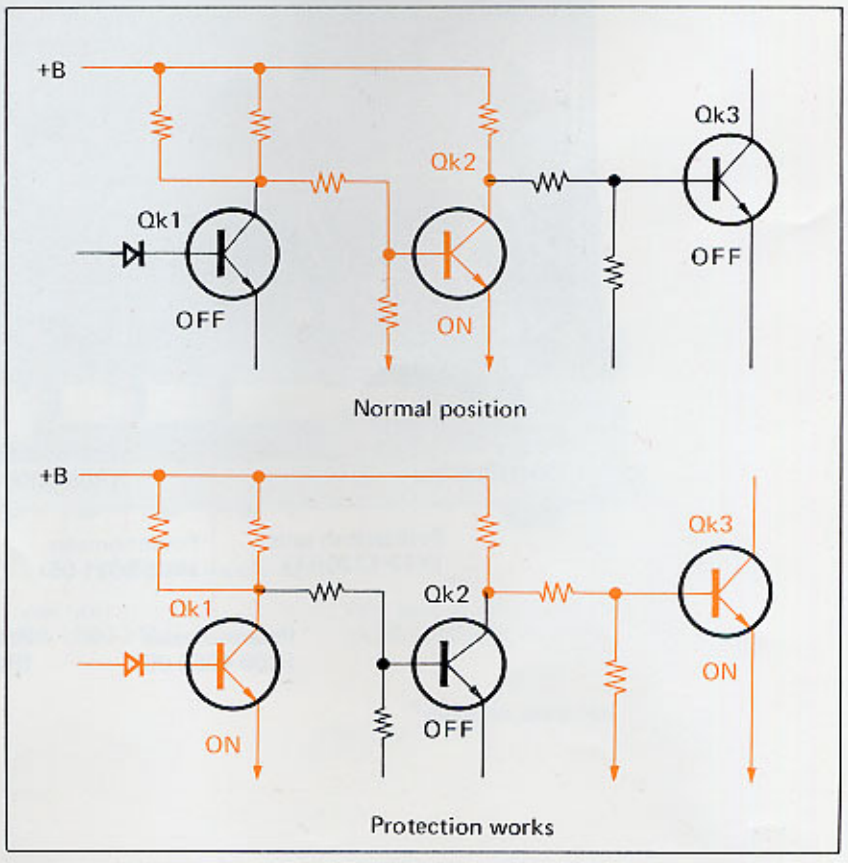
CIRCUIT DESIGN

Function of protection

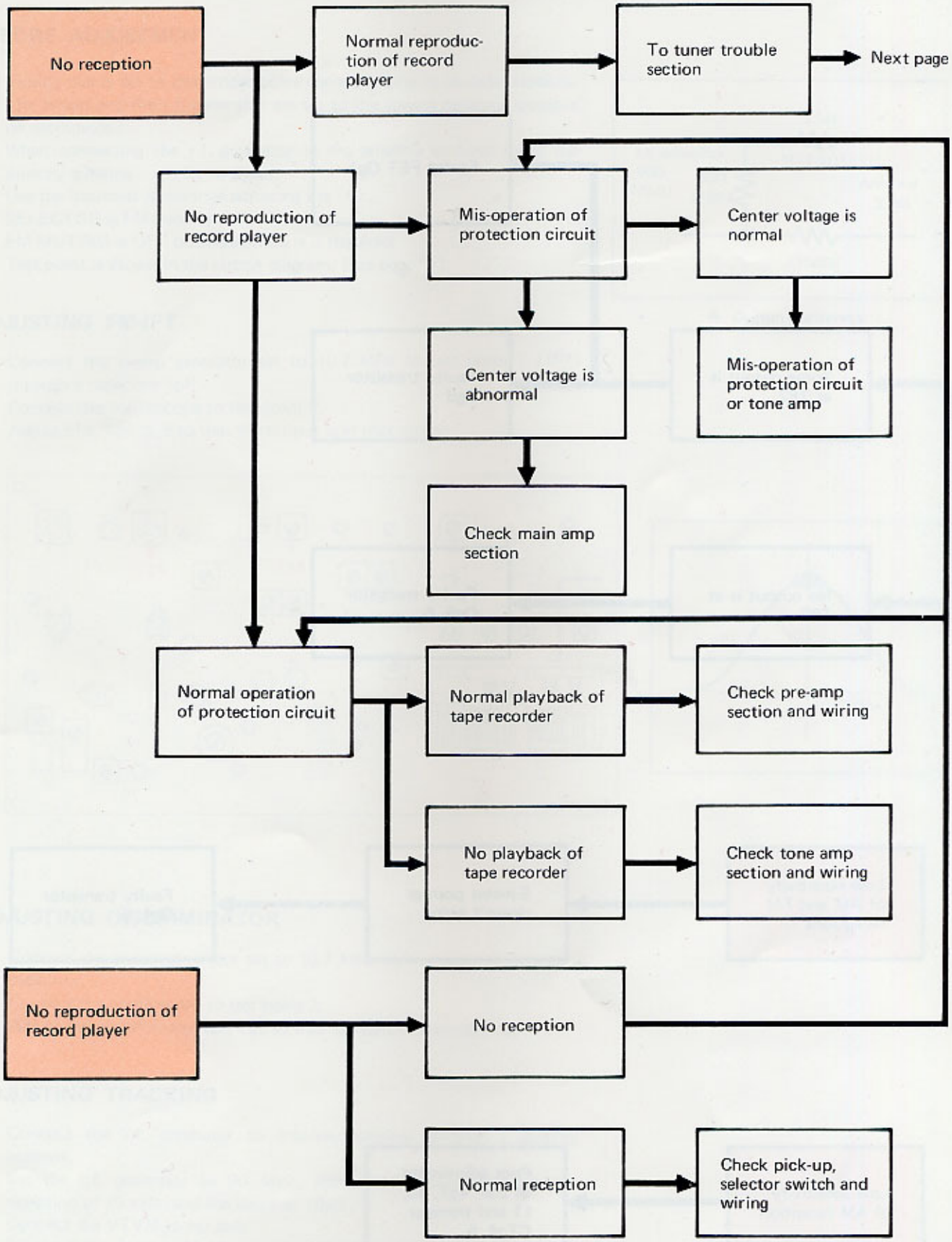
This unit serves to protect the damage of power transistors by overcurrent due to a short circuit at the output terminal of a main amplifier. The above mentioned function can be achieved by detecting overcurrent at the emitter of power transistor and bypassing the collector current of first stage transistor Qe3, 4 of main section by Schmidt circuit. Then eliminates an input signal. The sequence of operation will be descrived with reference to the circuits.

In normal operation, the emitter potential of the power transistor Qe13 or 14 is not large enough to be detected by transistor Qk1, so Qk1 is maintained at a cut off state. And the Qk2 becomes operation due to a bias voltage determined by resistors. Then, the transistor Qk3 will not be led to operation since the collector voltage of Qk2 drops about 1 voltage. As the result, the supply voltage to transistor Qe3 or 4 is maintained in normal condition.

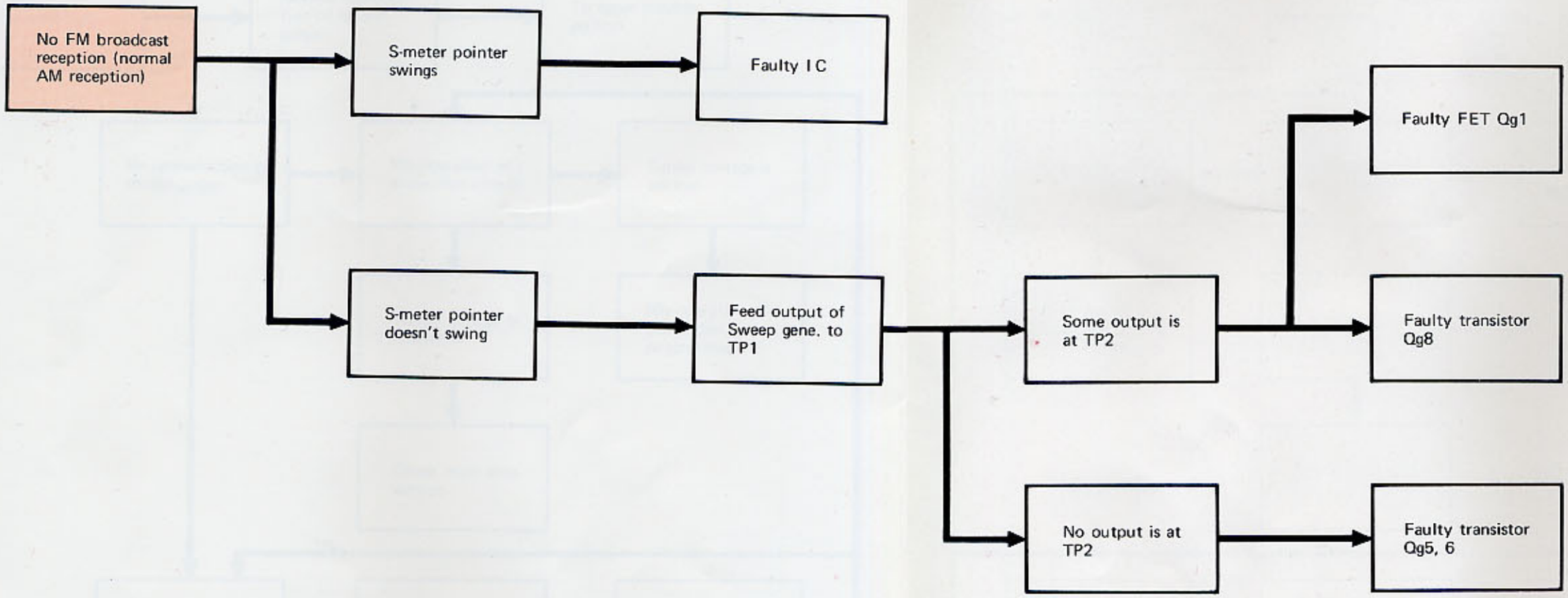
The protection starts to operate when the emitter voltage of Qe13 or 14 reaches its detection voltage. The detected voltage is then rectified by the diode Dk6 or 7 and applied to the base of Qk1, thereby resulting in the flowing of collector current into Qk1. At this stage, the Qk2 becomes non-operation as the base bias voltage is lowered to its cut off level. As the result current flows through Rk9, Rk11 and Rk15 to produce a bias voltage to Qk3. Then, the Qk3 becomes operation (collector current flows) to bypass the supply voltage of Qe3 or 4 to the chassis thereby stopping amplification and interrupting the input signal to main section.

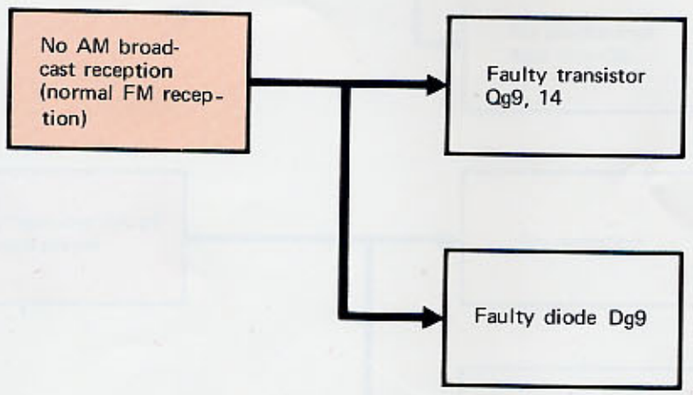


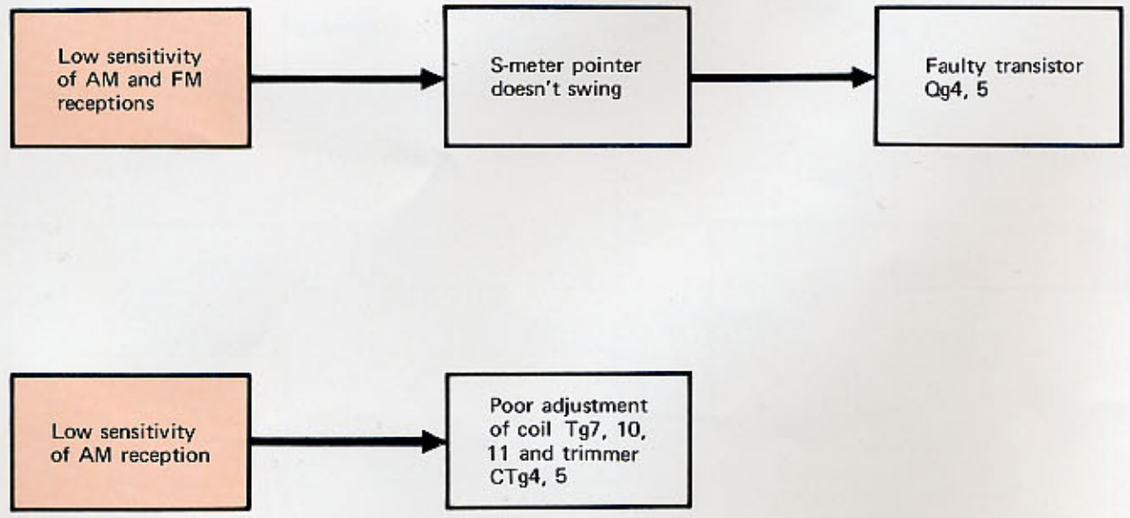
TROUBLESHOOTING



TUNER TRUBLESHOOTING



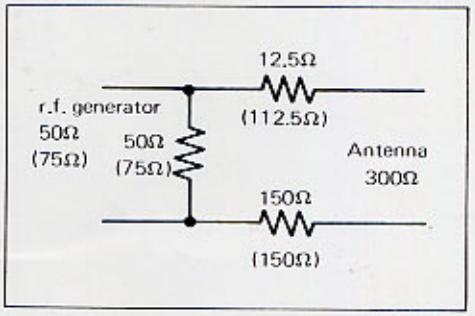




ADJSTMENT OF TUNER SECTION

BEFORE ADJUSTMENT

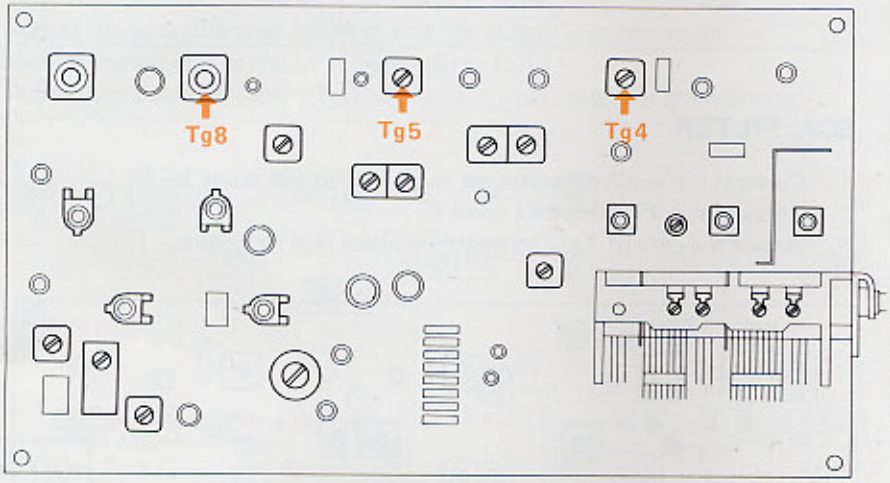
* Tuning dial is set to the proper point corresponding to no radio stations.
* The sweep and the r.f. generator are set to the lowest response possible on oscilloscope.
* When connecting the r.f. generator to the antenna terminal using the dummy antenna . . . refer to figure.
* Use the insulated screwdrive adjusting the i.f.t.
* SELECTOR is FM position.
* FM MUTING is OFF position unless it is required.
* Test point is shown in the circuit diagram. (See page 31)

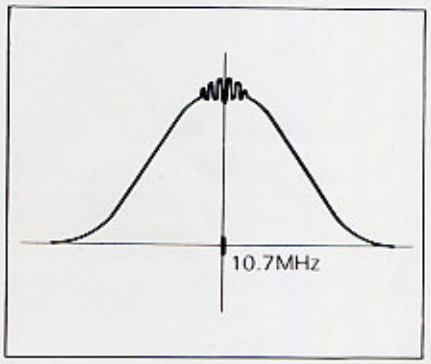


▲ Dummy antenna

ADJUSTING FM-IFT

1. Connect the sweep generator set to 10.7 MHz to test point 1 (TP1) through a capacitor 5pF.
2. Connect the oscilloscope to test point 2.
3. Adjust i.f.t. Tg4, 5, 8 so that the output is at maximum.





ADJUSTING DISCRIMINATOR

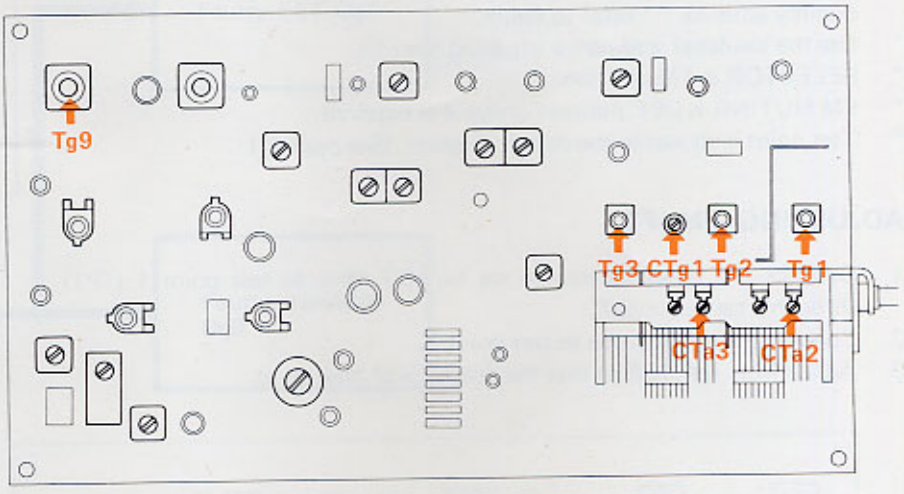
1. Connect the sweep generator set to 10.7 MHz to test point 1 through a capacitor.
2. Connect the oscilloscope to test point 3.
3. Adjust the discriminator coil Tg9 so that the output is at maximum.

ADJUSTING TRACKING

1. Connect the r.f. generator to antenna terminal through a dummy antenna.
2. Set the r.f. generator to 90 MHz, the modulation of 400 Hz, the deviation of 75 kHz, and the input of 10μV.
3. Connect the VTVM to rec jack.
4. Set the dial pointer to 90 MHz on the dial calibrations.
5. Adjust the core of r.f.t. Tg1, 2 and local oscillator coil Tg3 so that the output is at maximum.

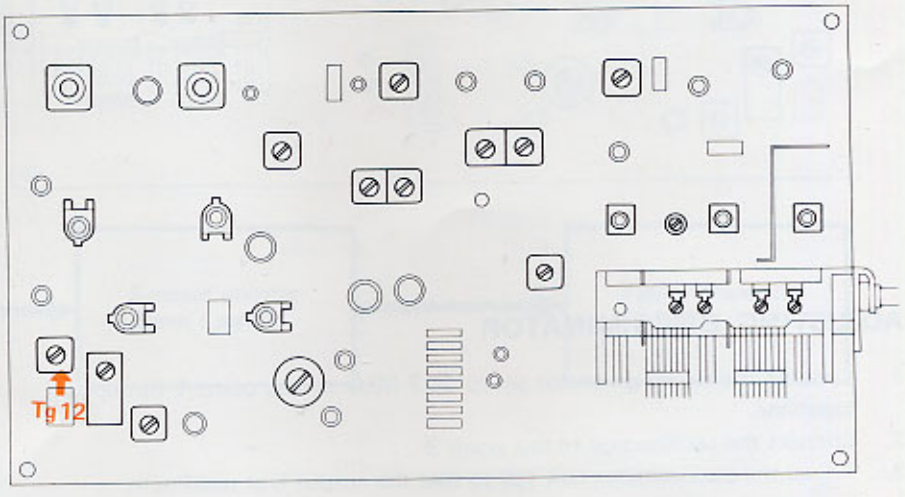
ADJUSTMENT OF TUNER SECTION

1. Set the r.f. generator to 106 MHz, the modulation of 400 Hz, the deviation of 75 kHz and input of 10μV.
2. Set the dial pointer to 106 MHz on the dial calibrations.
3. Adjust trimmers CTg1 ~ 3 so that the output is at maximum.



SCA FILTER

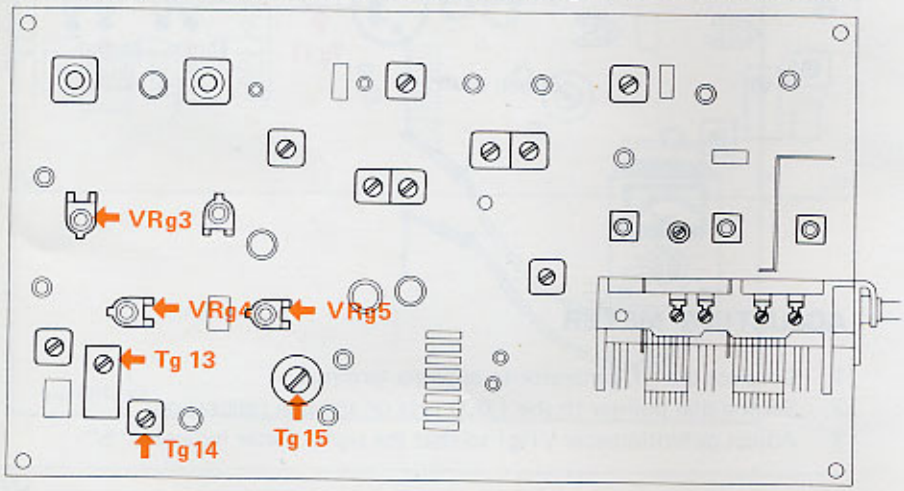
1. Connect the audio generator set to 67 kHz to test point 3.
2. Connect the VTVM to test point 4.
3. Adjust the core of Tg12 so that the output is at minimum.



ADJUSTMENT OF TUNER SECTION

ADJUSTING MPX

1. Connect the r.f. generator set to 98 MHz, modulation of 400 Hz, deviation of 75 kHz, to antenna terminal through a dummy antenna and VTVM to rec jack.
2. Adjust the potentiometer VRg3 so that the output is 1.5V.
3. Set the MPX generator to the followings.
   SELECTOR → A + B PHASE → NORMAL
   MODULATION → 400 Hz DEVIATION → 67.5 kHz
   OUTPUT → EXT jack of r.f. generator
4. Connect the r.f. generator to antenna terminal and the VTVM to test point 5.
5. Adjust the core of Tg13, 14 so that the output is at maximum.
6. Switch the selector of MPX generator to A – B (reverse).
7. Remove the VTVM to rec jack.
8. Adjust the core of Tg15 so that the output is at maximum.
9. Switch the selector and deviation of MPX generator to A + B and 40 kHz.
10. Adjust potentiometer VRg5 so that the stereo indicator is on.
11. Switch the selector of the MPX generator to A (R).
12. Adjust the potentiometer VRg4 so that left output is at minimum.
13. Switch the selector of the MPX generator to B (L).
14. Adjust the potentiometer VRg4 so that the right output is at minimum.

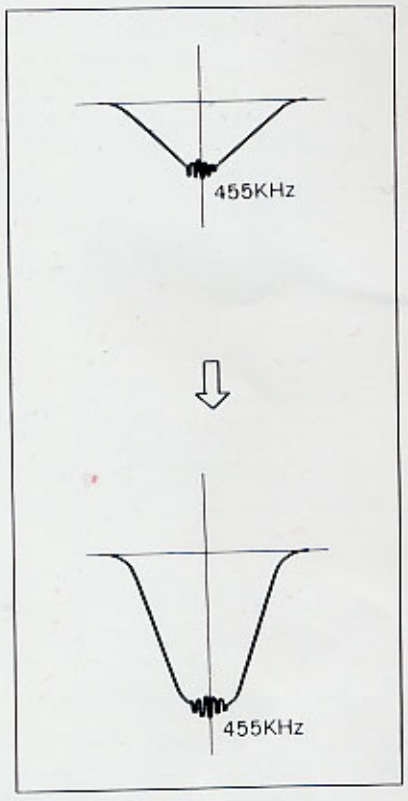


NOTE: In case of difference between right and left channel, set the potentiometer VRg4 to average.

ADJUSTING AM-IFT

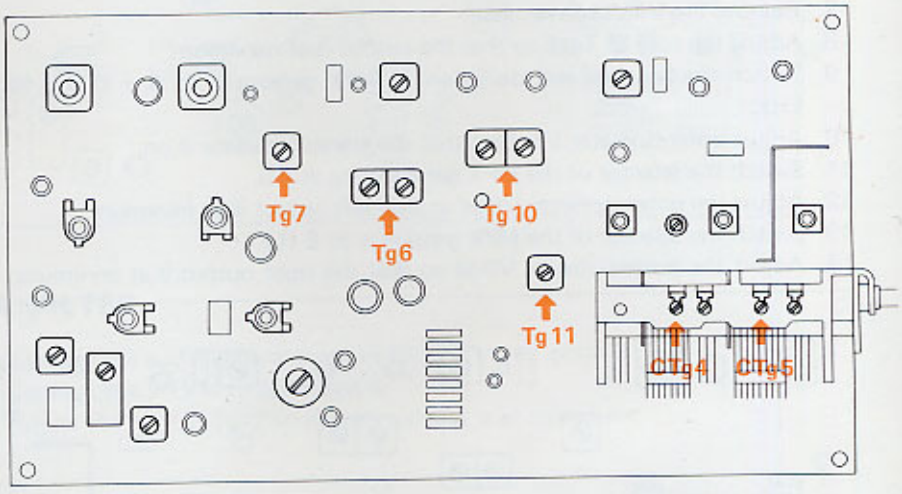
1. Connect the sweep generator set to 455 kHz to test point 6.
2. Connect the oscilloscope to the test point 7.
3. Adjust the core of i.f.t. Tg10, 6, 7 so that the output is at maximum.

ADJUSTMENT TUNER SECTION



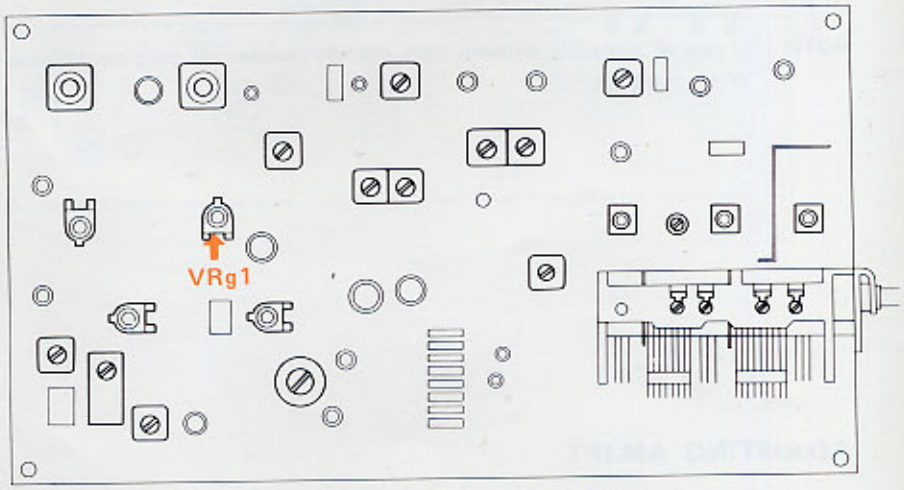
ADJUSTING TRACKING

1. Connect the r.f. generator set to 600 kHz, modulation of 30% at 400 Hz to antenna terminal.
2. Connect the VTVM to the rec jack.
3. Set the dial pointer to the 600 kHz on the dial calibrations.
4. Adjust the OSC-trans. Tg11 and ferrite antenna so that the output is at maximum.
1. Connect the r.f. generator set to 1,400 kHz, modulation of 30% at 400 Hz to antenna terminal.
2. Connect the VTVM to the rec jack.
3. Set the dial pointer to the 1,400 kHz on the dial calibrations.
4. Adjust the trimmer CTg4, 5 so that the output is at maximum.



ADJUSTING METER

1. Connect the r.f. generator to antenna terminal.
2. Set the dial pointer to the 1,000 kHz on the dial calibrations.
3. Adjust potentiometer VRg1 so that the signal meter indicates "5".

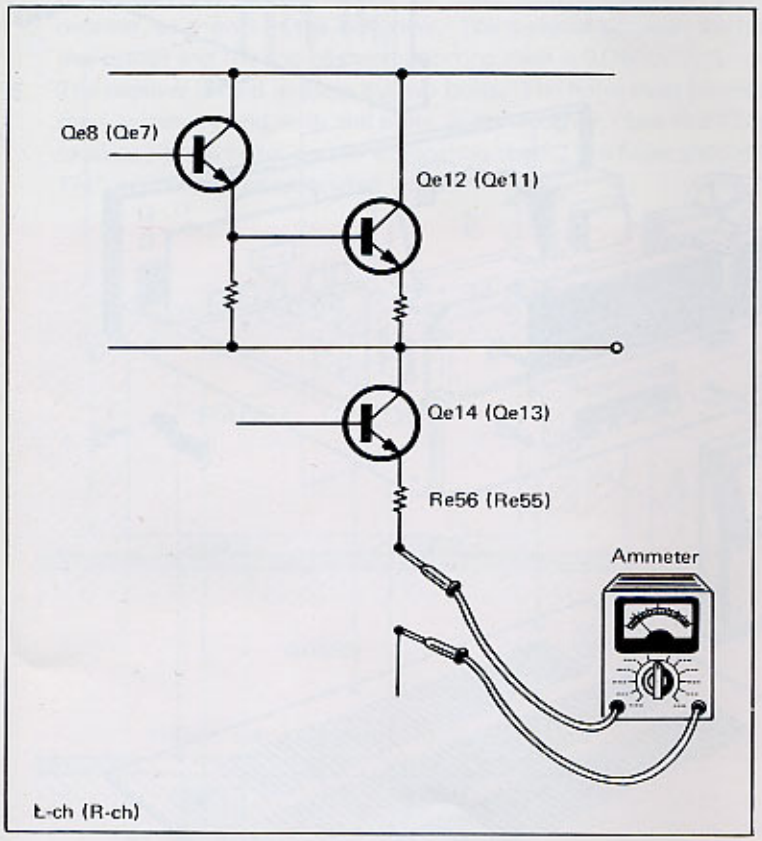


ADJUSTMENT OF AUDIO SECTION

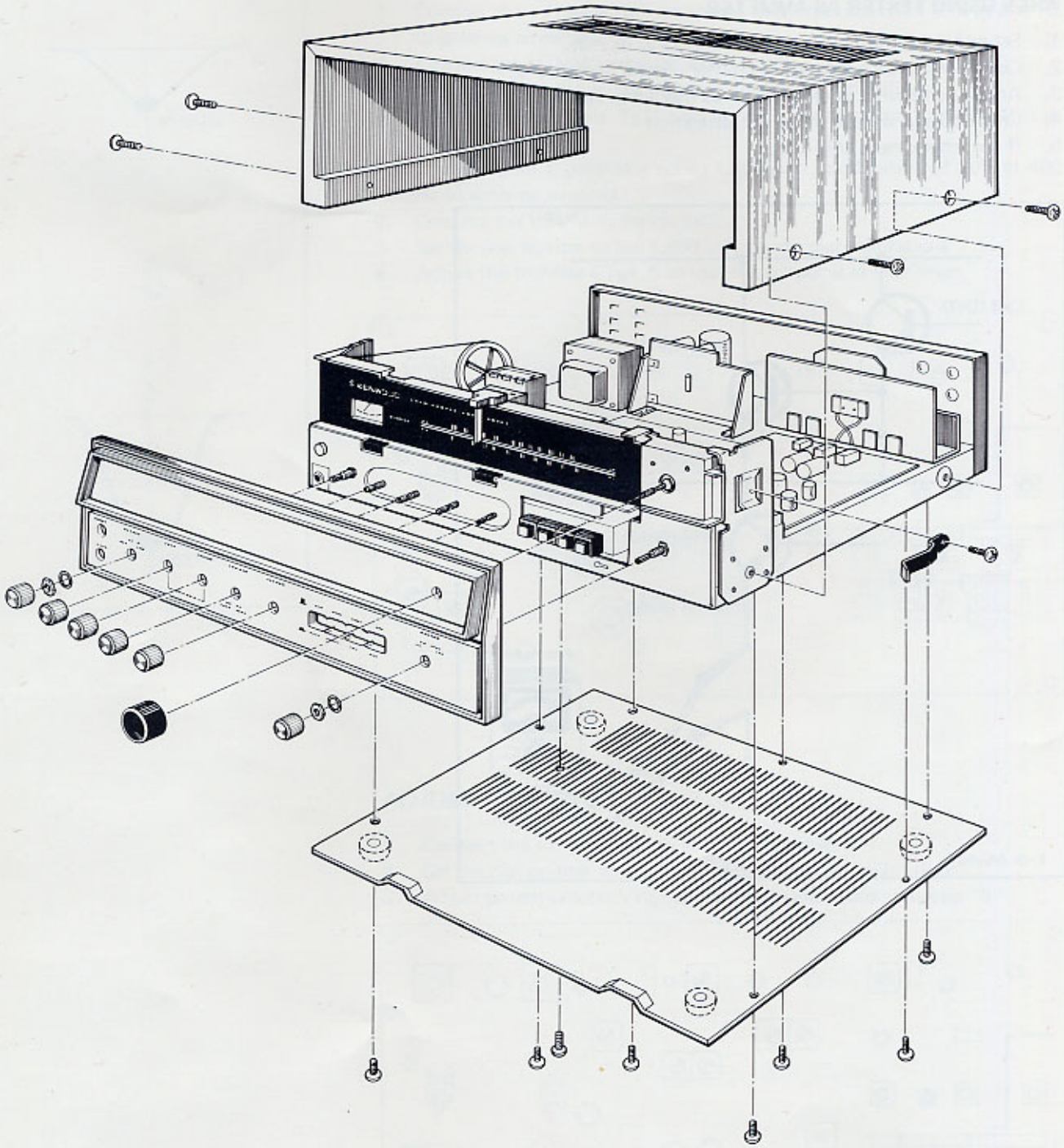
BIAS ADJUSTMENT

WHEN USING TESTER AS AMMETER

1. Set pc trimmer potentiometer (VRe1, 2) to its min..
2. Couple tester (as ammeter) to emitter resistor and ground.
3. Adjust pc trimmer potentiometer so that tester reading is 20 mA.
4. Check output waveform has not distortion
5. If not, check main amp unit.

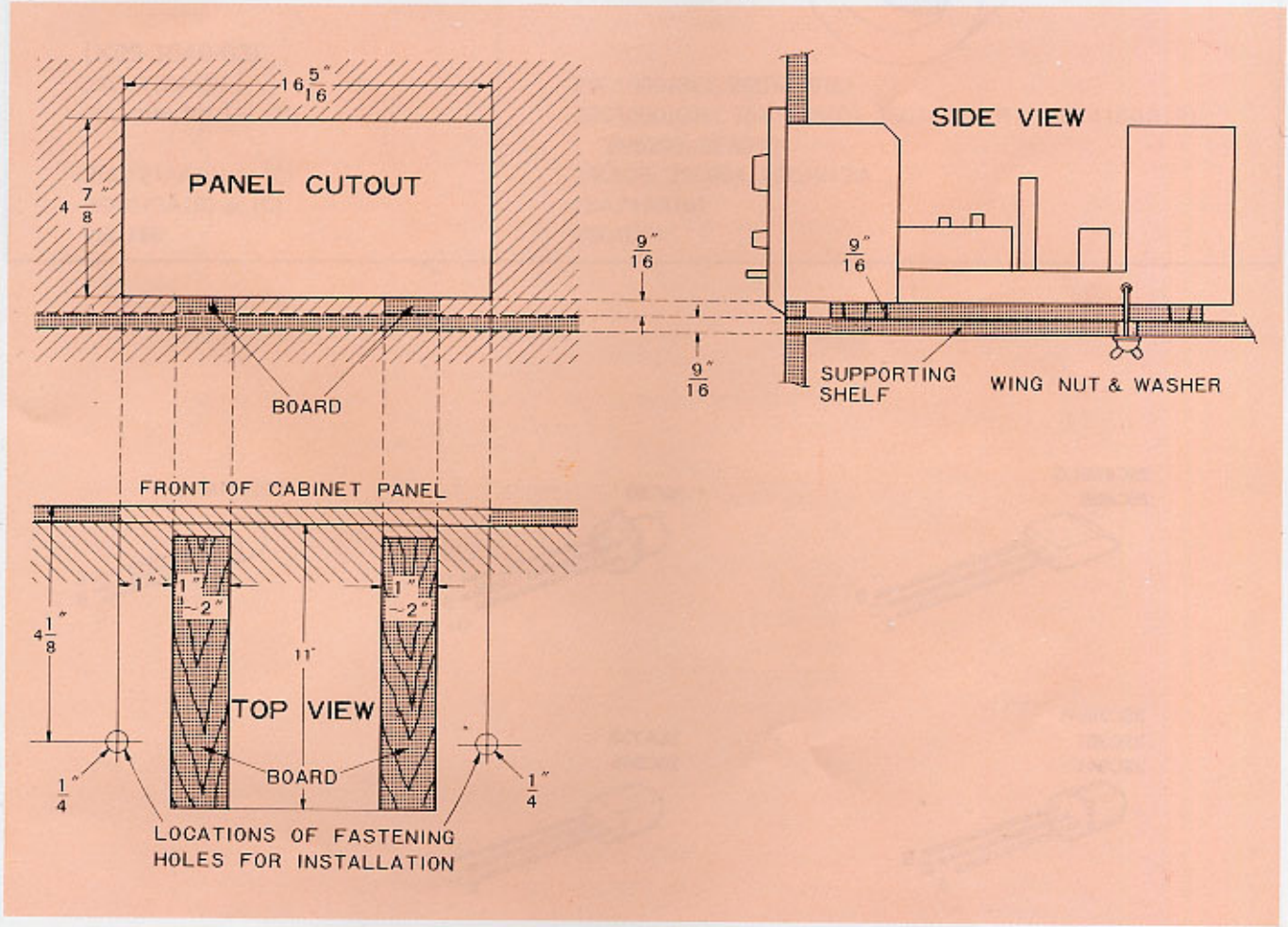


DISASSEMBCY OF KR-3200

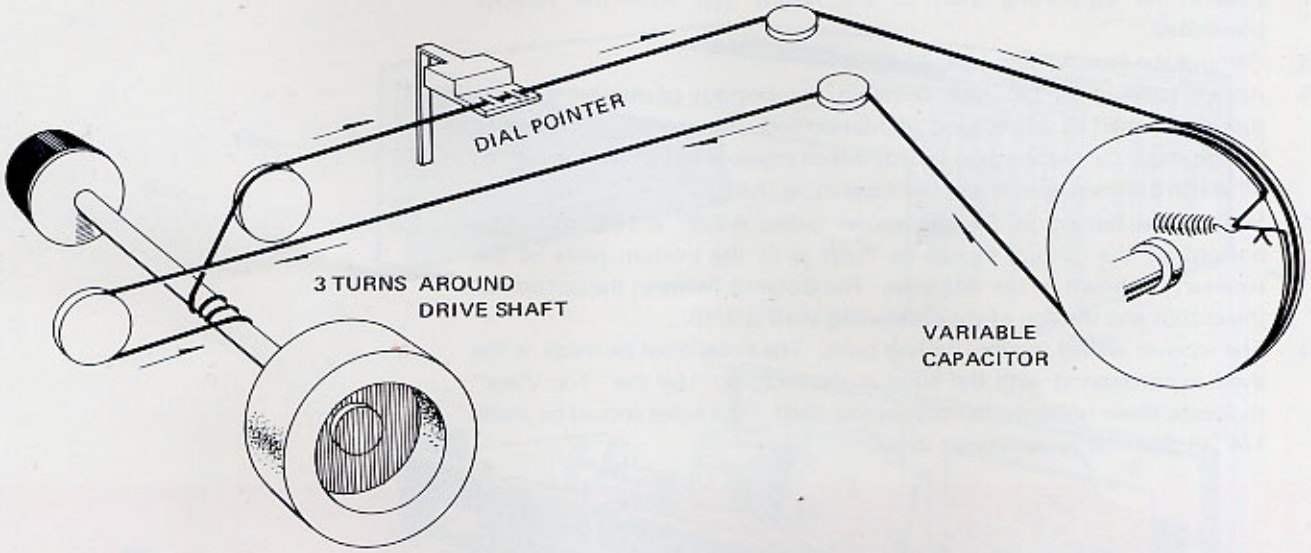


MOUNTING TEMPLATE

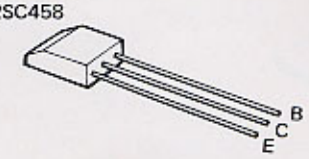
1. Remove the walnut cabinet.
2. Locate the supporting shelf at the height you wish the receiver positioned.
3. Remove the four bottom legs.
4. An air space must be made between the bottom of the set and the supporting shelf to assure good ventilation and cool operation. This space can be made by placing two boards which measure 9/16" thick by 1" to 2" width between chassis and the supporting shelf.
5. Make panel cutout in the size shown below 4-7/8" x 16-5/16". The bottom of the cutout should be flush with the bottom plate of the receiver, as shown in the side view. The distance between the bottom of the cutout and the top of the supporting shelf is 9/16".
6. The receiver is held in place by two bolts. The holes must be made in the shelf to correspond with the holes in the receiver. Use the "Top View" to locate these holes on the supporting shelf. The holes should be made 1/4" in diameter or somewhat larger.



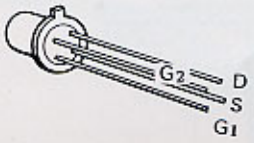
DIAL CORD & TRANSISTOR LEADS



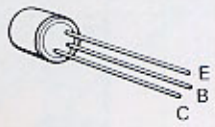
2SC458LG
2SC458



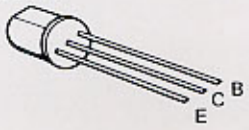
3SK30



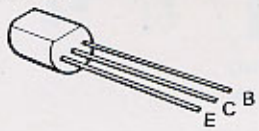
2SC1416



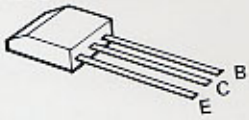
2SC785R
2SC381
2SC941



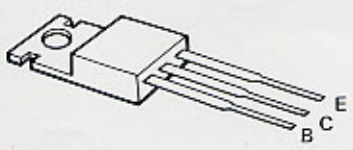
2SA733
2SC945



2SC1213A
2SA673



2SC789



SUBSTITUTION TRANSISTORS

Tr Number	Substitution Tr
(X00-1210-10 or 01)	
2SC945(Q) or (R)	2SC1213A, 2SC734, 2SC984, 2N4401
2SC1213A(B) or (C)	2SC497, 2SC984, 2SC1212A
(X05-1080-11)	
μPC555A	μA703C, CS5995
3SK30	2SK19
2SC785(R)	—
2SC381(R)	2SC535(A) or (B), 2SC460, SE3001, 2SC380
2SC941(O)	2SC381
2SC458(D)	2SC1000(GR), 2SC1345(D)
2SA733(Q) or (R)	2SA620WL(4) or (5)
2SC1213A(C)	2SC734(Y), 2SC984(C)
(X09-1040-03)	
2SC1416A(BL)	2SC1000(BL), 2SC1345(E)
2SC458LG(C) or (D)	2SC1000(GR), 2SC1345(D), 2SC1416(GR), 2SC1416A(GR) 2N5209, SE4010
2SC1213A(B) or (C)	2SC734, 2SC984, 2SC1212A
2SA673A(B) or (C)	2SA743A(B)
2SC789	2SC1061

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
C1	CE04W0F221	Electrolytic 220μF 3.15WV	
C2	CQ93M1H224M	Mylar 0.22μF ±20%	
C100～103	CK45K1H561M	Ceramic 560pF ±20%	
C200～203	CK45D1H561M	Ceramic 560pF ±20%	
C300	C90-0145-05	Polyester 0.01μF ±20%(UL, CSA)	
C301	C90-0147-05	Electrolytic 3300μF 63WV	
		RESISTOR	
R121	PD14BY2B104J	Carbon 100kΩ ±5% 1/8W	
R122	PD14BY2B394J	Carbon 390kΩ ±5% 1/8W	
R123	PD14BY2B822J	Carbon 8.2kΩ ±5% 1/8W	
R171	RC05GF2H331K	Carbon 330 Ω ±10% 1/2W	
R221	PD14BY2B104J	Carbon 100kΩ ±5% 1/8W	
R222	PD14BY2B394J	Carbon 390kΩ ±5% 1/8W	
R223	PD14BY2B822J	Carbon 8.2kΩ ±5% 1/8W	
R271	RC05GF2H331K	Carbon 330Ω ±10% 1/2W	
R300	RC05GF2H225K	Carbon 2.2MΩ ±10% 1/2W	
R301	RC05GF2H270K	Carbon 27Ω ±10% 1/2W	
R302	RN14AB3D271J	Metal film 270Ω ±5% 2W	
		POTENTIOMETER	
VR1	R08-4060-05	Potentiometer 50kΩ (B) dual VOLUME	
VR2	R03-5021-05	Potentiometer 100kΩ(G) BALANCE	
VR3	R08-2006-05	Potentiometer 5kΩ (C) dual TREBLE	
VR4	R08-2006-05	Potentiometer 5kΩ (C) dual BASS	
		SWITCH	
S1	S01-4009-05	Rotary (F - 4 - 13 - 4) SELECTOR	
S7	S04-1024-05	Rotary (F - 1 - 4 - 4) SPEAKERS	
		MISCELLANEOUS	
–	A03-0095-12	Cabinet	
–	A10-0339-21	Chassis	
–	A15-0022-13	Pushbutton switch frame	
–	A20-0518-15	Panel	
–	A20-0587-03	Panel assembly	
–	A21-0114-02	Dress panel	
–	A30-0070-15	Dial board	
–	A40-0101-23	Bottom plate	
–	B10-0108-02	Frontglass	
–	B19-0134-14	White filter	
–	B20-0251-23	Dial calibrations	
–	B21-4010-15	Dial pointer (yellow)	
–	B30-0064-15	Pilot lamp (50mA, BEACON)	
–	B30-0068-05	Pilot lamp (METER)	
–	B30-0069-05	Pilot lamp (300mA) x 4	
–	B31-0143-15	Meter assembly	
–	B42-0009-04	Passed sticker	
–	B52-0143-00	Circuit diagram	
–	D01-0009-05	Flywheel	
–	D15-0034-05	Pulley	
–	D15-0073-14	Pulley (middle size) x 2	

PARTS LIST

Ref. No.	Parts No.	Description	Remarks
–	D15-0075-04	Pulley (small size) x 3	
–	D20-0092-15	Dial shaft	
–	E08-0221-05	AC outlet x 2 (UL)	
–	E11-0002-05	Phone jack (PHONES)	
–	E13-0408-05	Pin jack (4P)	
–	E13-0409-05	Pin jack (with DIN)	
–	E20-0418-03	Terminal strips (4P)	
–	E21-0802-05	Push terminal (8P)	
–	F07-0279-14	Dial cover	
–	F31-0084-04	Reinforce hardware	
–	F99-0009-14	Slider	
–	G01-0044-04	Dial spring	
–	G16-0049-04	Rubber sheet	
–	H01-0854-04	Carton case	
–	J02-0049-14	Leg x 4	
–	J19-0266-14	Frontglass stopper (top)	
–	J19-0286-14	Dial stopper	
–	J19-0288-24	Meter stopper	
–	J19-0290-24	Side plate (L)	
–	J19-0291-14	Side plate (R)	
–	J19-0301-33	Dial stopper	
–	J19-0304-04	Frontglass stopper x 2 (side)	
–	J21-0192-04	Amp stopper x 2	
–	J21-0806-14	Antenna mounting hardware	
–	J21-0977-14	Switch mounting hardware	
–	J21-1015-34	L shaped hardware	
–	J21-1016-14	Pilot lamp mounting hardware	
–	J21-1030-14	Panel stopper	
–	J21-1046-04	Pulley mounting hardware	
–	J25-0768-04	Pc board	
–	K23-0117-03	Knob (TUNING)	
–	K23-0119-03	Knob (SPEAKERS, BASS, TREBLE, BALANCE, VOLUME, SELECTOR)	
–	K29-0115-04	Knob (POWER)	
–	K29-0126-13	Knob (LOUDNESS)	
–	K29-0127-13	Knob (NOISE FILTER)	
–	K29-0129-13	Knob (MODE)	
–	K29-0132-13	Knob (TAPE MONITOR)	
–	T90-0002-05	FM indoor antenna	
–	T90-0026-05	Ferrite antenna	
–			
–	X05-1080-11	TUNER unit	
–	X09-1040-03	PRE, TONE & MAIN unit	
–	X13-1320-11	PUSHBUTTON SWITCH unit	

PARTS LIST

Note:
Append the following parts to every area.

Ref. No.	U.S.A.	Canada	Other	Description
–	A23-0352-12	A23-0352-12	A23-0353-12	Rear panel
–	B40-0720-04	B40-0721-04	B40-0722-04	Model name plate
–	B40-0359-04 (x2)	B40-0359-04 (x1)	–	Caution sticker (UL)
–	B46-0002-00	B46-0021-00	B46-0022-00 B46-0023-00	Warranty card
–	B50-0898-00	B50-0898-00	B50-0899-00	Instruction manual
–	B58-0043-00	B58-0043-00	–	Carton case caution card
–	–	–	B58-0139-00	Power supply caution card
–	–	–	B58-0144-00	Power voltage selector caution card
–	–	–	B58-0146-00	Spare fuse caution card
–	–	–	B59-0018-00	KENWOOD service stations' list
–	–	–	D32-0021-04	Switch stopper
–	E30-0181-05	E30-0181-05	E30-0034-05	Power cord
–	F05-2021-05 (2A, UL)	F05-2023-05 (2A)	F05-1023-05 (1A)	Fuse
–	F05-4026-05 (4A)	–	F05-2023-05 (2A)	
–	H03-0176-04	H03-0176-04	–	Carton case
–	J13-0016-15 (UL)	J13-0016-15	J13-0033-05	Fuse holder
–	L03-0080-05	L05-0022-05	L03-0080-05	Power transformer
–	R90-0097-05	–	R90-0097-05	Spark killer
S6	S39-2002-05 (UL)	S39-1002-05 (UL)	S39-2003-05	Pushbutton switch (power)
–	–	–	S31-2001-05	Slide switch (voltage selector)
–	X00-1210-10	X00-1210-10	X00-1210-01	Power supply unit

POWER SUPPLY (X00-1210-10) PARTS LIST

Ref. No.	Parts No.	Description				Remarks
		CAPACITOR				
Ck1, 2	CK45E2H103P	Ceramic	0.01μF	+100%	−0%	
Ck3	CE04W1V471	Electrolytic	470μF	35WV		
Ck4	CE04W1E471	Electrolytic	470μF	25WV		
Ck5	CE04W1V101	Electrolytic	100μF	35WV		
Ck6	CE04W1C471	Electrolytic	470μF	16WV		
Ck7	CE04W1H470	Electrolytic	47μF	50WV		
		RESISTOR				
Rk1	RN14AB3D221J	Metal film	220Ω	±5%	2W	
Rk2	RC05GF2H681K	Carbon	680Ω	±10%	1/2W	
Rk3	RC05GH2H391K	Carbon	390Ω	±10%	1/2W	
Rk4	RC05GF2H221K	Carbon	220Ω	±10%	1/2W	
Rk7	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Rk8	PD14BY2E124J	Carbon	120kΩ	±5%	1/4W	
Rk9, 10	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Rk11, 12	PD14BY2E273J	Carbon	27kΩ	±5%	1/4W	
Rk13	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
Rk14	PD14BY2E181J	Carbon	180Ω	±5%	1/4W	
Rk15	PD14BY2E103J	Carbon	10kΩ	±5%	1/4W	
		SEMICONDUCTOR				
Qk1, 2		2SC945 (Q) or (R)				
Qk3		2SC1213A (B) or (C)				
Dk1 ~ 4		S - 1.5 - 02				
Dk5		RV - 1				
Dk6, 7		1S1555				
		MISCELLANEOUS				
—	F06-2022-05	Fuse (2A, lead type) (UL)				
—	J21-1003-14	Pc board stopper (L)				
—	J21-1004-14	Pc board stopper (R)				

TUNER (X05-1080-11) PARTS LIST

Ref. No.	Parts No.	Description			Remarks
		CAPACITOR			
Cg1	CC45SL1H150K	Ceramic	15pF	±10%	
Cg2	CC45SL1H101K	Ceramic	100pF	±10%	
Cg3	CK45F1H103Z	Ceramic	0.01μF	+80% −20%	
Cg4	CC45SL1H030C	Ceramic	3pF	±0.25pF	
Cg5, 6	CK45F1H103Z	Ceramic	0.01μF	+80% −20%	
Cg7	CC45SL1H180K	Ceramic	18pF	±10%	
Cg8	CC45SL1H270K	Ceramic	27pF	±10%	
Cg9	CC45SL1H100D	Ceramic	10pF	±0.5pF	
Cg10	CC45SL1H221K	Ceramic	220pF	±10%	
Cg11	CK45F1H103Z	Ceramic	0.01μF	+80% −20%	
Cg12	CC45SL1H100D	Ceramic	10pF	±0.5pF	
Cg13	CC45TH1H020C	Ceramic	2pF	±0.25pF	
Cg14	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg15	CC45SG1H220K	Ceramic	22pF	±10%	
Cg16	CC45SG1H470K	Ceramic	47pF	±10%	
Cg17	CC45SG1H220K	Ceramic	22pF	±10%	
Cg18	CC45TH1H150K	Ceramic	15pF	±10%	
Cg19 ~ 26	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg27, 28	CM93D1H102J(Z)	Mica	1000pF	±5%	
Cg32	CC45SL1H050D	Ceramic	5pF	±0.5pF	
Cg33	CQ93M1H223K	Mylar	0.022μF	±10%	
Cg34	CM93D1H102J(Z)	Mica	1000pF	±5%	
Cg35	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg36	CK45F1H103Z	Ceramic	0.01μF	+80% −20%	
Cg37	CQ93M1H102K	Mylar	0.001μF	±10%	
Cg38	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg39	CQ93M1H472J	Mylar	0.0047μF	±5%	
Cg40	CC45SL1H050D	Ceramic	5pF	±0.5pF	
Cg41	CK45B1H471K	Ceramic	470pF	±10%	
Cg42, 44	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg45, 46	CC45SL1H221K	Ceramic	220pF	±10%	
Cg47	CE04W1E100	Electrolytic	10μF	25WV	
Cg49	CE04W1C101	Electrolytic	100μF	16WV	
Cg50	CC45SL1H101K	Ceramic	100pF	±10%	
Cg52, 53	CQ93M1H103K	Mylar	0.01μF	±10%	
Cg54	CE04W1H3R3	Electrolytic	3.3μF	50WV	
Cg56	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg58	CE04W1E100	Electrolytic	10μF	25WV	
Cg59 ~ 62	CK45F1H223Z	Ceramic	0.022μF	+80% −20%	
Cg63	CE04W1E100	Electrolytic	10μF	25WV	
Cg64	CQ93M1H472J	Mylar	0.0047μF	±5%	
Cg65, 66	CQ93M1H103K	Mylar	0.01μF	±10%	
Cg67	CK45B1H361K	Ceramic	360pF	±10%	
Cg68	CC45SL1H180K	Ceramic	18pF	±10%	
Cg69	CE04W1E100	Electrolytic	10μF	25WV	
Cg70	CM93D1H391J(Z)	Mica	390pF	±5%	
Cg71	CE04W1H010	Electrolytic	1μF	50WV	
Cg72	CQ93M1H223K	Mylar	0.022μF	±10%	
Cg73	CQ08S2B472J	Polystyrene	4700pF	±5%	
Cg75	CQ93M1H822J	Mylar	0.0082μF	±5%	
Cg76	CE04W1H010	Electrolytic	1μF	50WV	

TUNER (X05-1080-11) PARTS LIST

Ref. No.	Parts No.	Description				Remarks
Cg77	CQ08S2B472J	Polystyrene	4700pF	±5%		
Cg78	CE4W1E100	Electrolytic	10μF	25WV		
Cg79	CE04W0J470	Electrolytic	47μF	6.3WV		
Cg80	CS04E1ER47M	Tantalum	0.47μF	25WV		
Cg81, 82	CQ93M1H682J	Mylar	0.0068μF	±5%		
Cg83	CS04E1ER47M	Tantalum	0.47μF	25WV		
Cg85	CQ93M1H223K	Mylar	0.022μF	±10%		
Cg86, 87	CQ08S2B102J	Polystyrene	1000pF	±5%		
VC	C01-0171-05	Variable capacitor				
CTg3	C05-0009-15	Ceramic trimmer (6pF)				
		RESISTOR				
Rg1	PD14BY2B104J	Carbon	100kΩ	±5%	1/8W	
Rg2	PD14BY2B330J	Carbon	33Ω	±5%	1/8W	
Rg3	PD14BY2B471J	Carbon	470Ω	±5%	1/8W	
Rg4	PD14BY2B104J	Carbon	100kΩ	±5%	1/8W	
Rg5	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg6	PD14BY2B472J	Carbon	4.7kΩ	±5%	1/8W	
Rg7	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg8	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg9	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg10	PD14BY2B392J	Carbon	3.9kΩ	±5%	1/8W	
Rg11	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg12	PD14BY2B391J	Carbon	390Ω	±5%	1/8W	
Rg13	PD14BY2B331J	Carbon	330Ω	±5%	1/8W	
Rg14	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg15	PD14BY2B391J	Carbon	390Ω	±5%	1/8W	
Rg16	PD14BY2B393J	Carbon	39kΩ	±5%	1/8W	
Rg17	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg18	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg19	PD14BY2B332J	Carbon	3.3kΩ	±5%	1/8W	
Rg20	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	
Rg21, 22	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg23	PD14BY2B222J	Carbon	2.2kΩ	±5%	1/8W	
Rg24	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg25	PD24BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg26	PD14BY2B183J	Carbon	18kΩ	±5%	1/8W	
Rg29	PD14BY2B470J	Carbon	47Ω	±5%	1/8W	
Rg30, 31	PD14BY2B561J	Carbon	560Ω	±5%	1/8W	
Rg32	PD14BY2B332J	Carbon	3.3kΩ	±5%	1/8W	
Rg33	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg34	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	
Rg35	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg36	PD14BY2B561J	Carbon	560Ω	±5%	1/8W	
Rg37	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg38	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg39	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	
Rg40	PD14BY2B682J	Carbon	6.8kΩ	±5%	1/8W	
Rg43, 44	PD14BY2B222J	Carbon	2.2kΩ	±5%	1/8W	
Rg45, 46	PD14BY2B682J	Carbon	6.8kΩ	±5%	1/8W	
Rg48	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg49, 50	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	

TUNER (X05-1080-11) PARTS LIST

Ref. No.	Parts No.	Description				Remarks
Rg51	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg52	PD14BY2B223J	Carbon	22kΩ	±5%	1/8W	
Rg53	PD14BY2B104J	Carbon	100kΩ	±5%	1/8W	
Rg54	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg55	PD14BY2B563J	Carbon	56kΩ	±5%	1/8W	
Rg56	PD14BY2B562J	Carbon	5.6kΩ	±5%	1/8W	
Rg57	PD14BY2B222J	Carbon	2.2kΩ	±5%	1/8W	
Rg58	PD14BY2B682J	Carbon	6.8kΩ	±5%	1/8W	
Rg59	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg60	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg61	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	
Rg62	PD14BY2B473J	Carbon	47kΩ	±5%	1/8W	
Rg63	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg64	PD14BY2B221J	Carbon	220Ω	±5%	1/8W	
Rg65	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg66	PD14BY2B563J	Carbon	56kΩ	±5%	1/8W	
Rg67	PD14BY2B124J	Carbon	120kΩ	±5%	1/8W	
Rg68	PD14BY2B471J	Carbon	470Ω	±5%	1/8W	
Rg69	PD14BY2B330J	Carbon	33Ω	±5%	1/8W	
Rg70	PD14BY2B101J	Carbon	100Ω	±5%	1/8W	
Rg71	PD14BY2B102J	Carbon	1kΩ	±5%	1/8W	
Rg72	PD14BY2B101J	Carbon	100Ω	±5%	1/8W	
Rg74	PD14BY2B471J	Carbon	470Ω	±5%	1/8W	
Rg75	PD14BY2B222J	Carbon	2.2kΩ	±5%	1/8W	
Rg76	PD14BY2B330J	Carbon	33Ω	±5%	1/8W	
Rg77 ~ 84	PD14BY2B103J	Carbon	10kΩ	±5%	1/8W	
Rg85 ~ 87	PD14BY2B823J	Carbon	82kΩ	±5%	1/8W	
Rg89	PD14BY2B823J	Carbon	82kΩ	±5%	1/8W	
Rg90, 91	PD14BY2B153J	Carbon	15kΩ	±5%	1/8W	
Rg92, 93	PD14BY2B123J	Carbon	12kΩ	±5%	1/8W	
		SEMICONDUCTOR				
Qg1		3SK30(B) or (C)				
Qg2 ~ 6		2SC381(R)				
Qg8		2SC785(R)				
Qg9		2SC941(O)				
Qg10		2SA733(Q) or (R)				
Qg11, 12		2SC458(D)				
Qg13		2SC1213A(C)				
Qg14		2SC941(O)				
ICg1		μPC555A(R) or (B)				
Dg1		1N60				
Dg3, 4		1S1555 or 1S2076				
Dg5 ~ 12		1N60				
Dg13		1S1555 or 1S2076				
Dg14 ~ 18		1N60				
Dg19		1S1555 or 1S2076				
Dg20 ~ 27		1N60				
Dg29, 30		MV-13				
Zg1		DZ-140				
		TRANS/COIL/FILTER				
Tg1	L34-0410-05	FM-ANT Coil				

TUNER (X05-1080-11) PARTS LIST

Ref. No.	Parts No.	Description	Remarks
Tg2	L34-0408-05	FM-RF Coil	
Tg3	L34-0409-05	FM-OSC Coil	
Tg4	L30-0176-05	FM-IFT	
Tg5	L30-0247-05	FM-IFT	
Tg6	L30-0250-05	AM-IFT	
Tg7	L30-0052-05	AM-IFT	
Tg8	L30-0248-05	FM-IFT	
Tg9	L30-0207-15	DISCRIMINATOR Coil	
Tg10	L30-0249-05	AM-IFT	
Tg11	L30-0082-05	AM-OSC Coil	
Tg12	L35-0054-05	MPX Coil	
Tg13	L35-0052-05	MPX Coil	
Tg14	L35-0054-05	MPX Coil	
Tg15	L35-0053-05	MPX Coil	
Lg1	L33-0086-05	Ferri-inductor	
Lg2	L33-0027-04	Choke coil	
Lg3, 4	L33-0026-04	Choke coil	
Lg5	L33-0098-05	Ferri-inductor	
Lg6 ~ 9	L33-0086-05	Ferri-inductor	
Lg10, 11	L33-0179-05	Ferri-inductor	
CFg1, 2	L72-0014-05	Ceramic filter	
		POTENTIOMETER	
VRg1	R12-2016-05	PC trimmer (AM-METER) 5kΩ (B)	
VRg3	R12-3029-05	PC trimmer (FM-OUTPUT) 30kΩ (B)	
VRg4	R12-0047-05	PC trimmer (SEPARATION) 500Ω (B)	
VRg5	R12-4019-05	PC trimmer (BEACON) 50kΩ (B)	
		MISCELLANEOUS	
–		F10-0279-14 Shield plate	
–		F10-0280-03 Shield plate	

PRE, TONE & MAIN (X09-1040-03) PARTS LIST

Ref. No.	Parts No.	Description				Remarks
		CAPACITOR				
Ce1, 2	CS04D0J3R3X or M	Tantalum	3.3μF	6.3WV		
Ce3	CE04W0F101	Electrolytic	100μF	3.15WV		
Ce4	CQ93M1H472K	Mylar	0.0047μF	±10%		
Ce5, 6	CE04W1E100	Electrolytic	10μF	25WV		
Ce7, 8	CK94YY1H561M	Ceramic	560pF	±20%		
Ce11, 12	CE04W0J330	Electrolytic	33μF	6.3WV		
Ce13, 14	CC45SL1H101K	Ceramic	100pF	±10%		
Ce15, 16	CE04W1E100	Electrolytic	10μF	25WV		
Ce17, 18	CQ93M1H332K	Mylar	0.0033μF	±10%		
Ce19, 20	CC94SL1H220K	Ceramic	22pF	±10%		
Ce21, 22	CQ93M1H123K	Mylar	0.012μF	±10%		
Ce23	CE04W1E221	Electrolytic	220μF	25WV		
Ce24	CE04W1E101	Electrolytic	100μF	25WV		
Ce25, 26	CE04W1H010	Electrolytic	1μF	50WV		
Ce27, 28	CE04W1E100	Electrolytic	10μF	25WV		
Ce29, 30	CE04W0F470	Electrolytic	47μF	3.15WV		
Ce31, 32	CE04W0F101	Electrolytic	100μF	3.15WV		
Ce33, 34	CQ93M1H273K	Mylar	0.027μF	±10%		
Ce35, 36	CQ93M1H334K	Mylar	0.33μF	±10%		
Ce37, 38	CE04W1E010M	Electrolytic	1μF	25WV		
Ce39, 40	CQ93M1H104K	Mylar	0.1μF	±10%		
Ce41, 42	CC94SL1H151K	Ceramic	150pF	±10%		
Ce43, 44	CE04W0F470	Electrolytic	47μF	3.15WV		
Ce45, 46	CE04W1E470	Electrolytic	47μF	25WV		
Ce47, 48	CE02W1V102	Electrolytic	1000μF	35WV		
Ce49, 50	CQ93M1H224M	Mylar	0.22μF	±20%		
Ce53, 54	CE04W1E100	Electrolytic	10μF	25WV		
		RESISTOR				
Re1, 2	PD14CY2E222J	Carbon	2.2kΩ	±5%	1/4W	
Re3	PD14BY2E683J	Carbon	68kΩ	±5%	1/4W	
Re4	PD14CY2E683J	Carbon	68kΩ	±5%	1/4W	
Re5, 6	PD14BY2E273J	Carbon	27kΩ	±5%	1/4W	
Re7, 8	PD14BY2E223J	Carbon	22kΩ	±5%	1/4W	
Re9, 10	PD14BY2E274J	Carbon	270kΩ	±5%	1/4W	
Re12	PD14BY2E102J	Carbon	1kΩ	±5%	1/4W	
Re13, 14	PD14BY2E334J	Carbon	330kΩ	±5%	1/4W	
Re15, 16	PD14BY2E124J	Carbon	120kΩ	±5%	1/4W	
Re17, 18	PD14BY2E562J	Carbon	5.6kΩ	±5%	1/4W	
Re19, 20	PD14BY2E820J	Carbon	82Ω	±5%	1/4W	
Re21, 22	PD14BY2E182J	Carbon	1.8kΩ	±5%	1/4W	
Re23, 24	PD14BY2E152J	Carbon	1.5kΩ	±5%	1/4W	
Re25, 26	PD14BY2E270J	Carbon	27Ω	±5%	1/4W	
Re27, 28	PD14BY2E102J	Carbon	1kΩ	±5%	1/4W	
Re29, 30	PD14BY2E101J	Carbon	100Ω	±5%	1/4W	
Re31, 32	PD14BY2E153J	Carbon	15kΩ	±5%	1/4W	
Re33, 34	PD14BY2E561J	Carbon	560Ω	±5%	1/4W	
Re35, 36	PD14BY2E221J	Carbon	220Ω	±5%	1/4W	
Re37, 38	PD14BY2E104J	Carbon	100kΩ	±5%	1/4W	
Re39, 40	PD14BY2E562J	Carbon	5.6kΩ	±5%	1/4W	
Re41, 42	PD14BY2E101J	Carbon	100Ω	±5%	1/4W	

PRE, TONE & MAIN (X09-1040-03) PARTS LIST

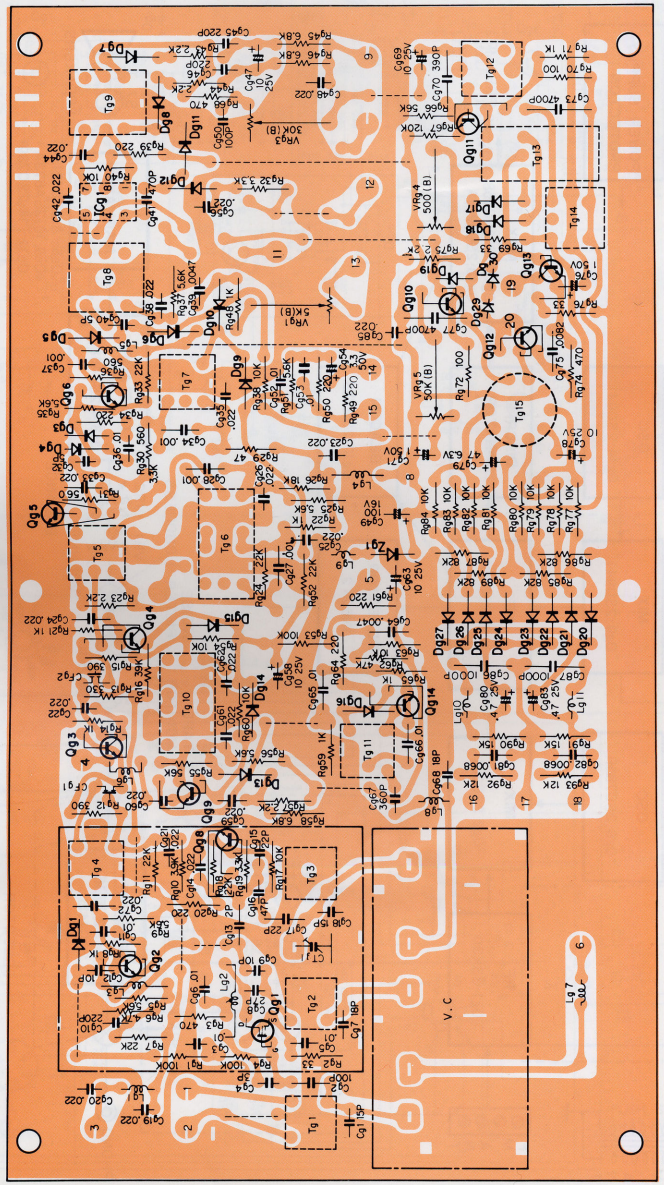
Ref. No	Parts No.	Description				Remarks
Re43, 44	PD14BY2E472J	Carbon	4.7kΩ	±5%	1/4W	
Re45, 46	PD14BY2E222J	Carbon	2.2kΩ	±5%	1/4W	
Re47, 48	RC05GF2H331K	Carbon	330Ω	±10%	1/2W	
Re49, 50	RC05GF2H330K	Carbon	33Ω	±10%	1/2W	
Re51, 52	RC05GF2H331K	Carbon	330Ω	±10%	1/2W	
Re53 ~ 56	RN14AB3DR47K	Metal film	0.47Ω	±10%	2W	
Re57, 58	RC05GF2H4R7K	Carbon	4.7Ω	±10%	1/2W	
Re62	PD14CY2E104J	Carbon	100kΩ	±5%	1/4W	
Re63, 64	PD14BY2E472J	Carbon	4.7kΩ	±5%	1/4W	
Re65, 66	PD14CY2E471J	Carbon	470Ω	±5%	1/4W	
Re67, 68	PD14CY2E683J	Carbon	68kΩ	±5%	1/4W	
Re69, 70	PD14CY2E154J	Carbon	150kΩ	±5%	1/4W	
Re71, 72	PD14CY2E391J	Carbon	390Ω	±5%	1/4W	
Re73, 74	PD14CY2E562J	Carbon	5.6kΩ	±5%	1/4W	
		SEMICONDUCTOR				
Qe1, 2		2SC1416A (BL)				
Qe3, 4		2SC458 LG (C) or (D)				
Qe5, 6		2SC1213A (C)				
Qe7, 8		2SC1213A (B) or (C)				
Qe9, 10		2SA673A (B) or (C)				
Qe11 ~ 14		2SC789				
Qe15, 16		2SC1416 (GR) or (BL)				
De1, 2		MV-13				
THe1, 2		5T-31L				
		POTENTIOMETER				
VRe1, 2	R12-0042-05	PC trimmer 500Ω (B) bias adj.				
VRe3	R12-2008-05	PC trimmer 5kΩ (B) separation adj.				
		MISCELLANEOUS				
–	F01-0095-13	Heat sink				
–	J21-0545-04	Thermistor stopper				

PUSHBUTTON SW (X13-1320-11) PARTS LIST

Ref. No.	Parts No.	Description	Remarks
		CAPACITOR	
Ch1, 2	CQ93M1H682K	Mylar 0.0068μF ±10%	
Ch3, 4	CQ93M1H563K	Mylar 0.056μF ±10%	
		RESISTOR	
Rh5, 6	PD14BY2E682J	Carbon 6.8kΩ ±5% 1/4W	
Rh7, 8	PD14BY2E103J	Carbon 10kΩ ±5% 1/4W	
Rh9, 10	PD14BY2E682J	Carbon 6.8kΩ ±5% 1/4W	
		SWITCH	
S2 ~5	S41-4005-05	Pushbutton switch (4 keys)	

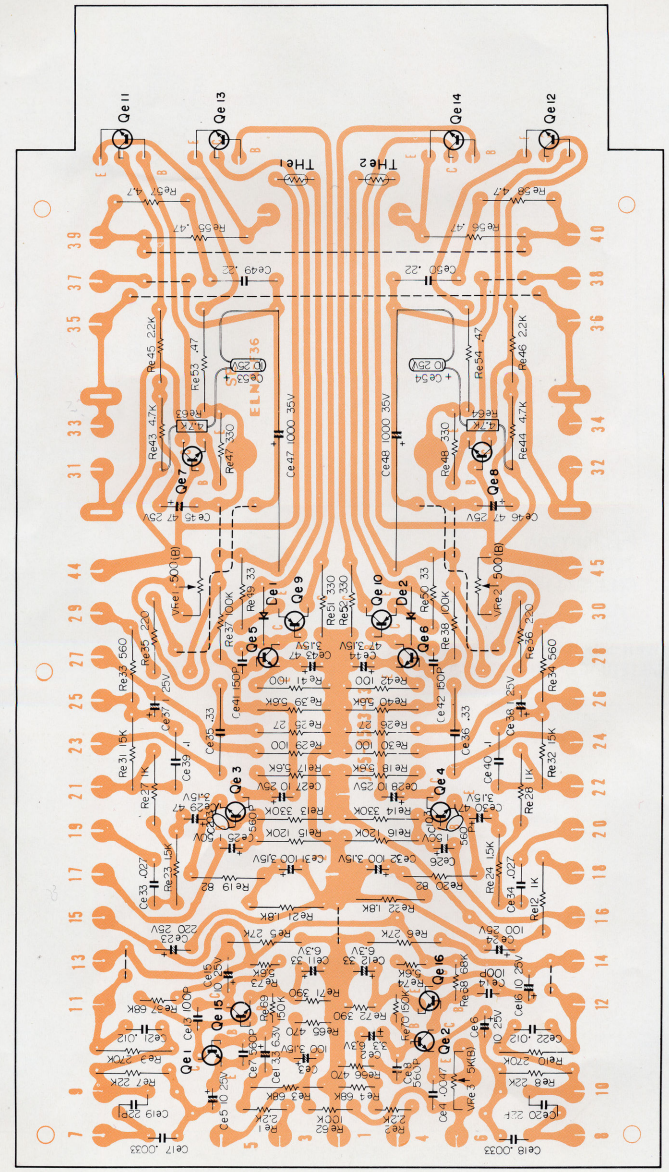
PC BOARD

TUNER UNIT ▶
(X05-1080-11)



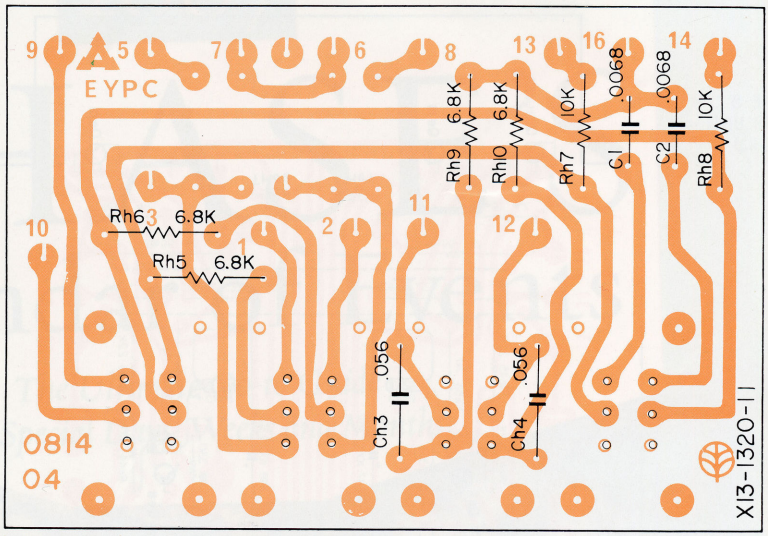
Qg1: 3SK30(B) or (C), Qg2~6: 2SC381(R), Qg8: 2SC785(R), Qg9: 2SC941(O),
Qg10: 2SA733(Q) or (R), Qg11, 12: 2SC458(D), Qg13: 2SC1213A(C), Qg14: 2SC941(O)
ICg1: μPC555A(R) or (B), Dg1: 1N60, Dg1: 1N60, Dg3, 4: 1N1555 or 1S2076,
Dg5~12: 1N60, Dg13: 1S1555 or 1S2076, Dg14~18: 1N60, Dg19: 1S1555 or 1S2076,
Dg20~27: 1N60, Dg29, 30: MV-13, Zg1: DZ-14D

PRE, TONE & ▶
MAIN AMP UNIT
(X09-1040-03)



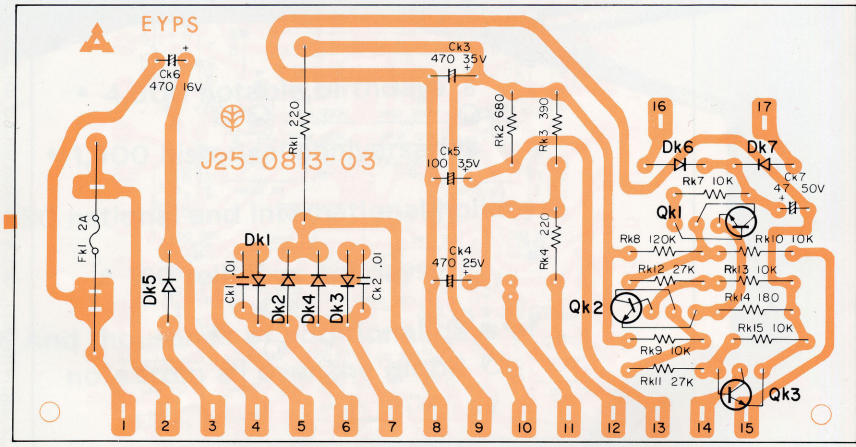
Qe1, 2: 2SC1416A(BL), Qe3, 4: 2SC458LG(C) or (D), Qe5, 6: 2SC1213A(C),
Qe7, 8: 2SC1213A(B) or (C), Qe9, 10: 2SA673A(B) or (C), Qe11~14: 2SC789,
Qe15, 16: 2SC1416(GR) or (BL), De1, 2: MV-13, THe1, 2: 5T-31L

PC BOARD



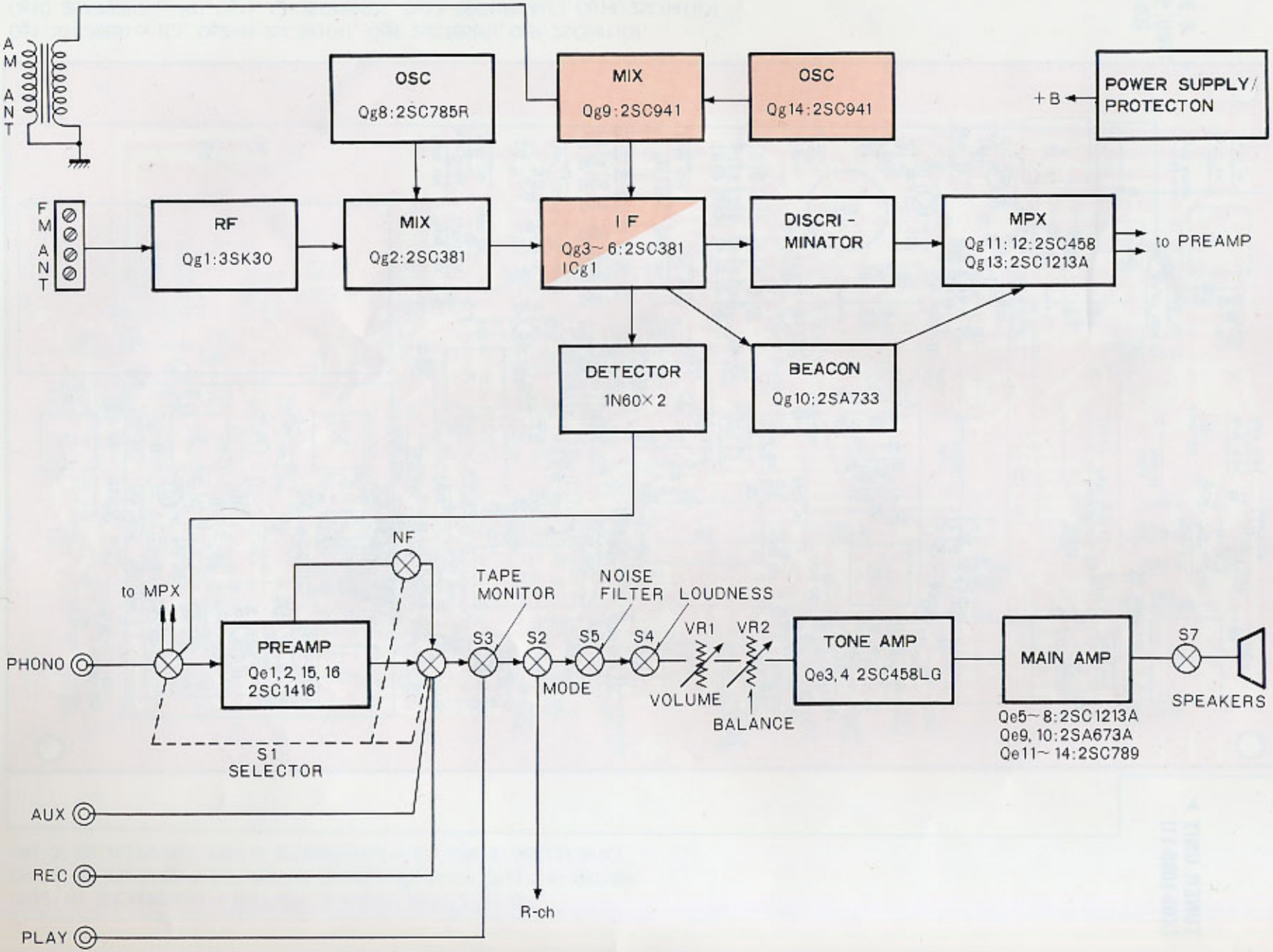
PUSHBUTTON ▲ SWITCH UNIT (X13-1320-11)

POWER SUPPLY ▼ (X00-1210-10 or 01)

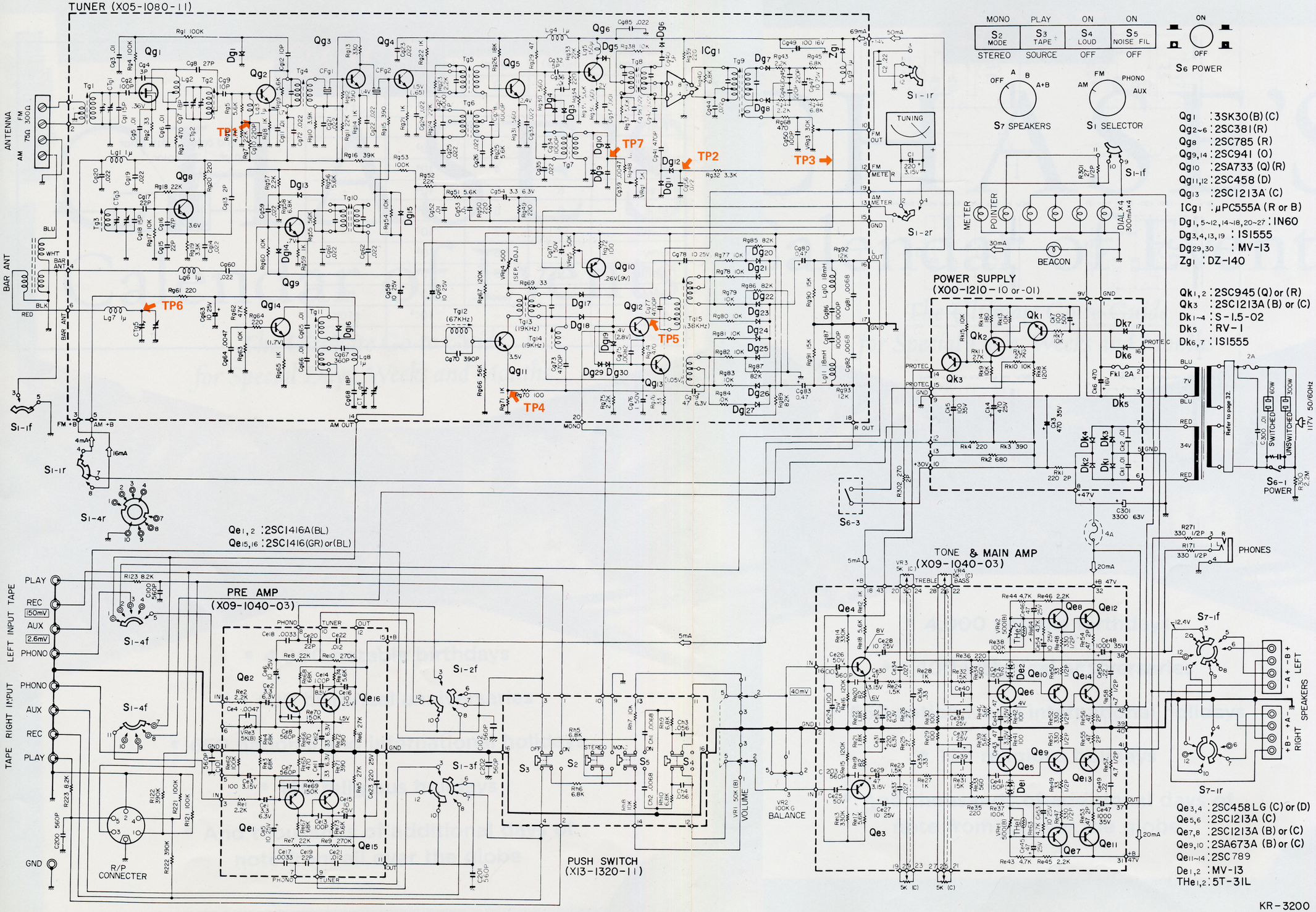


Qk1, 2: 2SC945 (Q) or (R), Qk3: 2SC1213A (B) or (C), Dk1 ~ 4: S-1.5-02, Dk5: RV-1, Dk6, 7: 1S1555

BLOCK DIAGRAM



CIRCUIT DIAGRAM



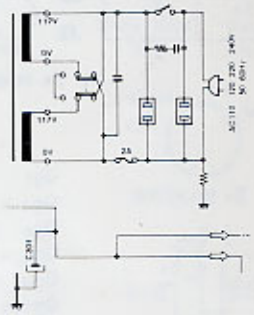
Qg1 : 3SK30(B)(C)
Qg2~6 : 2SC381(R)
Qg8 : 2SC785 (R)
Qg9,14 : 2SC941 (O)
Qg10 : 2SA733 (Q)(R)
Qg11,12 : 2SC458 (D)
Qg13 : 2SC1213A (C)
ICg1 : μPC555A (R or B)
Dg1,5~12,14~18,20~27 : IN60
Dg3,4,13,19 : IS1555
Dg29,30 : MV-13
Zg1 : DZ-140

Qk1,2 : 2SC945 (Q) or (R)
Qk3 : 2SC1213A (B) or (C)
Dk1~4 : S-1.5-02
Dk5 : RV-1
Dk6,7 : IS1555

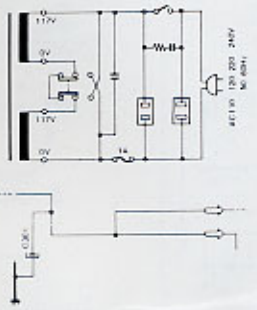
Qe3,4 : 2SC458 LG (C) or (D)
Qe5,6 : 2SC1213A (C)
Qe7,8 : 2SC1213A (B) or (C)
Qe9,10 : 2SA673A (B) or (C)
Qe11~14 : 2SC789
De1,2 : MV-13
THe1,2 : 5T-31L

REVISED CIRCUITS

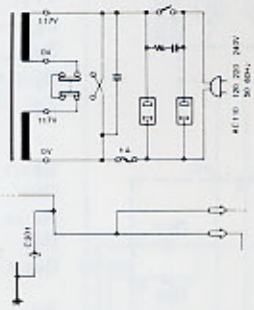
■For 110-120/220-240V Sets(1)



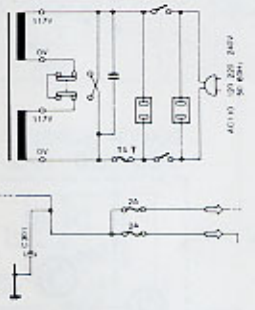
■For the sets sold in England



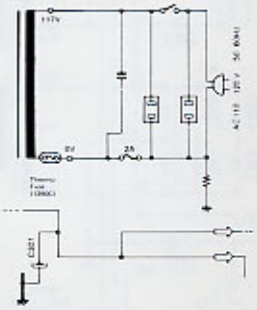
■For 110-120/220-240V Sets (2)



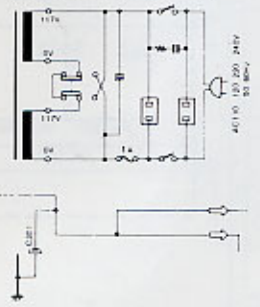
■For the sets sold in Europe except England



■For the sets sold in Canada



■For the sets sold in South Africa

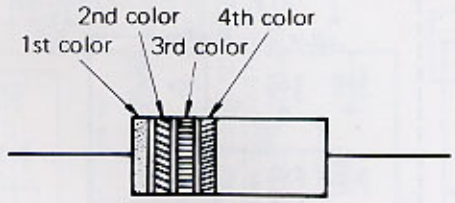


For KR-3200

COLOR CODE

RESISTOR

COLOR (meaning)	1st (value)	2nd (value)	3rd (multiplier)	4th (tolerance)
Black	0	0	10^0	–
Brown	1	1	10^1	±1%
Red	2	2	10^2	±2%
Orange	3	3	10^3	–
Yellow	4	4	10^4	–
Green	5	5	10^5	–
Blue	6	6	10^6	–
Purple	7	7	10^7	–
Grey	8	8	10^8	–
White	9	9	10^9	–
Gold	–	–	10^{-1}	±5%
Silver	–	–	10^{-2}	±10%
Non-color	–	–	–	±20%



SPECIFICATIONS

FM TUNER SECTION

Antenna Impedance	300 ohms balanced & 75 ohms unbalanced
Usable Sensitivity, IHF	2.3 μV
Quieting Slope	48 dB at 5 μV 60 dB at 10 μV 63 dB at 50 μV
Frequency Response	+0.5 dB, −2.0 dB, 20 Hz to 15,000 Hz
Harmonic Distortion (at 400 Hz, 100% Mod)	Mono Less than 0.5% Stereo Less than 0.9%
Signal-to-Noise Ratio	Better than 63 dB
Capture Ratio, IHF	3.5 dB
Selectivity, IHF (Alt. channel)	Better than 50 dB
Image Rejection	Better than 60 dB
IF Rejection	Better than 90 dB
Spurious Signal Rejection	Better than 80 dB
AM Suppression	Better than 60 dB
Stereo Separation	Better than 35 dB at 1,000 Hz Better than 20 dB at 10,000 Hz
Sub Carrier Suppression	Better than 45 dB

AM TUNER SECTION

Antenna	Built-in ferrite antenna External antenna terminals
Usable Sensitivity, IHF	25 μV
Signal-to-Noise Ratio	Better than 45 dB at 1 mV input
Selectivity, IHF	Better than 30 dB
Image Rejection	Better than 45 dB
IF Rejection	Better than 35 dB

AMPLIFIER SECTION

Power Output

27 watts RMS continuous power at Both channel drive. (13.5 watts per channel). Both channels operating simultaneously into 8 ohms load at any frequency from 50 Hz to 20,000 Hz.

24/24 watts. Each channel operating into 4 ohms at 1,000 Hz.

18.5/18.5 watts. Each channel operating into 8 ohms at 1,000 Hz.

20/20 watts. Both channel operating into 4 ohms at 1,000 Hz.

17/17 watts. Both channel operating into 8 ohms at 1,000 Hz.

60 watts IHF total Dynamic power into 4 ohms.

42 watts IHF total Dynamic power into 8 ohms.

Harmonic Distortion	Less than 1.0% at rated output Less than 0.2% at −3 dB rated output
Intermodulation Distortion	Less than 1.0% at rated output Less than 0.2% at −3 dB rated output
Frequency Response (High Level Input)	±2 dB, 25 Hz to 35,000 Hz
Power Bandwidth, IHF	25 Hz to 25,000 Hz
Input Sensitivity (Input Impedance)	PHONO 3 mV, (50K ohms) AUX 180 mV, (30K ohms) TAPE PLAY 200 mV, (45K ohms)
Recording Output (Below rated input)	TAPE REC. 180 mV DIN Connector 30 mV
Signal-to-Noise Ratio	PHONO 63 dB AUX 75 dB TAPE PLAY 75 dB
Damping Factor	50 at 8 ohms load
Speaker Impedance	Accepts 4 to 16 ohms
Bass Control	±10 dB at 100 Hz
Treble Control	±10 dB at 10,000 Hz
Noise Filter	−10 dB at 10,000 Hz
Loudness Control (−30 dB)	+10 dB at 100 Hz

GENERAL

Switches,	SPEAKERS SELECTOR	OFF−A−B−A+B AM−FM−PHONO−AUX
	MODE	MONO − STEREO
	Others	TAPE MONITOR NOISE FILTER, LOUDNESS
AC Outlets		1 switched & 1 unswitched
Power Consumption		85 watts at full power 20 watts at no signal
Dimensions		17-1/8" W, 5-3/4" H, 13-5/8" D
Weight		20.3 lbs.

KENWOOD ELECTRONICS, INC.

- 15777 SOUTH BROADWAY, GARDENA, CALIFORNIA 90248
- 72-02 51ST AVENUE, WOODSIDE. N.Y. 11377

CANADIAN EXCLUSIVE DISTRIBUTOR

MAGNASONIC CANADA LTD.

- 4980 BUCHAN ST. MONTREAL P.Q, CANADA
- 14 BANIGAN DRIVE THORNCLIFFE PARK TORONTO CANADA