SERVICE MANUAL

SR225

marantz®

model SR225

Stereophonic Receiver

MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, MARANTZ Company has created the ultimate in stereo sound. Only original MARANTZ parts can insure that your MARANTZ product will continue to perform to the specifications for which it is famous.

Parts for your MARANTZ stereo are generally available within 72 hours throughout the nation via a toll-free line to our National Parts Depot in California. The sales professionals who take your call immediately refer to their own desk top computer terminal and can quickly determine the availability and price information you require. If, for some reason, your order should exceed our available stock, we usually can instantly provide an alternate replacement part or current delivery information. When the order is placed and confirmed, the computer simultaneously generates "hard copy" orders at the distribution center. As hard copies come directly from the computer to the national parts depot, your requested stock is assembled and prepared for shipment and placed on the first available carrier for delivery to you.

ORDERING PARTS

Phone orders will eliminate mail delays, and we encourage the use of this method. If you order mail, use MARANTZ parts order forms which are available from our National Parts Depot located at the following address:

USA

SUPERSCOPE NATIONAL PARTS DEPARTMENT
20525 Nordhoff Street
Chatsworth, California 91311
Phone: 1-800-423-5108
1-213-998-9333

The following information must be supplied to eliminate delays in processing your order:

1. Complete address.
2. Complete part numbers.
3. Complete description of parts.
4. Model number for which part is required (indicate MARANTZ).
5. Account number (for account customers only).

Direct consumers will be provided with the current retail price quotation on available parts in order to advise them of the cost of the parts and shipping.

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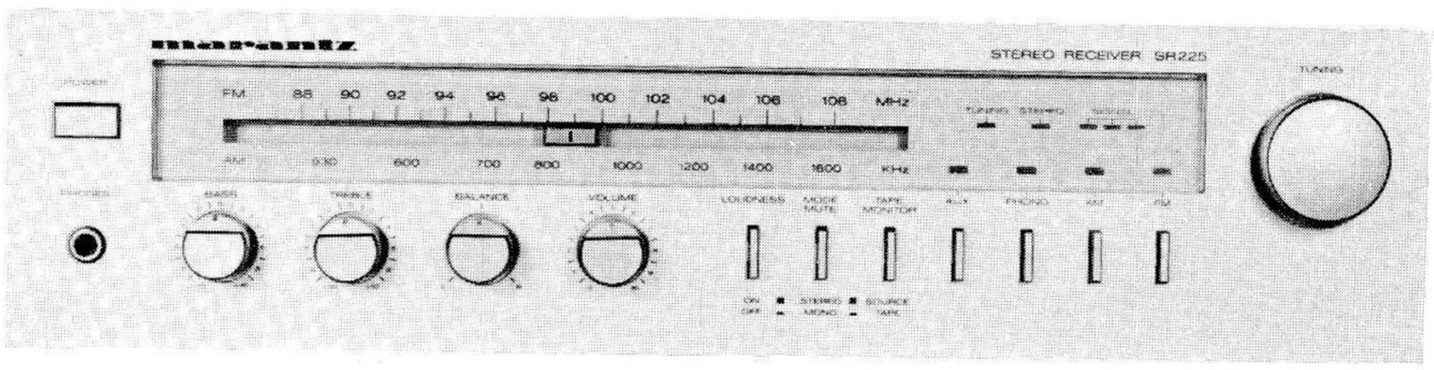
MODEL SR225 STEREOPHONIC RECEIVER



INTRODUCTION

This service manual was prepared for use by Authorized warranty Stations and contains service information for Marantz Model SR225 Stereophonic Receiver.

Servicing information and voltage data included in this manual are intended for use by the knowledgeable and experienced technician only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation of the receiver.

The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

1. SHOCK FIRE HAZARD SERVICE TEST

CAUTION: After servicing this appliance and prior to returning to customer, measure the resistance between either primar AC cord connector pins (with unit NOT connected to AC mains and its Power switch ON), and the face or front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired to corrected before AC power is applied, and verfied before return to user/customer.

Ref. UL Standard No. 1270. Para. 66. 3. D (Mandatory Test after servicing Electrical Appliances, effective 7-1-83).

2. P.W. BOARDS

As can be seen from the circuit diagram the chassis of Model SR225 consists of the following units. Each unit mounted on a printed circuit board is described within the square enclosed by a bold dotted line on the circuit diagram.

1. Tuner/Main ..... mounted on P.W Board P101
2. Tone ..... mounted on P.W Board P102
3. Function/Signal LED ..... mounted on P.W Board P103
4. Head phone ..... mounted on P.W Board P104
5. Pointer ..... mounted on P.W Board P105
6. Power switch ..... mounted on P.W Board P106

3. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model SR225 Receiver.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Frequency Counter	Fluke Model 1900A	ASO alignment
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8,000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1-10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600-ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, ±0.5%), 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, ±0.5%, 100W	Commercial Grade	Provides 4-ohm load for amplifier output termination.

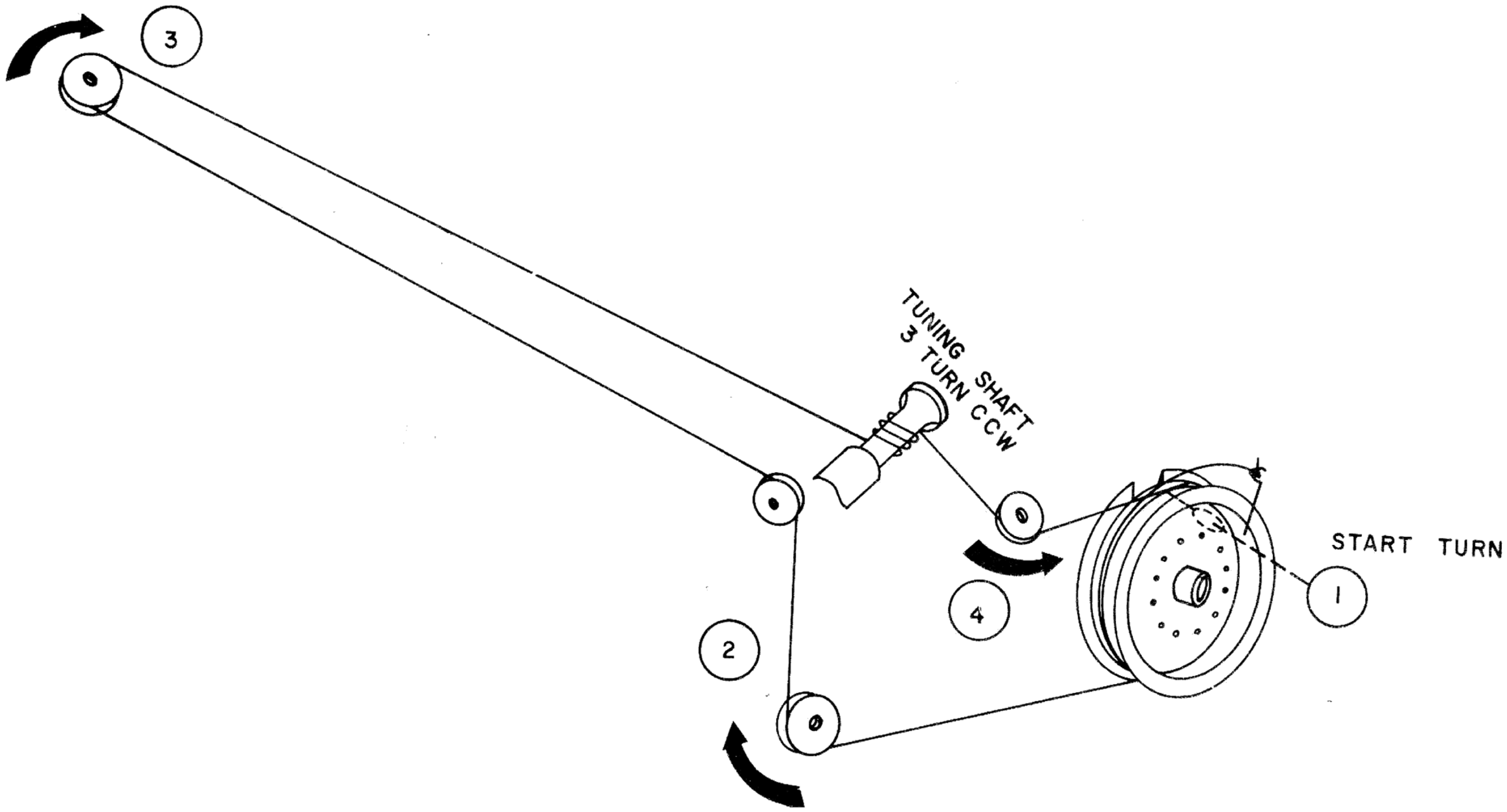


Figure 1. Dial Stringing

SR225 TUNER P.W.B.

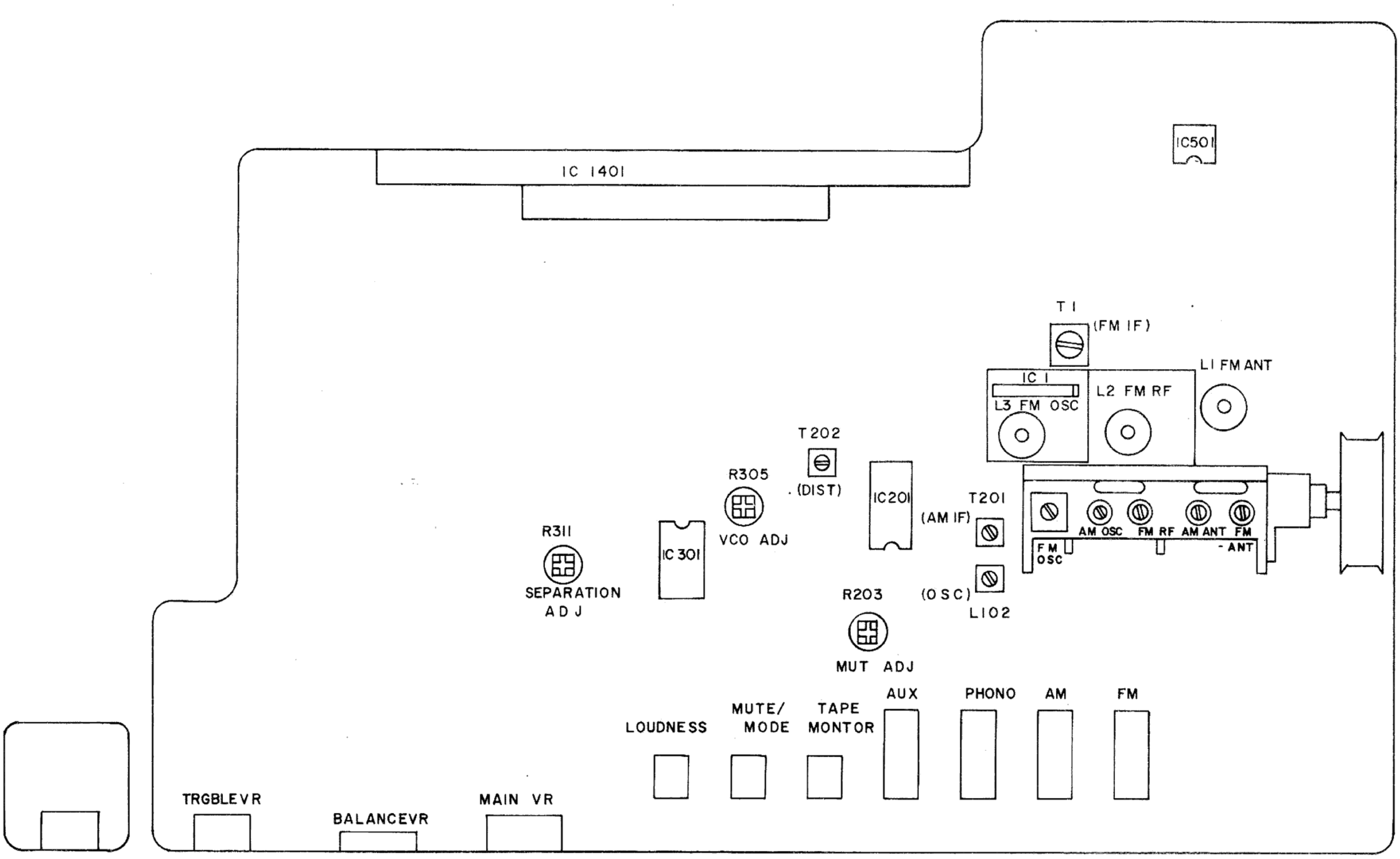


Figure 2. Adjustment Point Locations

3. ALIGNMENT PROCEDURES

A Dummy Resistor of 47K-ohms must be connected across the output terminals before alignment.

3.1 FM ALIGNMENT PROCEDURES (FUNCTION SWITCH IN THE "FM" POSITION)

FM RF ALIGNMENT

STEP	SIGNAL SOURCE CONNECTION	SIGNAL FREQUENCY	INDICATOR CONNECTION	SET DIAL POINTER TO:	ADJUST
1	RF GENERATOR TO FM ANTENNA TERMINALS THROUGH MATCHING NETWORK (300 OH MS, BALANCED) (MAINTAIN RF LEVEL BELOW LIMIT.)	87.35 MHZ	VTVM TO L OR R CHANNEL OUTPUT	TUNING CAPACITOR	L3 FOR MAXIMUM
2		108.25 MHZ		TUNING CAPACITOR MAXIMUM OPEN.	OUTPUT
3		90 MHZ		90 MHZ	L1, L2, FOR MAXIMUM OUTPUT.
4		106 MHZ		106 MHZ	ANT. RF. TRIM. CAP. FOR MAXIMUM OUTPUT.
5	REPEAT STEPS 1 TO 4.				
6	CHECK OVERALL RESPONSE CURVE STEPS AS NECESSARY TO OBTAIN MAXIMUM SENSITIVITY.				
7	RF GENERATOR 1 MV (OR 300 UV, ONLY STEP 10) OUTPUT TO FM ANTENNA TERMINALS THROUGH MATCHING NETWORK. (300 OHMS, BALANCED)	98 MHZ	DISTORTION METER TO L OR R CHANNEL OUTPUT	98 MHZ	L202 CORE FOR MINIMUM DISTORTION. (WHI)

3.2 MULTIPLEX ALIGNMENT PROCEDURES (FUNCTION SWITCH IN THE "FM" POSITION/MODE SWITCH IN THE "STEREO" POSITION)

STEP	SIGNAL SOURCE CONNECTOR	SIGNAL FREQUENCY	IANDICATOR CONNECTION	SET DIAL POINTER TO:	ADJUST
1	RF GENERATOR TO FM ANTENNA TERMINALS THROUGH MATCHING NETWORK. (300 OHMS, BALANCED), WITH 1 MV FM STEREO GENERATOR RF LEVEL AND 100% MODULATION (PILOT 9%)	NO MODULATION.	FREQUENCY COUNTER TO J310	CY	R325 SO FREQUENCY COUNTER MAY READ 76 KHZ.
2		STEREO, LEFT (1,000 HZ)	VTVM TO RIGHT CHANNEL OUTPUT.	98 MHZ	R311 FOR MAXIMUM OUT PUT AND SAME SEPARATION IN BOTH CHANNELS.
3		STEREO, RIGHT (1,000 HZ)	VTVM TO LEFT CHANNEL OUTPUT.		

3.3 AM ALIGNMENT PROCEDURES (FUNCTION SWITCH IN THE "AM" POSITION)

1. AM IF ALIGNMENT

STEP	SIGNAL SOURCE CONNECTION	SIGNAL FREQUENCY	INDICATOR CONNECTION	SET DIAL POINTER TO:	ADJUST
1	SWEEP GENERATOR TO OSC VARIABLE CAP.	450 KHz MARKER.	OSCILLOSCOPE t. T.	QUIET POINT ON BAND.	LT201 FOR MAXIMUM AND SYMMETRI.. RESPONSE.

2. AM RF ALIGNMENT

STEP	SIGNAL SOURCE CONNECTION	SIGNAL FREQUENCY	INDICATOR CONNECTION	SET DIAL POINTER TO:	ADJUST
1	APPLY THE SIGNAL TO THE AM LOOP ANTENNA FROM THE RF GENERAT OR, USING THE TEST LOOP, AS PER THE FIGURE 3.	520 KHZ	VTVM TO L OR R CHANNEL OUTPUT.	TUNING CAPACITOR MINIMUM CLOSED.	L102 FOR MAXIMUM OUTPUT.
2		1,639 KHZ		TUNING CAPACITOR MAXIMUM OPEN.	OSC. TRIM. CAP. FOR MAXIMUM OUTPUT.
3		600 KHZ		600 KHZ	AMBAR ANT FOR MAXIMUM OUTPUT.
4		1,400 KHZ		1,400 KHZ	ANT. TRIM. CAP. FOR MAXIMUM OUTPUT.
5	REPEAT STEPS 1 TO 4 AS NECESSARY TO OBTAIN MAXIMUM SENSITIVITY.				

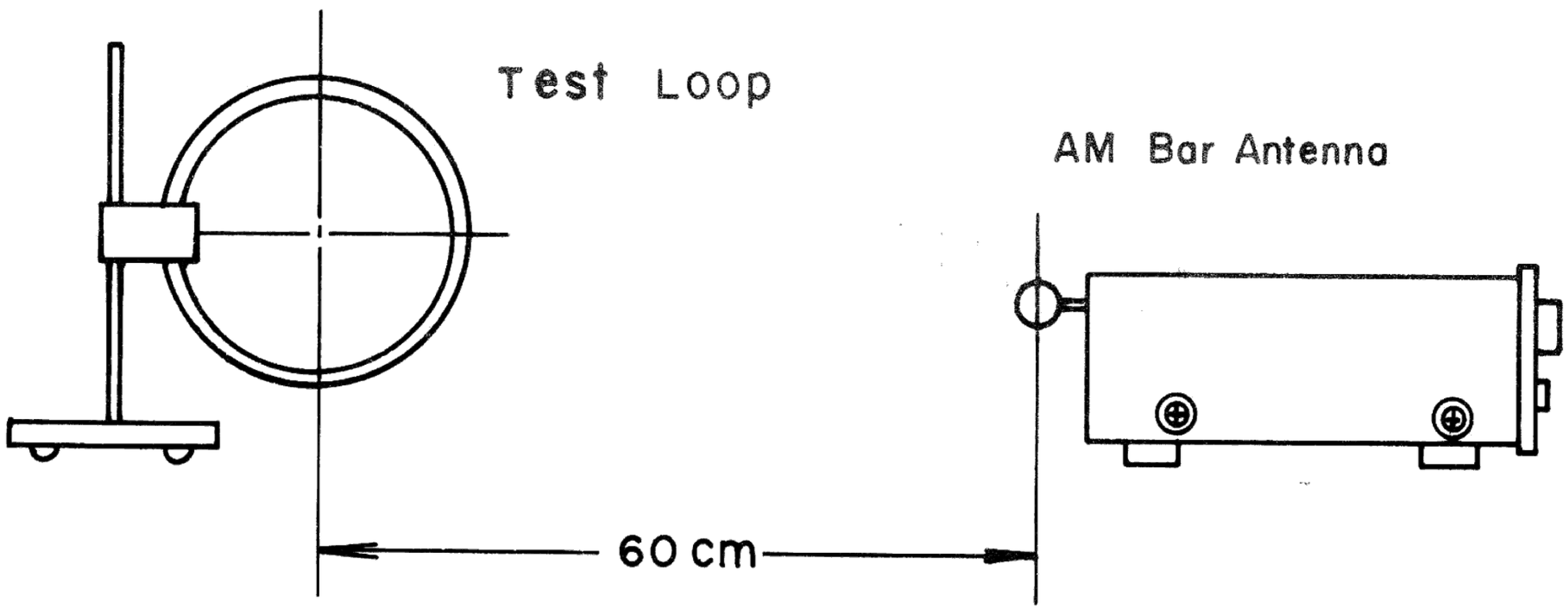


Figure 3. Application of AM Signal

4. BLOCK DIAGRAM

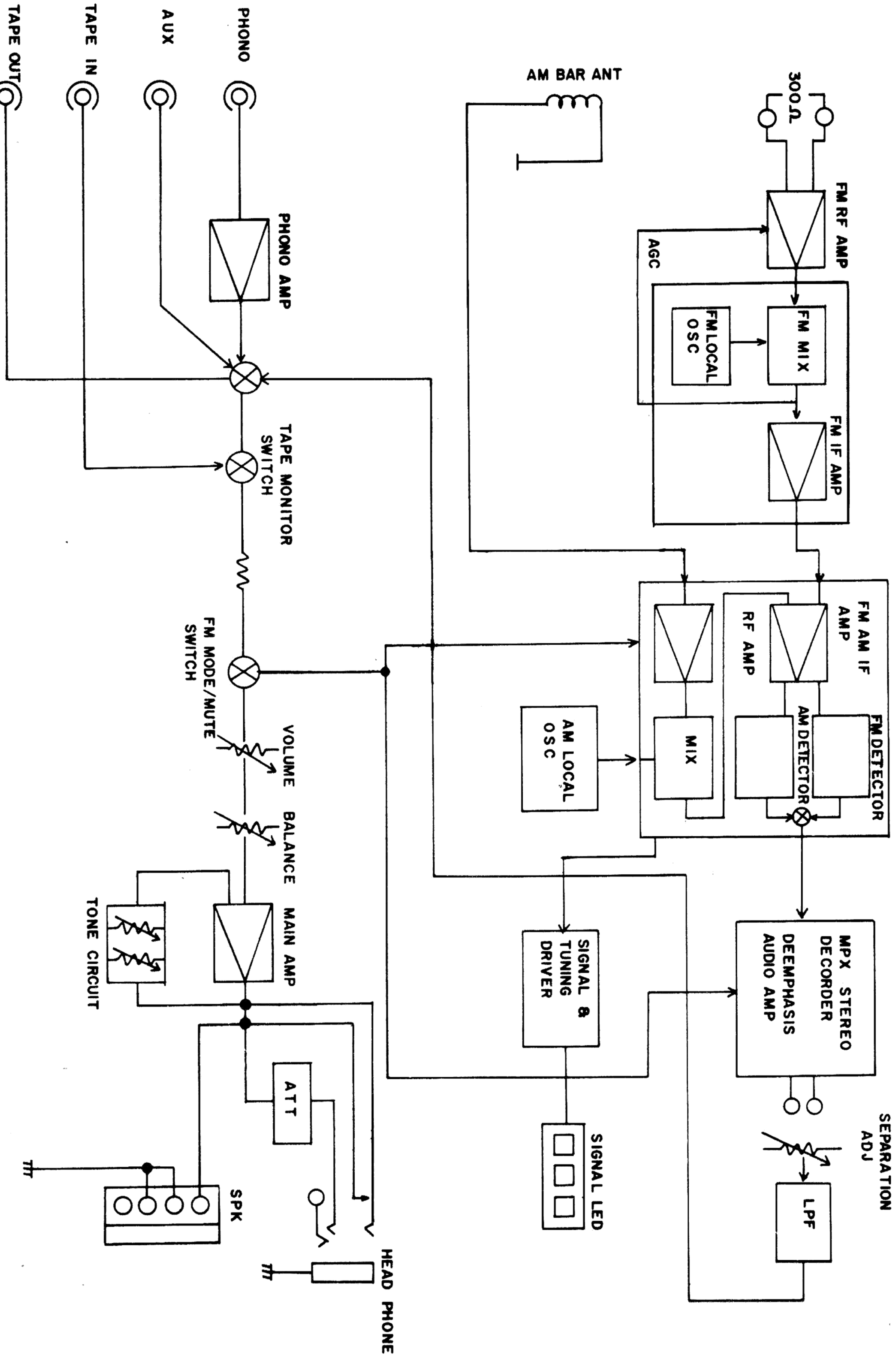
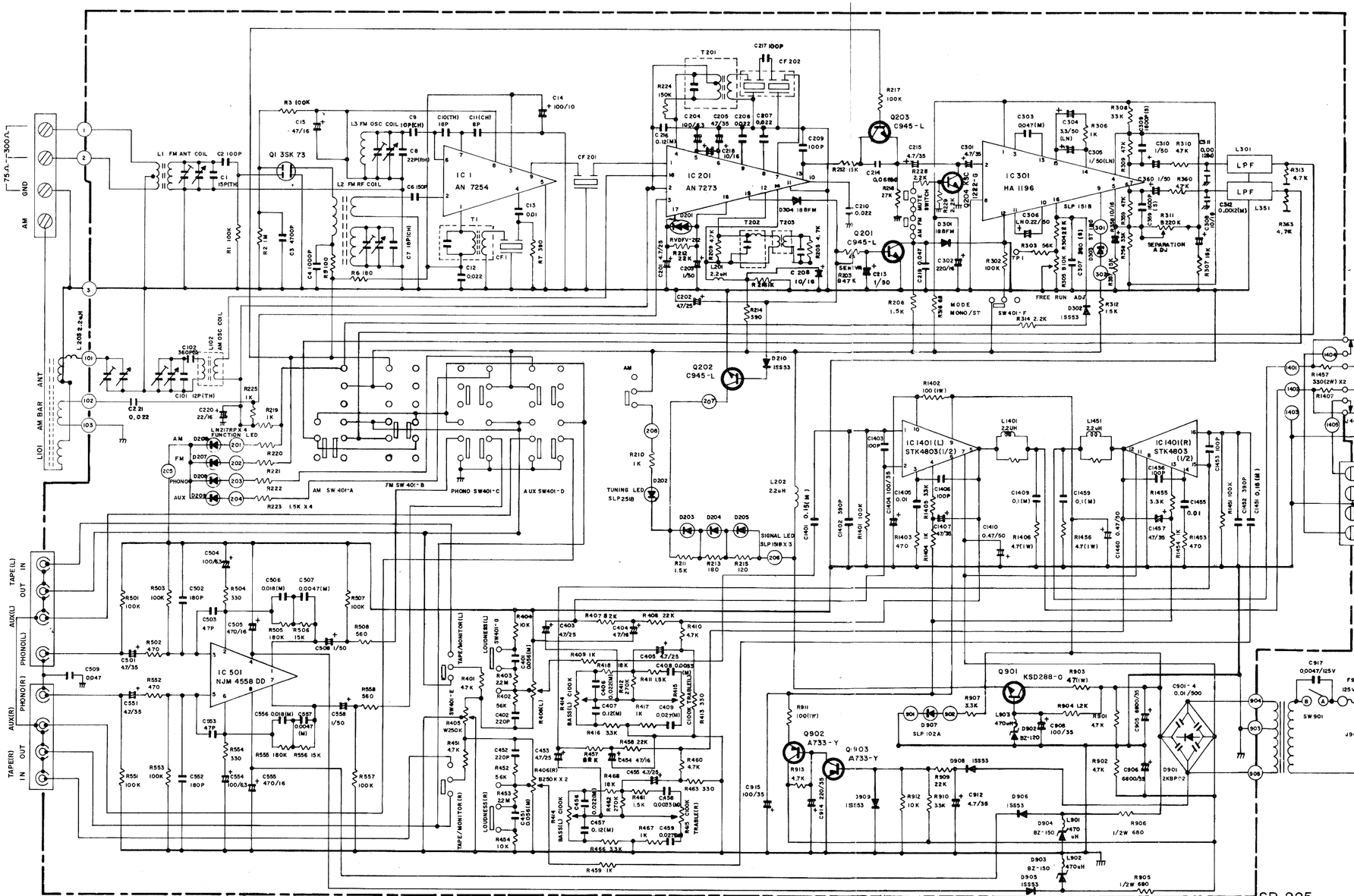


Figure 4. Block Diagram

5. SCHEMATIC DIAGRAM



SIDE VIEW
KSA-733-Y
Q902 , Q903

E B C

KSA-1222-G
Q204

KSA-945L
Q201, Q202, Q203

SIDE VIEW
KSC-288-O
Q901

B C E

TOP VIEW
Q1 3SK73

SIDE VIEW
IC 1
AN 7254

TOP VIEW
IC 301
HA 1196

TOP VIEW
IC 201
AN 7273

TOP VIEW
IC 501
NJM 4558DD

SIDE VIEW
IC1401
STK - 4803

IC RECT DIODE PIN VOLTAGE (UNIT : VOLT)

NO	IC 1	IC 201		IC 301		IC 501	IC1401	D901
	FM	AM	FM	MONO	STEREO			
1	8.8	6.2	4.5	10.8	10.8	-13.60	-0.2	DC-23.1
2	4.3	7.0	0.5	3.0	2.2	0	-0.2	AC17.4
3	8.8	7.0	0.6	7.5	4.0	0	-24.3	AC17.4
4	0.7	7.0	0.6	8.1	8.7	0	-1.3	DC-23.3
5	0	1.1	0	8.1	8.7	13.54	0	
6	2.4	0.7	0	4.0	5.5	0	-24.3	
7	1.7	6.3	4.5	4.0	5.5	0	-27.5	
8	7.1	6.2	4.5	0	0	0	0	
9	5.7	6.2	4.5	10.5	10.5		-27.2	
10		5.8	4.3	0	2.4		25.5	
11		0	0	2.4	2.4		-27.5	
12		6.7	5.0	1.4	0.1		0	
13		1.6	1.6	2.2	2.4		-1.3	
14		6.7	5.0	2.4	2.4		24.3	
15		0	0.3	2.4	2.4		-0.2	
16		1.5	1.5	3.2	3.2		-0.2	
17		1.5	1.5					
18		7.0	0.6					

	FET
	Q1
D	7.1
S	11.2
G1	0
G2	0

	E	B	C
Q901	12.0	12.7	23.8
Q902	-26.0	-26.7	-27.3
Q903	0	0.8	-26.8

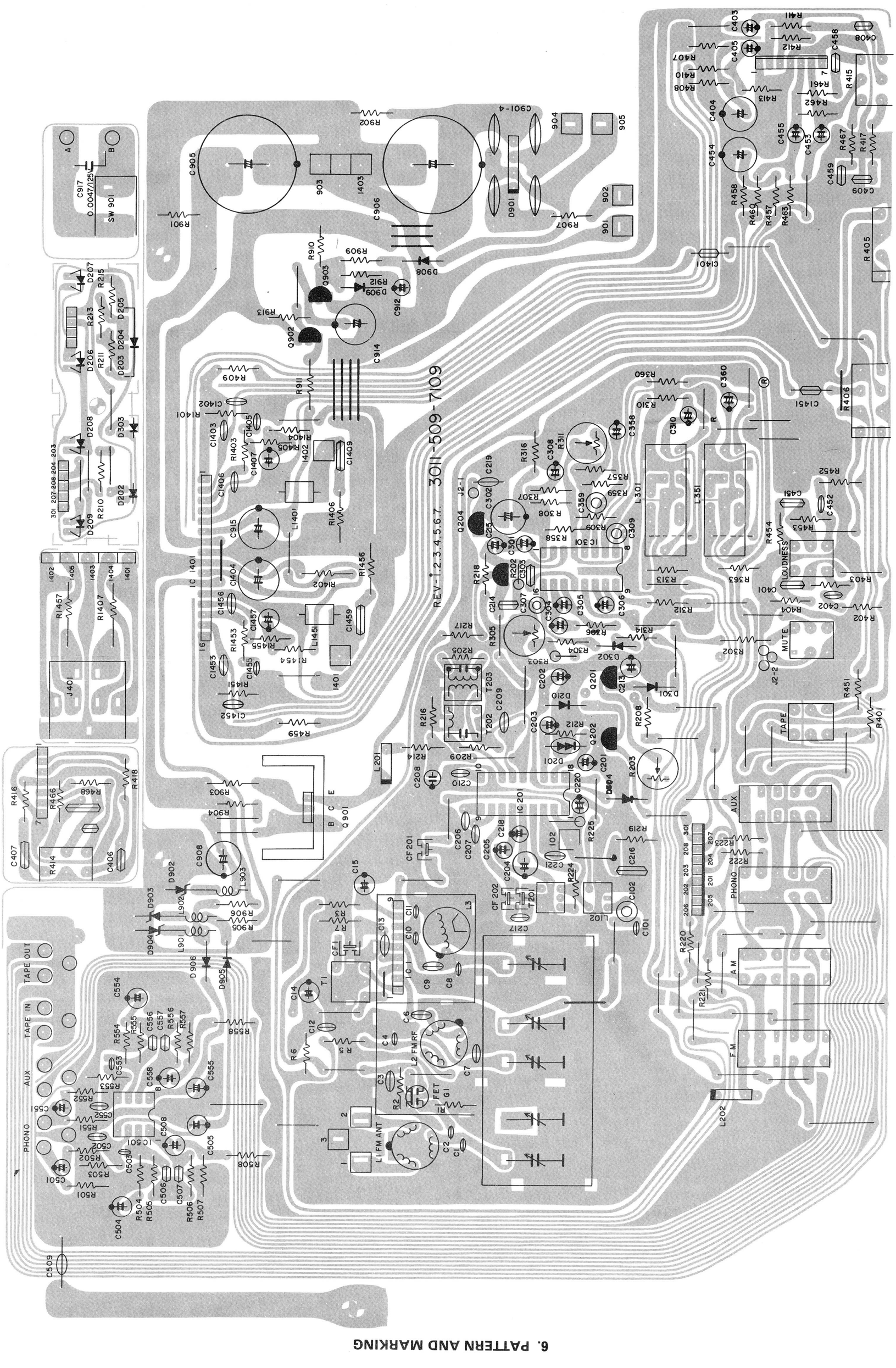
TRANSISTOR

	AM			FM (MONO)			FM (STEREO)		
	E	B	C	E	B	C	E	B	C
Q201	0	0	11.2	0	0.3	11.2	0	0.3	0.8
Q202	0	0.1	12.1	0	0.3	12.0	0	0.3	12.0
Q203	0	0	1.6	1.6	2.3	1.6	0.16	2.3	1.6
Q204	0	0	1.8	0	0	2.0	0	0.8	0

SWITCH
S401 : FUNCTION(AM(A). FM(B) PHONO(C). AUX(D). TAPE.)
S4016 : LOUDNESS
S901 : POWER SWITCH

VOLUM
R405 : BALANS
R406 : VOLUME
R414 : BASS
R415 : TRABLE

NOTE
1. ALL RESISTANCE VALUES IN OHMS
K=KILO OHMS, M=MEGA OHMS WATTAGE IS 1/8 WATT UNLESS OTHERWISE SPECIFIED.
2. ALL CAPACITOR VALUES IN MFD UNLESS OTHERWISE SPECIFIED.
3. THERE MIGHT BE SLIGHT CHANGE IN ACTUAL SET.


REV-1.2.3.4.5.6.7. 3011-509-7109
PHONO
AUX
TAPE IN
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IC 1401
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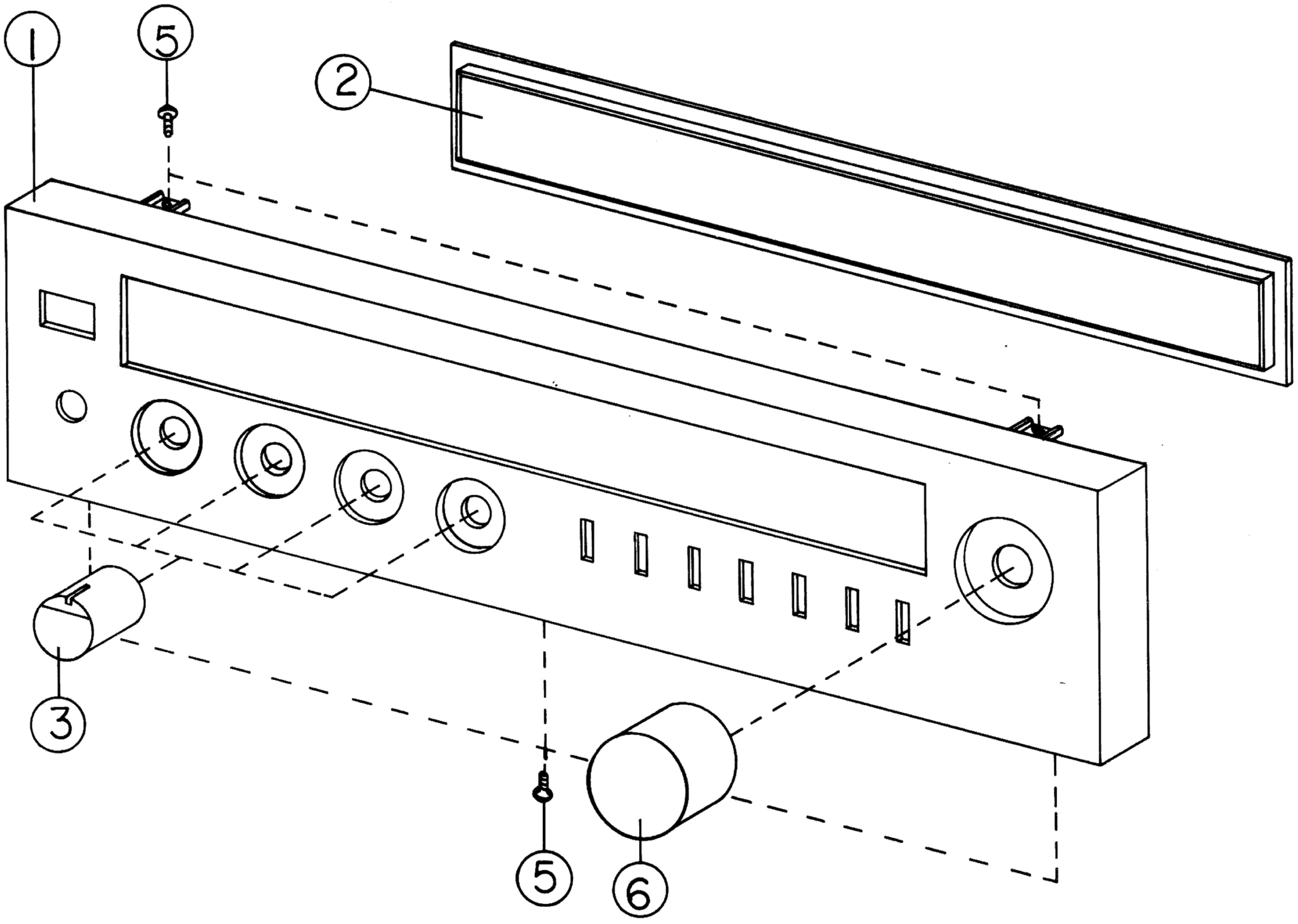
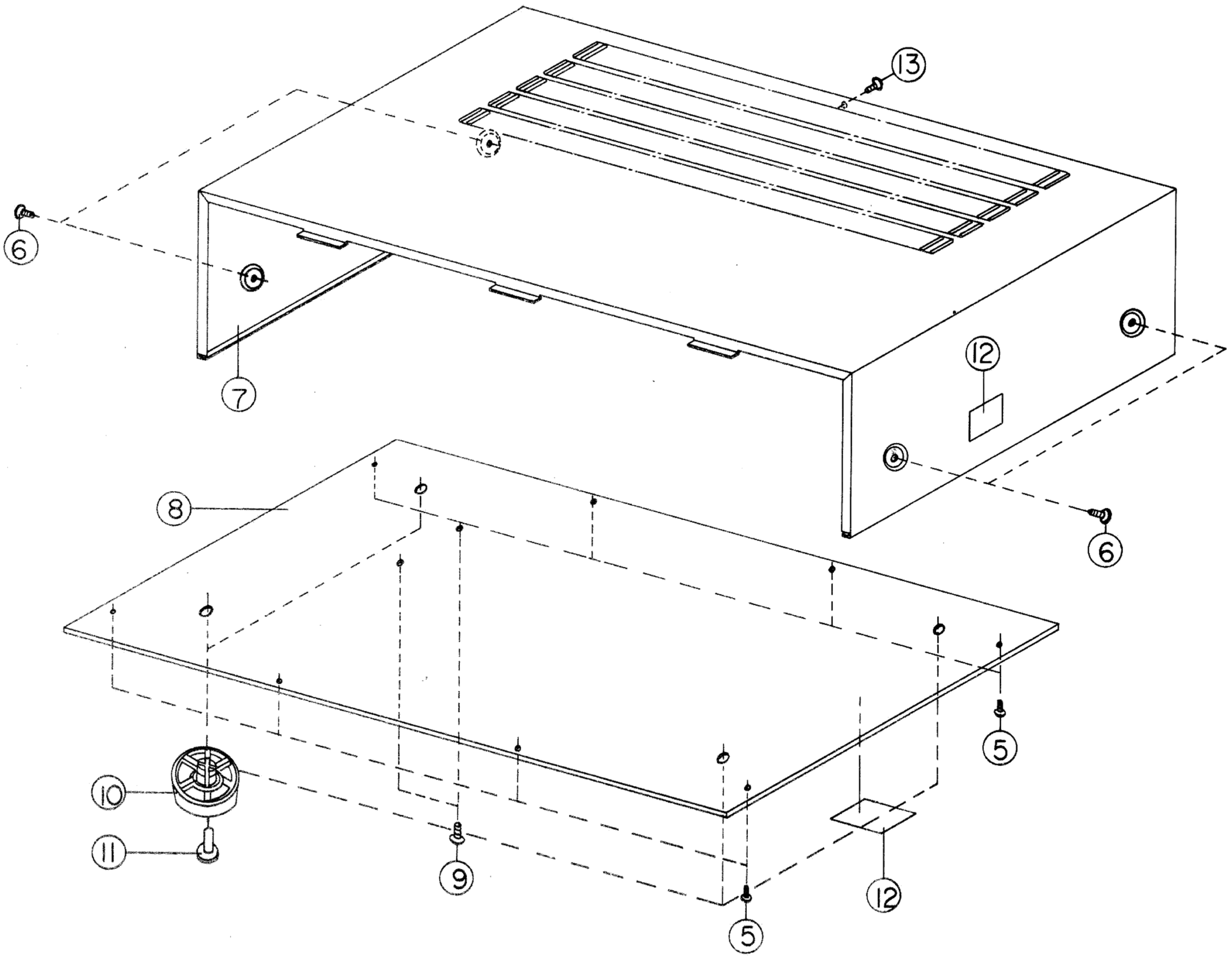
7. EXPLODED VIEWS AND PARTS LIST
Front Panel



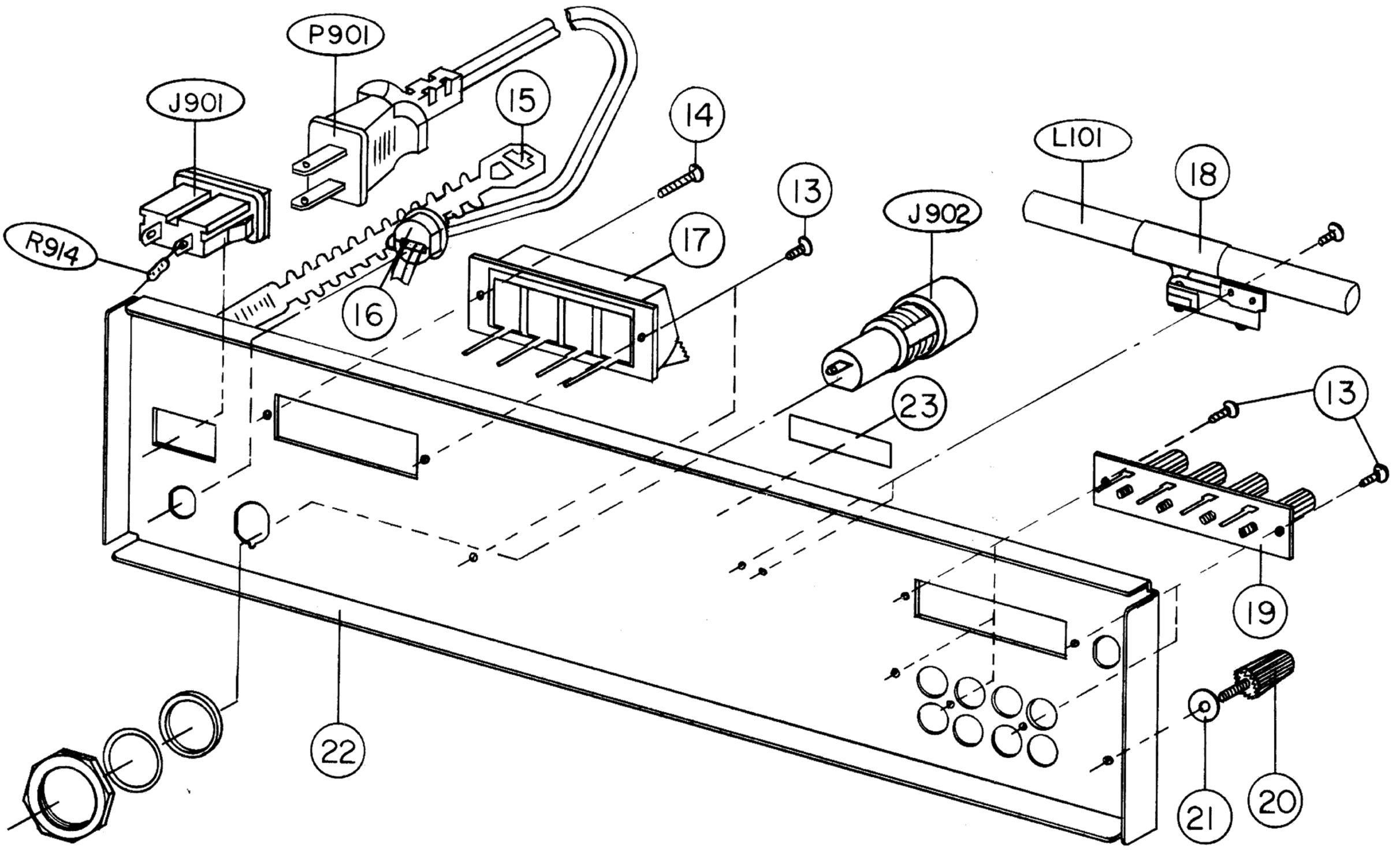
REF. DESIGN.	Q'TY	PART NO.	DESCRIPTION	REMARK
1	1	600-1560-510	Panel	
2	1	765-4538-010	Window	
3	4	762-4520-210	Knob-Rotary	
4	1	772-4507-930	Knob-Tuning	
5	5	715-4100-630	Screw-Tap, RH Spec	

Top Cover



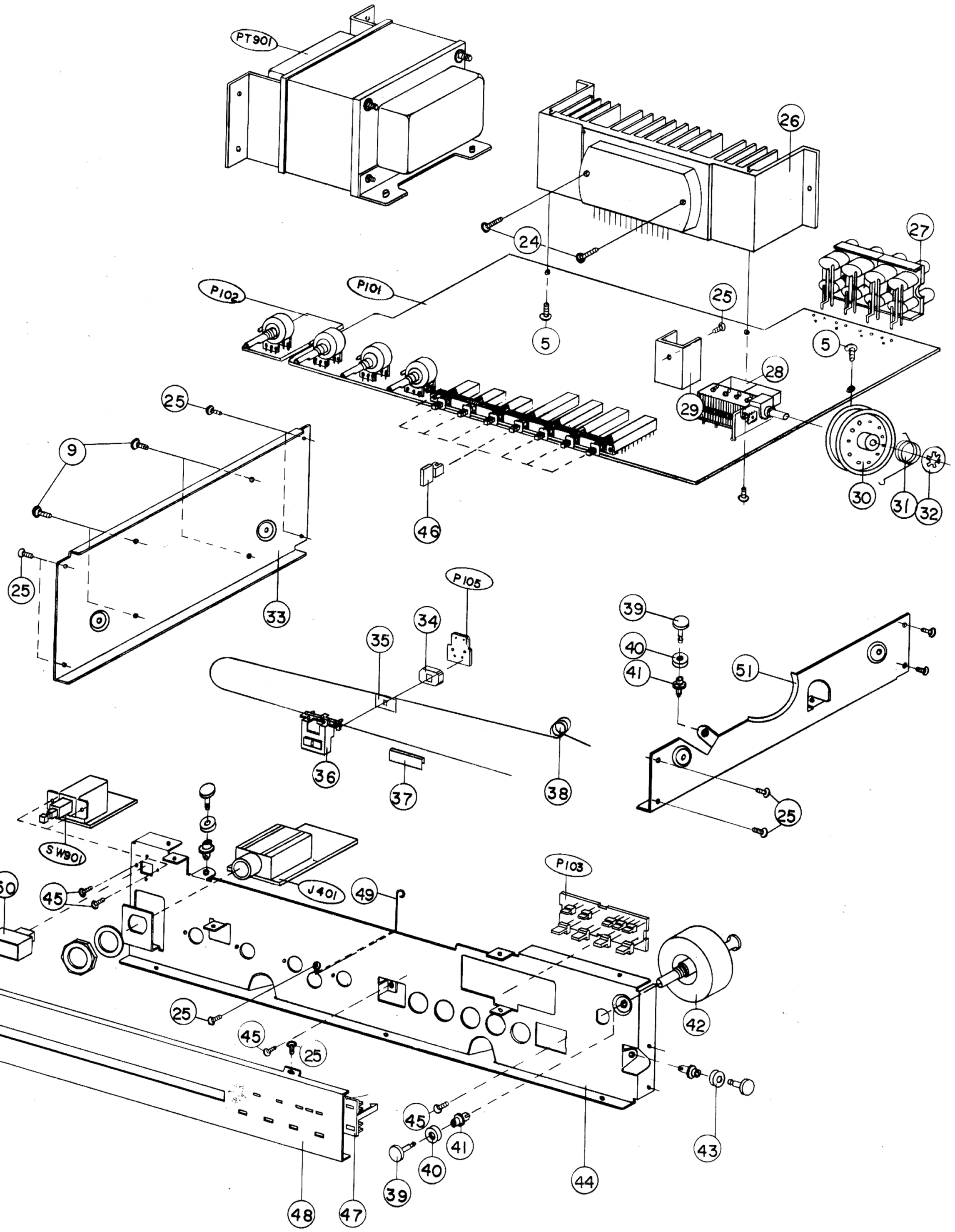
REF. DESIGN	Q'TY	PART NO.	DESCRIPTION	REMARK
5	8	715-4100-630	Screw-Tap, RH Spec	
6	4	712-8460-083	Screw-Tap, TH	
‡	1	610-2504-210	Cabinet	
8	1	783-3500-210	Cover Botton	
9	2	712-8540-081	Screw-Tap, TH	
10	4	607-4500-810	Foot	
11	4	607-4500-910	Foot-Stopper	
12	2	811-4555-710	Label-Caution	
13	1	714-8130-083	Screw-Tap, RH	

Rear Panel



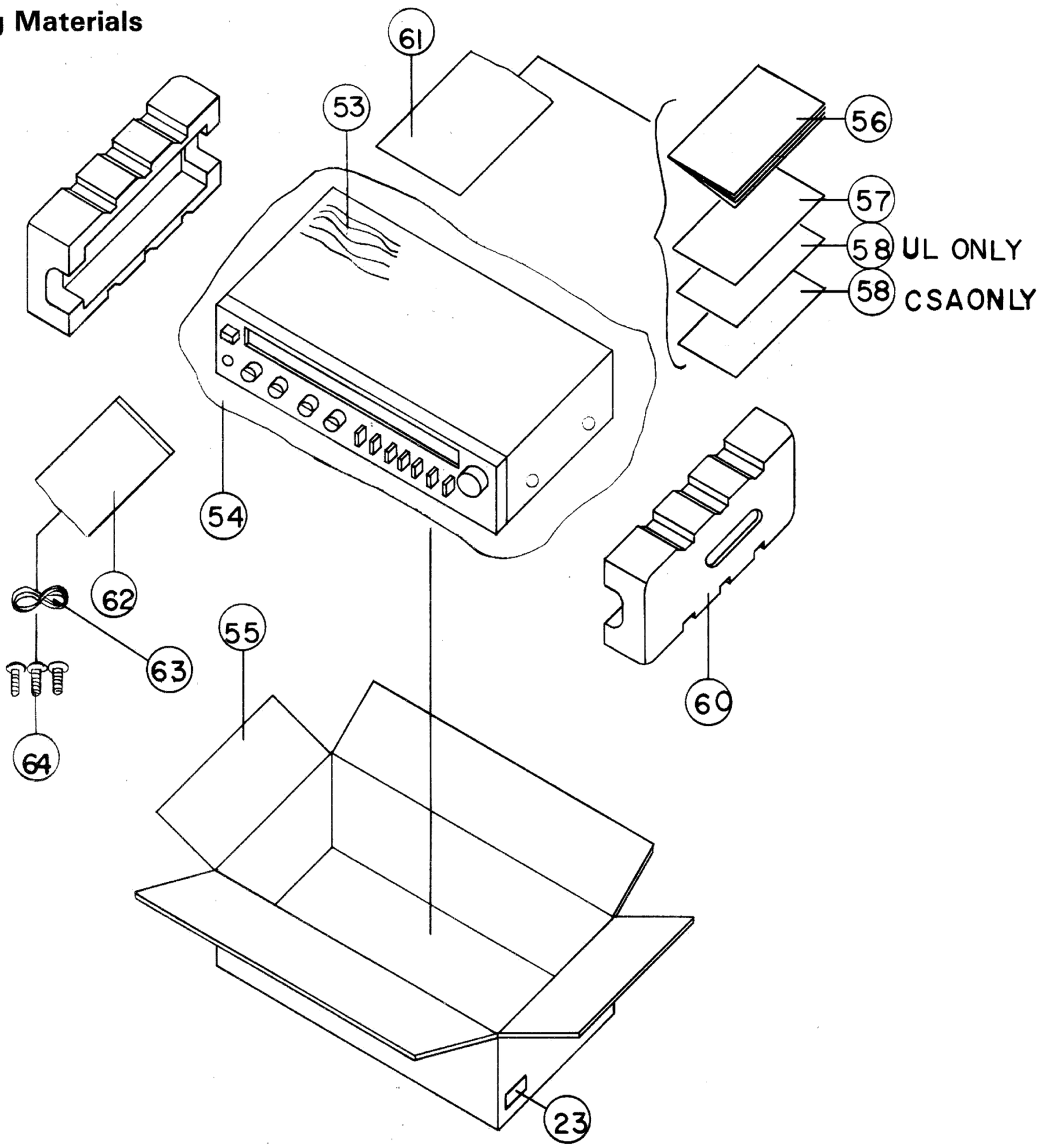
REF. DESIGN	Q'TY	PART NO.	DESCRIPTION	REMARK
13	9	714-8130-083	Screw-Tap, RH	
14	1	715-4100-710	Screw-Spec	
15	1	663-4101-810	Band-Cord, Wire	
16	2	663-4100-810	Clamper-Cord, Wire	
17	1	330-4501-610	Terminal-Board push	
18	1	665-4508-110	Supporter-Ant	
19	1	330-4501-910	Terminal-Board-Screw	
20	1	310-4501-610	Terminal-Screw	
21	1	730-4500-210	Washer-Plain	
22	1	612-2519-110	Chassis-Rear	
23	1	811-4542-210	Label-Serial	
R914	1	101-8327-225	R-Carbon	
J901	1	333-9593-030	Jack-AC Outlet	
P901	1	305-9800-830	Power-Cord, AC	
J902	1	336-4501-210	Holder Fuse	
L101	1	252-1301-021	Antenna Coil AM	

Front Chassis and General Parts



REF. DESIG	Q'TY	PART NO.	DESCRIPTION	REMARK
5	3	715-4100-630	Screw-Tap, RH Spec	
9	4	712-8540-081	Screw-Tap, TH	
24	2	714-8530-201	Screw-Tap, RH	
25	12	715-8530-069	Screw-Tap, RH	
26	1	568-4505-310	Heat-Sink	
27	2	333-9544-020	Jack-Aux	
28	1	613-4501-310	Cap-Shield	
29	1	568-4501-110	Heat-Sink, TR	
30	1	522-3501-010	Wheel-Dial	
31	1	667-4501-940	Spring-Dial	
32	1	667-4508-610	Stop-Spring	
33	1	602-3503-910	Frame-L	
34	1	800-4505-210	Pointer-Mask	
35	1	800-4505-510	Filter-Pointer	
36	1	800-4505-310	Pointer	
37	1	800-4505-410	Slider-Pointer	
38	1	072-9140-200	Dial-Cord	
39	4	521-4502-010	Pin-Pulley	
40	2	521-4502-110	Pulley, S	
41	4	521-4501-810	Shaft-Pulley	
42	1	510-3501-510	Shaft-Tuning	
43	2	521-4501-910	Pulley	
44	1	602-2520-510	Chassis-Front	
45	4	704-8130-061	Screw-RH	
46	7	762-4520-310	Knob-Push	
47	1	660-4514-410	Holder-LED	
48	1	771-3503-310	Dial-Scale	
49	1	667-4521-310	Spring-G, Pointer	
50	1	762-4520-110	Knob-PWR	
51	1	602-3503-810	Frame-R	
52	1	714-8530-101	Screw-Tap, RH	
P102	1	301-4554-420	P.W-Tone	
P101	1	301-1509-710	P.W-Main	
P105	1	301-4555-010	P.W-Pointer	
P103	1	301-4554-430	P.W-LED	
J401	1	333-9521-020	Jack Headphone	
SW901	1	359-9902-010	Switch-Push, Power	
PT901	1	286-9201-710	Power Transformer	

Packing Materials



REF. DESIGN	Q'TY	PART NO.	DESCRIPTION	REMARK
23	1	811-4542-210	Label Serial	
53	1	089-9162-010	Sheet-Cover	
54	1	865-4110-010	Pe Bag	
55	1	861-3531-310	Packing-Case	
56	1	813-4535-990	Instructions	
57	1	813-4537-200	Spec Instructions	
58	1	810-4512-310	Warranty-Cord (UL)	UL-ONLY
58	1	812-4513-410	Warranty-Cord (CSA)	CSA-ONLY
59	3	717-4100-320	Screw-Wood RH Spec	
60	2	871-3506-910	Chshion	
61	1	865-4101-040	Pe Bag	
62	1	865-4506-310	Pe Bag	
63	1	450-9104-010	Ant-T, FM	
64	3	717-4100-320	Screw-Wood RH Spec.	

8. ELECTRICAL PARTS

REF.	Q'TY	PART NO.	DESCRIPTION		
			PW TUNER/MAIN CIRCUIT BOARD		
P101	1	301-1509-710	P.W. Board, Tuner/Main		
			CARACITORS		
C101	1	140-9112-070	Ceramic	12PF	±5%
C102	1	150-9452-080	Film	360PF	±10%
C204	1	160-9401-100	Elect	100uF	6.3V
C205	1	160-9402-050	Elect	4.7uF	35V
C206	1	141-9204-780	Ceramic	0.022PF	±5%
C207	1	141-9204-780	Ceramic	0.022PF	±5%
C209	1	140-9101-360	Ceramic	100PF	±5%
C216	1	150-9121-270	Film	0.12PF	±5%
C217	1	140-9105-260	Ceramic	56PF	±5%
C218	1	160-9401-430	Elect	10uF	16V
C220	1	160-9401-440	Elect	22uF	16V
C221	1	150-9121-960	Film	0.022PF	10%
C1	1	140-9109-910	Ceramic	15PF	±5%
C2	1	140-9101-360	Ceramic	100PF	±5%
C3	1	141-9204-550	Ceramic	0.0047PF	±20%
C4	1	141-9204-470	Ceramic	0.001PF	±20%
C6	1	140-9101-730	Ceramic	150PF	±10%
C7	1	140-9105-160	Ceramic	18PF	±5%
C8	1	140-9206-190	Ceramic	22PF	±5%
C9	1	140-9105-090	Ceramic	10PF	±5%
C10	1	140-9102-530	Ceramic	18PF	±5%
C11	1	140-9105-070	Ceramic	8PF	±5%
C12	1	141-9204-780	Ceramic	0.022PF	±10%
C13	1	141-9204-590	Ceramic	0.01PF	±20%
C14	1	160-9401-280	Elect	100uF	10V
C15	1	160-9401-460	Elect	47uF	16V
C201	1	160-9401-630	Elect	4.7uF	25V
C202	1	160-9401-630	Elect	4.7uF	25V
C203	1	160-9402-210	Elect	1uF	50V
C208	1	160-9401-430	Elect	10uF	16V
C210	1	141-9204-780	Ceramic	0.02PF	±20%
C213	1	160-9401-090	Elect	47uF	6.3V
C214	1	150-9121-900	Film	0.068PF	±20%
C215	1	160-9402-050	Elect	4.7uF	35V
C219	1	141-9204-800	Ceramic	0.047uF	±20%
C301	1	160-9402-0509	Elect	4.7uF	35V
C302	1	160-9401-480	Elect	220uF	16V
C303	1	150-9121-220	Film	0.047PF	±20%
C304	1	160-9902-260	Elect (LN)	3.3uF	50V

REF. DESIGN	Q'TY	PART NO.	DESCRIPTION		
C305	1	160-9902-210	Elect (LN)	1uF	50V
C306	1	160-9902-240	Elect (LN)	0.22uF	50V
C307	1	150-9452-080	Film	360PF	±10%
C308	1	160-9401-430	Elect	10uF	16V
C358	1	160-9401-430	Elect	10uF	16V
C309	1	150-9452-270	Film	1600PF(S)	±5%
C359	1	150-9452-270	Film	1600PF(S)	±5%
C310	1	160-9402-210	Elect	1uF	50V
C360	1	160-9402-210	Elect	1uF	50V
C311	1	150-9121-390	Film	0.0022PF	±10%
C361	1	150-9121-390	Film	0.0022PF	±10%
C401	1	150-9121-230	Film	0.056PF	±5%
C451	1	150-9121-230	Film	0.056PF	±5%
C402	1	140-9101-750	Ceramic	220PF	±10%
C452	1	140-9101-750	Ceramic	220PF	±10%
C403	1	160-9401-630	Elect	4.7uF	25V
C453	1	160-9401-630	Elect	4.7uF	25V
C404	1	160-9401-460	Elect	47uF	16V
C454	1	160-9401-460	Elect	47uF	16V
C405	1	160-9401-630	Elect	4.7uF	25V
C455	1	160-9401-630	Elect	4.7uF	25V
C406	1	150-9121-180	Film	0.022PF	±5%
C456	1	150-9121-180	Film	0.022PF	±5%
C407	1	150-9121-270	Film	0.12PF	±5%
C457	1	150-9121-270	Film	0.12PF	±5%
C408	1	150-9121-410	Film	0.0033PF	±10§
C458	1	150-9121-410	Film	0.0033PF	±10%
C409	1	150-9121-190	Film	0.027PF	±5%
C459	1	150-9121-190	Film	0.027PF	±5%
C501	1	160-9402-050	Elect	4.7uF	35V
C551	1	160-9402-050	Elect	4.7uF	35V
C502	1	140-9101-740	Ceramic	180PF	±10%
C552	1	140-9101-740	Ceramic	180PF	±10%
C503	1	140-9101-280	Ceramic	47PF	±5%
C553	1	140-9101-280	Ceramic	47PF	±5%
C504	1	160-9401-1006	Elect	100uF	6.3V
C554	1	160-9401-1006	Elect	100uF	6.3V
C505	1	160-9401-710	Elect	470uF	16V
C555	1	160-9401-710	Elect	470uF	16V
C506	1	150-9121-490	Film	0.018PF	±5%
C556	1	150-9121-490	Film	0.018PF	±5%
C507	1	150-9121-1008	Film	0.0047PF	±5%
C557	1	150-9121-1008	Film	0.0047PF	±5%
C508	1	160-9402-210	Elect	1uF	50V

REF. DESIG	Q'TY	PART NO.	DESCRIPTION		
C558	1	160-9402-210	Elect	10uF	50V
C509	1	141-9204-800	Ceramic	0.047PF	±10%
C559	1	141-9204-800	Ceramic	0.047PF	±10%
C901	1	141-9206-430	Ceramic	0.01PF	500V±20%
C902	1	141-9206-430	Ceramic	0.01PF	500V±20%
C903	1	141-9206-430	Ceramic	0.01PF	500V±20%
C904	1	141-9206-430	Ceramic	0.01PF	500V±20%
C905	1	161-9018-240	Elect	6800uF	35V
C906	1	161-9018-240	Elect	6800uF	35V
C908	1	160-9402-100	Elect	100uF	35V
C912	1	160-9402-050	Elect	4.7uF	35V
C914	1	160-9402-110	Elect	220uF	35V
C1401	1	150-9121-280	Film	0.15PF	±5%
C1451	1	150-9121-280	Film	0.15PF	±5%
C1402	1	140-9101-780	Ceramic	390PF	±10%
C1452	1	140-9101-780	Ceramic	390PF	±10%
c1403	1	140-9101-360	Ceramic	100PF	±5%
C1453	1	140-9101-360	Ceramic	100PF	±5%
C1404	1	160-9402-100	Elect	100uF	35V
C1454	1	160-9402-100	Elect	100uF	35V
C915	1	160-9402-100	Elect	100uF	35V
C1405	1	141-9204-590	Ceramic	0.01PF	±20%
C1455	1	141-9204-590	Ceramic	0.01PF	±20%
C1406	1	140-9101-360	Ceramic	100PF	±5%
C1456	1	140-9101-360	Ceramic	100PF	±5%
C1407	1	160-9402-090	Elect	47uF	35V
C1457	1	160-9402-090	Elect	47uF	35V
C1409	1	150-9121-920	Film	0.1PF	±20%
C1459	1	150-9121-920	Film	0.1PF	±20%
C1410	1	160-9402-202	Elect	0.47uF	50V
C1460	1	160-9402-202	Elect	0.47uF	50V
			P.W. Board Tuner/Main-Resistors		
			(All Resistors are ±5% & 1/8W)		
R217	1	101-8127-104	100KΩ		
R219	1	101-8127-102	1KΩ		
R220	1	101-8127-152	1.5KΩ		
R224	1	101-8127-154	150KΩ		
R225	1	101-8127-102	1KΩ		
R226	1	101-8127-153	15KΩ		
R1	1	101-8127-104	100KΩ		
R2	1	101-8127-105	1MΩ		

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
R3	1	101-8127-104	100KΩ
R5	1	101-8127-101	100Ω
R6	1	101-8127-181	180Ω
R7	1	101-8127-391	390Ω
R203	1	124-9102-060	SR19R B47K SEMI VR
R205	1	101-8127-222	2.2KΩ
R212	1	101-8127-103	1KΩ
R214	1	101-8127-390	390Ω
R208	1	101-8127-152	1.5KΩ
R209	1	101-8127-332	3.3KΩ
R218	1	101-8127-273	27KΩ
R216	1	101-8127-102	1KΩ
R221	1	101-8127-152	1.5KΩ
R219	1	101-8127-102	1KΩ
R224	1	101-8127-154	150KΩ
R227	1	101-8127-223	22KΩ
R228	1	101-8127-223	22KΩ
R229	1	101-8127-153	15KΩ
R302	1	101-8127-104	100KΩ
R303	1	101-8127-563	56KΩ
R304	1	101-8127-223	22KΩ
R305	1	124-9102-030	SR19R B10K SEMI VR
R306	1	101-8127-102	1KΩ
R307	1	101-8127-562	5.6KΩ
R357	1	101-8127-562	5.6KΩ
R308	1	101-8127-333	3.3KΩ
R358	1	101-8127-333	3.3KΩ
R309	1	101-8127-473	47KΩ
R359	1	101-8127-473	47KΩ
R310	1	101-8127-473	47KΩ
R311	1	124-9102-090	SR19RB220K SEMI VR
R312	1	101-8127-152	1.5KΩ
R313	1	101-8127-472	4.7KΩ
R363	1	101-8127-472	4.7KΩ
R314	1	101-8127-222	2.2KΩ
R316	1	101-8127-680	68Ω
R401	1	101-8127-472	4.7KΩ
R451	1	101-8127-472	4.7KΩ
R402	1	101-8127-563	56KΩ
R452	1	101-8127-563	56KΩ
R403	1	101-8127-225	2.2MΩ
R453	1	101-8127-225	2.2MΩ
R404	1	101-8127-103	10KΩ
R454	1	101-8127-103	10KΩ
R405	1	120-9107-030	VR-Round, B250KW

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
R406	1	121-9103-050	VR-Double
R407	1	101-8127-333	33KΩ
R457	1	101-8127-333	33KΩ
R408	1	101-8127-223	22KΩ
R458	1	101-8127-223	22KΩ
R409	1	101-8127-102	1KΩ
R459	1	101-8127-102	1KΩ
R410	1	101-8127-472	4.7KΩ
R460	1	101-8127-472	4.7KΩ
R411	1	101-8127-152	1.5KΩ
R461	1	101-8127-152	1.5KΩ
R412	1	101-8127-274	270KΩ
R462	1	101-8127-274	270KΩ
R413	1	101-8127-331	330Ω
R463	1	101-8127-331	330Ω
R415	1	121-9108-050	VR-Double C100K
R417	1	101-8127-102	1KΩ
R467	1	101-8127-102	1KΩ
R222	1	101-8127-152	1.5KΩ
R223	1	101-8127-152	1.5KΩ
R501	1	101-8127-104	100KΩ
R551	1	101-8127-104	100KΩ
R502	1	101-8127-471	470Ω
R552	1	101-8127-471	470Ω
R503	1	101-8127-104	100KΩ
R553	1	101-8127-104	100KΩ
R504	1	101-8127-331	33Ω
R554	1	101-8127-331	330Ω
R505	1	101-8127-184	180KΩ
R555	1	101-8127-184	180KΩ
R506	1	101-8127-153	15KΩ
R556	1	101!8127-153	15KΩ
R507	1	101-8127-104	100KΩ
R557	1	101-8127-104	100KΩ
R508	1	101-8127-561	560Ω
R558	1	101-8127-561	560Ω
R901	1	101-8127-472	4.7KΩ
R902	1	101-8127-472	4.7KΩ
R903	1	104-9311-090	4.7Ω ±10% IW Metal, Oxide
R904	1	101-8127-122	1.2KΩ
R905	1	101-8127-681	680Ω ±10% 1/2W
R906	1	101-8327-681	680Ω ±10% 1/2W
R907	1	101-8127-332	3.3KΩ
R909	1	101-8127-223	22KΩ

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
R910	1	101-8127-333	33KΩ
R911	1	104-9301-130	100Ω ±10% 1W Metal Oxide
R912	1	101-8127-103	10KΩ
R913	1	101-8127-472	4.7KΩ
R1401	1	101-8127-104	100KΩ
R1451	1	101-8127-104	100KΩ
R1402	1		100Ω ±10% 1W Metal oxide
R1403	1	101-8127-471	470Ω
R1453	1	101-8127-471	470Ω
R1404	1	101-8127-102	1KΩ
R1454	1	101-8127-102	1KΩ
R1405	1	101-8127-332	3.3KΩ
R1455	1	101-8127-332	3.3KΩ
R1406	1	104-9301-010	4.7Ω ±10% 1W Metal Oxide
R1456	1	104-9301-010	4.7Ω ±10% 1W Metal Oxide
			P.W. Board Tuner/Main
			SEMICONDUCTORS
Q1	1	213-9601-480	F.E.T. 3 SK 73GR
IC1	1	211-9201-280	IC AN7254/KA3254
IC201	1	211-9201-290	IC AN7273/KA3273
IC301	1	211-9201-110	IC HA1196
Q201	1	213-9302-660	Transistor KSC 945-L
Q202	1	213-9302-660	Transistor KSC 945-L
Q203	1	213-9302-660	Transistor KSC 945-L
D201	1	216-9405-350	Diode AVC MA27W-A/KB-26Z
D210	1	216-9301-290	Diode-SW ISS53/IN4148, CT: 6PF
D301	1	216-9101-140	Diode-IK 188FM
D302	1	216-9301-290	Diode-SW ISS53/IN4148, CT: 6PF
Q204	1	213-9301-280	Transistor KSC-1222-G
D304	1	216-9101-140	Diode-IK 188FM
D305	1	216-9101-140	Diode-1K 188FM
IC501	1	211-9401-030	IC NJM 4558DD
IC1401	1	211-9208-030	IC-POWER STK-4803
Q901	1	214-9401-260	Transistor KSC-288-0
Q902	1	213-9103-380	Transistor KSA 733-Y
Q903	1	213-9103-380	Transistor KSA 733-Y
D901	1	216-9219-210	Diode-RECT 2KBPO2
D902	1	216-9403-910	Diode-ZENER BZ-120
D903	1	216-9403-920	Diode-ZENER BZ-150
D904	1	216-9403-920	Diode-ZENER BZ-150

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
D905	1	216-9301-290	Diode-SW ISS53-IN4148 CT: 6PF
D906	1	216-9301-290	Diode-SW ISS53/IN4148 CT:6PF
D908	1	216-9301-290	Diode-SW ISS53/IN4148 CT: 6PF
D909	1	216-9301-290	Diode-SW ISS53/IN4148 CT: 6PF
			P.W. Board Tuner/Main
			MISCELLANEOUS
L101	1	252-1301-021	Antenna Coil, AM
L102	1	261-9010-402	OSC Coil, AM
T201	1	274-9202-130	I.F.T Coil AM
CF2021	1	452-9313-020	Ceramic Filter 455KHZ CF202
L203	1	242-9040-030	Choke-coil Lead 2.2 uH
L1	1	250-9108-310	Antenna Coil FM
L2	1	245-0105-060	Trans-V. Bobbin
L3	1	253-9108-410	OSC Coil FM
T1	1	273-9105-020	I.F.T. Coil FMA
T202	1	273-9131-010	I.F.T. Coil FMG
T203	1	273-9130-010	I.F.T. Coil FMF
CF1	1	452-9309-010	Ceramic Filter 10.7MA8
CF201	1	452-9309-010	Ceramic Filter 10.7MA8
L301	1	452-9402-010	Lowpass-Filter
L351	1	452-9402-010	Lowpass-Filter
L201	1	242-9020-030	Coil-Choke
L202	1	242-9020-030	Coil-Choke
L901	1	242-9010-130	Coil-Choke, RND
L902	1	242p9010-130	Coil-Choke, RND
L903	1	242-9010-130	Coil-Choke, RND
L1401	1	242-9060-031	Coil-Choke, SPK
L1451	1	242-9060-031	Coil-Choke, SPK
			LED CIRCUIT BOARD
P103		301-4554-430	P.W. Board Led Resistors
			(All Resistors are ±5% & 1/8W)
R210	1	101-8127-102	1KΩ
R211	1	101-8127-152	1.5KΩ
R213	1	101-8127-181	180Ω
R215	1	101-8127-121	120Ω
R312	1	101-8127-152	1.5KΩ
			P.W. Board LED
			SEMICONDUCTORS

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
D202	1	230-9104-150	Diode-LED SLP251B
D203	1	230-9104-160	Diode-LED SLP151B
D204	1	230-9104-160	Diode-LED SLP151B
D205	1	230-9104-160	Diode-LED SLP151B
D205	1	230-9104-160	Diode-LED SLP151B
D206	1	230-9120-010	LED-Square LN217RP
D207	1	230-9120-010	LED-Square LN217RP
D208	1	230-9120-010	LED-Square LN217RP
D209	1	230-9120-010	LED-Square LN217RP
D303	1	216-9301-290	Diode-LED SLP151B
			P.W. TON CIRCUIT BOARD
			P.W. Board Ton Caractors
			CARACTORS
C406	1	150-9121-180	Film 0.022PF ±5%
C456	1	150-9121-180	Film 0.022PF ±5%
C407	1	150-9121-270	Film 0.12PF ±5%
C457	1	150-9121-270	Film 0.12PF ±5%
			P.W. Board TON RESISTORS
			(All Resistors are ±5% & 1/8W)
R416	1	101-8127-332	3.3KΩ
R466	1	101-8127-332	3.3KΩ
R418	1	101-8127-182	1.8KΩ
R468	1	101-8127-182	1.8KΩ
R414	1	121-9108-050	VR-Double 100K (C)
		121-9108-050	
			P.W. POWER CIRCUIT BOARD
			P.W. Board Power-CAPACITORS
			CAPACITORS
C917	1	146-9502-070	Ceramic, AC ECK-DFL 472ZW 125V AC
			SWITCH
S401	1	359-9902-010	Switch-Push
			P.W. HEAD PHONE CIRCUIT BOARD
			P.W. Board Head Phone Resistors
			(All Resistors are 2W 10%)
R1407	1	104-9103-190	330Ω ±10% 2W Metal Oxide
R1457	1	104-9103-190	330Ω ±10% 2W Metal Oxide
			P.W. Board HEAD PHONE JACK
J401	1	333-9521-020	Head Phone Jack
			P.W. POINTER CIRCUIT BOARD
P105	1	301-4555-440	P.W. Board Pointer SEMICONductors

REF. DESIG	Q'TY	PART NO.	DESCRIPTION
D907	1	230-9104-270	Diode-LED SLP102A
R914	1	101-8327-225	2.2MΩ ±5% 1/2W
J902	1	336-4501-210	Holder Fuse
F901	1	470-9105-040	Fuse
P901	1	305-9800-830	Power-Cord, AC
PT901		286-9201-810	Trans-Power
J901	1	333-9593-030	Jack AC Outlet
SW401	1	352-9203-670	Switch-Push

9. TECHNICAL SPECIFICATIONS

AUDIO SECTION

POWER OUTPUT PER CHANNEL
- RMS 8 OHMS 25W

TOTAL HARMONIC DISTORTION AT RMS 8 OHMS 0.3%

DAMPING FACTOR 8 OHMS 30

Frequency Response
- Phono: (RIAA) ..... ±1.0 dB
- Aux: (±2.0 dB) ..... 20 Hz — 20 kHz

Signal-to-Noise Ratio
- Phono ..... 65 dB
- Aux ..... 80 dB

Input Terminals
- Phono: Input Sensitivity/Impedance ..... 2.5 mV/47 kohms
- Aux: Input Sensitivity/Impedance ..... 150 mV/25 kohms

FM TUNER SECTION

Frequency Range ..... 87.5 — 108 MHz

Usable Sensitivity
- DIN Mono (S/N 26 dB, 75 ohms) ..... 3 uV
- DIN Stereo (S/N 46 dB, 75 ohms) ..... 25 uV

Alternate Channel Selectivity, 98 MHz ..... 60 dB

Signal-to-Noise Ratio, 98 MHz
- Unweighted: Mono ..... 66 dB
- Stereo ..... 63 dB
- Weighted: Mono ..... 70 dB
- Stereo ..... 65 dB

MW TUNER SECTION

Frequency Range ..... 505 — 1,650 kHz

Usable Sensitivity (20 dB S/N 30% Mod., 1 MHz) ..... 300 uV

Selectivity ..... 35 dB

GENERAL

Power Requirements ..... 120V AC 60Hz

Power Consumption at Rated Output, Both Channels Operating 90W

Dimensions
- Panel Width ..... 416 mm
- Panel Height ..... 100 mm
- Depth ..... 194 mm

Weight
- Unit alone ..... 4.9 kg

Specifications and appearance are subject to change for modification without notice.

LIST OF PRINT ERR

PAGE	LINE	ERROR	CORRECTION
1	17	Primar	Side of
	22	Verfied	Verified
	37	ASO alignment	MPX (VCO)
2		TRGBLEVR	TREBLE VR
		BALANCEVR	BALANCE VR
		TAPE MONTOR	TAPE MONITOR
3	6	TUNING CAPACITOR	TUNING CAPACITOR MINIMUM CLOSED
		L3 FOR MAXIUM	L3 FOR MAXIMUM OUT PUT
	7	OUT PUT	OSC TRIMMER CAPACITOR FOR MAXIMUM OUT PUT
	12	L202 CORE FOR MINIMUM	CENTER METER CONNECT TO ANY WAY OF R212 (22K Ω)
		DISTORTION (WHI)	T202 FOR METER CENTER, T203 FOR DISTORTION MIMMUM
	14	SIGNAL SOURCE CONNECTOR	SIGNAL SOURCE CONNECTION
4	4	LT 201	T 201
	9	AMBAR	AM BAR
6		VOLUM R405: BALANS	VOLUME R405: BALANCE
		IC 5011	IC 501
10		⑥	④
11	1	TOP COVER	BOTTOM COVER
	5	≠	7
	6	Cover Botton	BOTTOM COVER
14	32	52 1 714-8530-101 screw-TAP, RH	ELIMINATION
	39	286-9201-710 Power. Transformer	286-9201-710 Power Transformer (20W) ULONLY 286-9201-720 Power Transformer (25W) ULONLY 286-9201-810 Power Transformer (25W) CSAONLY
15	9 — 10	warranty-cord	warrenty-card
	11	59 3 717-4100-320 screw wood RH SPEC	ELIMINATION
	12	chshion	cushion
16	14	C217 140-9105-260 56PF ±5%	C217 150-9101-360 100PF ±5%
	34	C212 160-9401-090 47uF 6.3	C213 160-9402-210 1uF 50V
	38	160-9402-0509	160-9402-050
17	36 — 37	160-9401-1006	160-9401-100
	42 — 43	150-9121-1008	160-9121-100
18	4	141-9204-800 0.047PF ±10%	ELIMINATION
18	40	R226 101-8127-153 15KΩ	101-8127-562 5.6K Ω
19	5		R8 101-8127-101 100 Ω (Add)
	10	R212 101-8127-103 1KΩ	101-8127-223 22K Ω
	19	R227	R229
	27-28	R308, 358 3.3K Ω	33K Ω
	31	R310 101-8127-473 47KΩ	101-8127-472 4.7 Ω
20	3 — 4	101-8127-333 33KΩ	101-8127-823 82K Ω
	28	R504 33 Ω	330 Ω
	40	R903 4.7 Ω	47 Ω
21	29	D304, 305 216-9101-140 Diode 1K 188FM	ELIMINATION
22	31	R213 101-8127-181 180 Ω	101-8127-221 220 Ω
	32	R215 101-8127-121 120 Ω	101-8127-101 100 Ω
	34		R207 101-8127-183 18 KΩ (Add)
23	11	P.W ToN	P.W. TONE
		P.W Board TON	P.W. Board TONE
	15	P.W. Board TON	P.W. Board TONE
	26	SEMICON ductor	SEMICONDUCTOR
24	7	PT901 286-9201-810 Transpower	ELIMINATION

Model SR225

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