

22
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service
manual

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marantz

model twenty two

Stereo Receiver

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model number 22R	build number M2R-1	date June 2, 1971
for serial numbers see text		to
subject Model 22 Revisions		

Below, we have compiled a list of circuit changes incorporated in the Model 22R as opposed to the unrevised 22. Please note that serial numbers: 11001 to 11599 and, 6626 up, constitute the "R" units.

P100 - F.M. Tuner P.C. Board : (P/N YD 25780130)

R 106 Changed from 2.7 K to 1.2 K
C 108 Changed from 0.6 pF to 0.8 pF
C 118 Changed from 20 pF to 15 pF
C 119 New design, trimmer capacitor P/N CT 10500010
C 131 Added in parallel to C 119, 2 pF ceramic
L 104 New design, Oscillator Coil, P/N LO 12026020
W 101 Wire materials revised, color code

P 200 - A.M. Front End P.C. Board : (P/N YD 25780020)

No Changes

P 300 - Phono Amp. P.C. Board : (P/N YD 25770030)

R 307, 308 Changed from 330 ohms to 2 K $\frac{1}{2}$ W
R 305, 306 Changed from 330 K to 1 M $\frac{1}{2}$ W
R 309, 310 Changed from 330 K to 1.8 M
R 311, 312 Changed from 27 K to 150 K
R 320, 321 Changed from 470 ohms to 560 ohms
R 316, 317 Changed from 10 K to 15 K
C 304, 305 Changed from .01 uF to 1800 pF
R 322 Changed from 47 ohms to 220 ohms
C 310, 311 Changed to 1 uF @ 35 WVDC
C 312 Changed to 100 uF @ 50 WVDC
C 316, 317 Changed from .0027 uF to 500 pF

P 400 - Tone Amp. P.C. Board : (P/N 25770040)

W 401 Wire materials revised, color code

	model number 22R	bulletin number M22R-1	date June 2, 1971
	for serial numbers see text		to
	subject Model 22 Revisions		

P 500 - AM/FM I.F. and F.M./MPX Demodulator P.C. Board :
(P/N YD 25780050)

C 552 Added, J 520 to GND, 100 uF @ 6.3 VDC
 R 542 Changed from 100 K to 56 K
 R 568 Added, in series from C 519 to H 504 (B), 10 K $\frac{1}{2}$ W
 C 566 Changed from Polyester to Film type capacitor
 C 573, 574 Eliminated
 L 512, 513 and
 L 514, 515 MPX Coil, new type, P/N LS 10010070
 R 514 Changed from 330 K to 5.6 K
 W 501 Wire materials revised, color code

P 600 - Main Amp. P.C. Board : (P/N YD 25780060)

R 617, 618 Changed from 10 K to 9.1 K, $\frac{1}{2}$ W

P 700 - Meter and Stereo Amp. P.C. Board :

Completely redesigned, (new P/N YD 25780140) Meter section
 R 723 Changed from 1.2 K to 5.6 K on Stereo Amp. section
 R 724 Eliminated
 W 701 Wire materials redesigned, color code

P 800 - Power Supply P.C. Board : (P/N YD 25780150)

R 802 relocated between R 804 and H 802 (E) and
 changed from 47 ohms to 10 ohms
 R 807 Added, in series from J 802 to junction C 802, R 804
 and R 802, new Diode IS 1665 (P/N HD 20001100)
 C 804 Changed from 470 uF 35 V. to 330 uF @ 50 WVDC
 C 807 Added, in parallel with R 810, 10 uF @ 35 WVDC
 electrolytic, pos. to GND
 H 801 Transistor, changed from 2SC496 to 2SD234 (HT402343A0)
 H 802 Transistor, changed from 2SC496 to 2SC696 (HT306965A0)
 W 801 Wire materials revised, color code

+B Supply Voltages changed to:

<u>Test Point</u>	<u>Model 22</u>	<u>Model 22 R</u>
8A	+ 34.5 VDC	+ 36.0 VDC
8B	+ 34.5 VDC	33.0 VAC
8E	+ 12.0 VDC	+ 12.0 VDC
8F	+ 27.0 VDC	+ 35.0 VDC

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model number	bulletin number	date
22R	M22R-1	June 2, 1971
for serial numbers	to	
subject	see text	
Model 22 Revisions		

P 900 - Switch P.C. Board : (P/N YD 25780090)

No Changes

P 920 - Switch P.C. Board : (P/N YD 25780030)

W 921 Wire materials revised, color code

P 940 - Tone Control P.C. Board : (P/N YD 25780100)

No Changes

P 980 - Speaker Protector P.C. Board : (P/N YD 25780112)

Completely redesigned (refer to new schematic)

H 984, 985 Diodes, eliminated

J 983 Test Point, + 36 VDC

Miscellaneous Parts, not Board Mounted :

H 006 Bridge Rectifier, new type M 9235 A (P/N HD20005050)

R 018 Changed from 1.2 K to 1.8 K $\frac{1}{2}$ W

C 008, 009 Changed to Film type capacitor

C 015 Changed from 25 V to 50 WVDC rating

Headphone Jack, new P/N YJ 01000650

Socket, for meter lamp, new P/N YJ 02000480

Meter, AM/FM strength, new design P/N IM 11036040

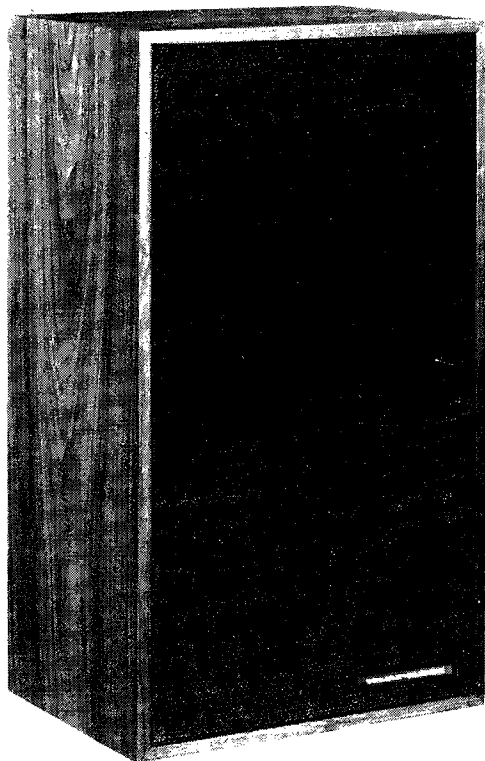
Meter, FM center tuning, new design P/N IM 11036050

W 002, 003 Wire materials revised, color code

F 001 Circuit breaker, new, 4 Amp. P/N FR 10400010

L 006 Power Transformer, new, P/N TS 60501040 (for UL, USA)

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22M

**HIGH EFFICIENCY
3-WAY
SPEAKER SYSTEM**

Service Data

22M SPECIFICATIONS...

SPEAKER COMPLEMENT:

1 — 8" Woofer, 1 — 2 1/2" Tweeter

FREQUENCY RESPONSE:

60 Hz — 18 kHz $\pm$ 3 dB

CROSSOVER POINTS:

1.5 kHz, 5 kHz

NOMINAL IMPEDANCE:

8 ohms

POWER HANDLING CAPABILITY:

To be used with amplifiers rated up to 50 Watts *
providing clipping occurs less than 10% of the time.

DIMENSIONS:

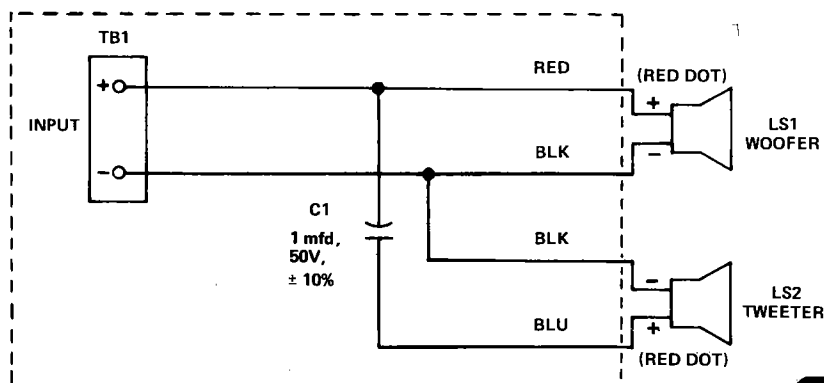
58.7 (H) X 31.8 (W) X 20.6 (D) cm
23 1/8 (H) X 12 1/2 (W) X 8 1/8 (D) inches

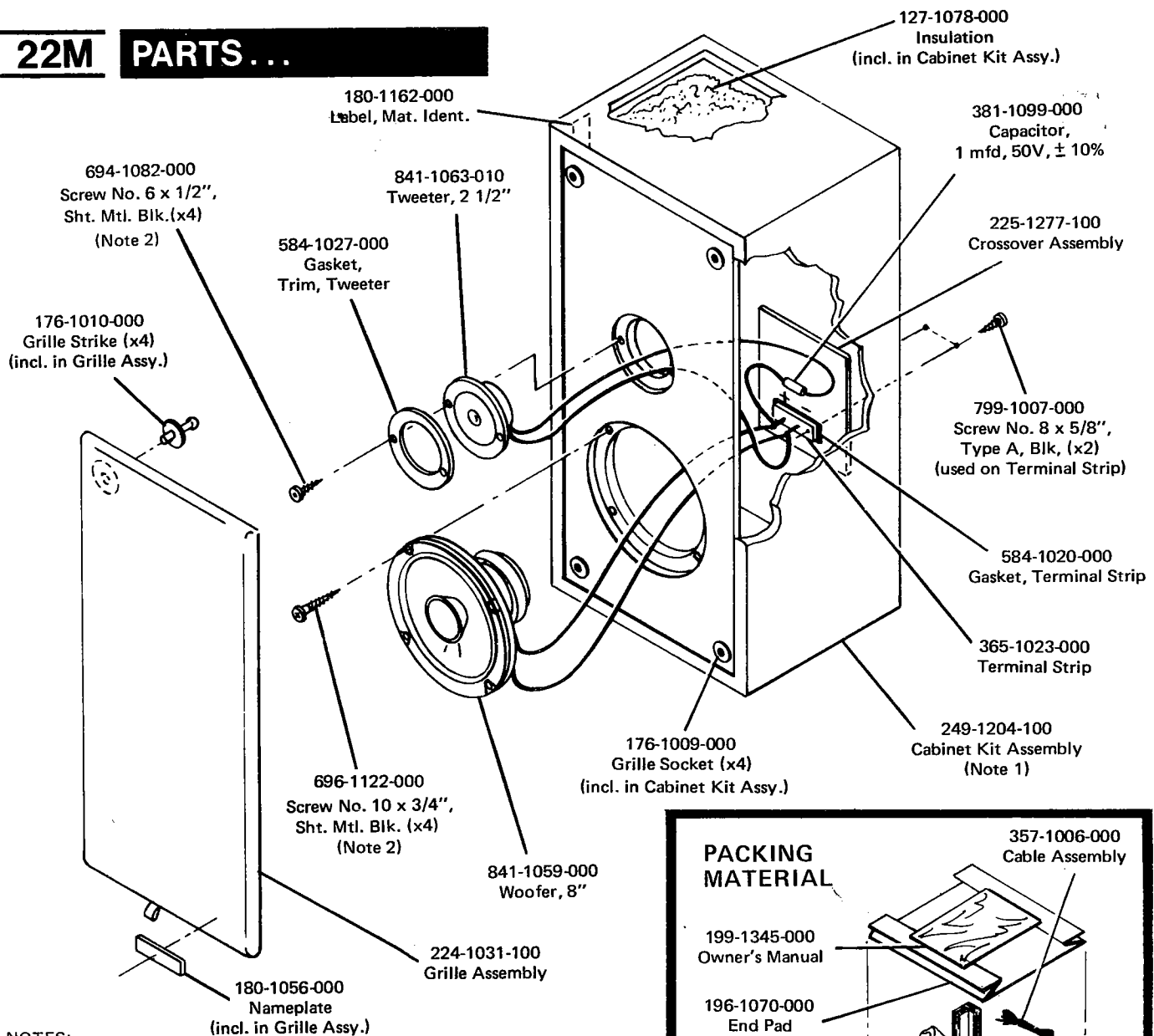
WEIGHT:

6.1 Kg (13.5 lbs.) unpacked (per unit)
8.8 Kg (19.5 lbs.) packed for shipment

*CAUTION: Even lower powered amplifiers driven into
clipping may damage the loudspeaker.

SCHEMATIC



22M**PARTS...****NOTES:**

1. Replacement Cabinet Kit Assembly consists of speaker cabinet, insulation, shipping carton and packing material. Speakers, grille, crossover assembly and cable assembly not included.

If the speaker cabinet is being replaced because of freight damage, It should be noted that such damage is not covered under warranty and all such claims be made with the freight carrier involved.

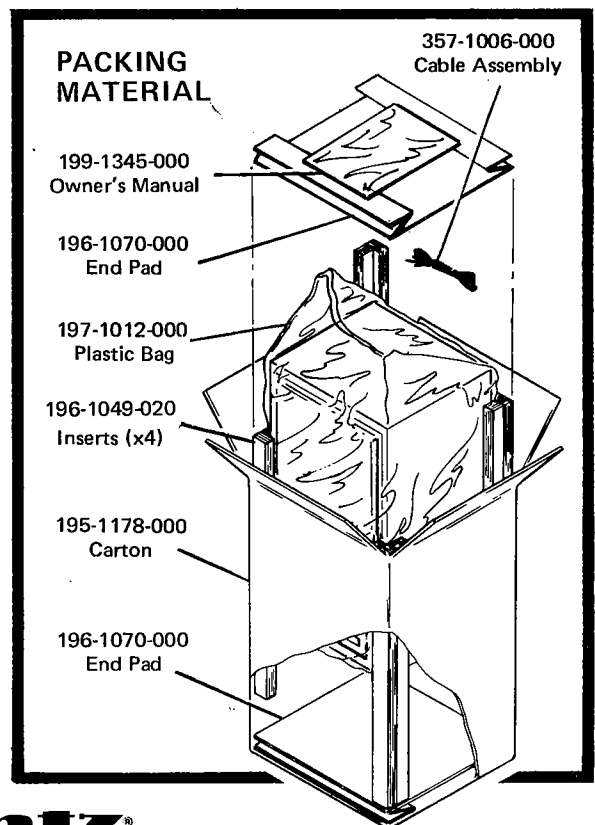
2. 694-1082-000 Sht. Mtl. Blk Screws replace 799-1009-000 Sht. Mtl. Type A 696-1122-000 Sht. Mtl. Blk Screws replace 799-1013-000 Sht. Mtl.

3. Replacement parts may be ordered from the Marantz Parts Department, 20525 Nordhoff Street, Chatsworth, CA 91311. Items such as screws and other hardware may be obtained locally, using the description provided in the above exploded view.

When ordering replacement parts, specify model number, part number and description.

If ordering by telephone, dial: 1-800-423-5108 (Our toll-free number)

1-213-998-9333 (For California or Direct)
ask for National Parts Department.

**marantz®****MARANTZ CO., INC. 20525 NORDHOFF STREET, CHATSWORTH, CALIFORNIA 91311****A WHOLLY OWNED SUBSIDIARY OF SUPERSCOPE INC., CHATSWORTH, CALIFORNIA 91311**

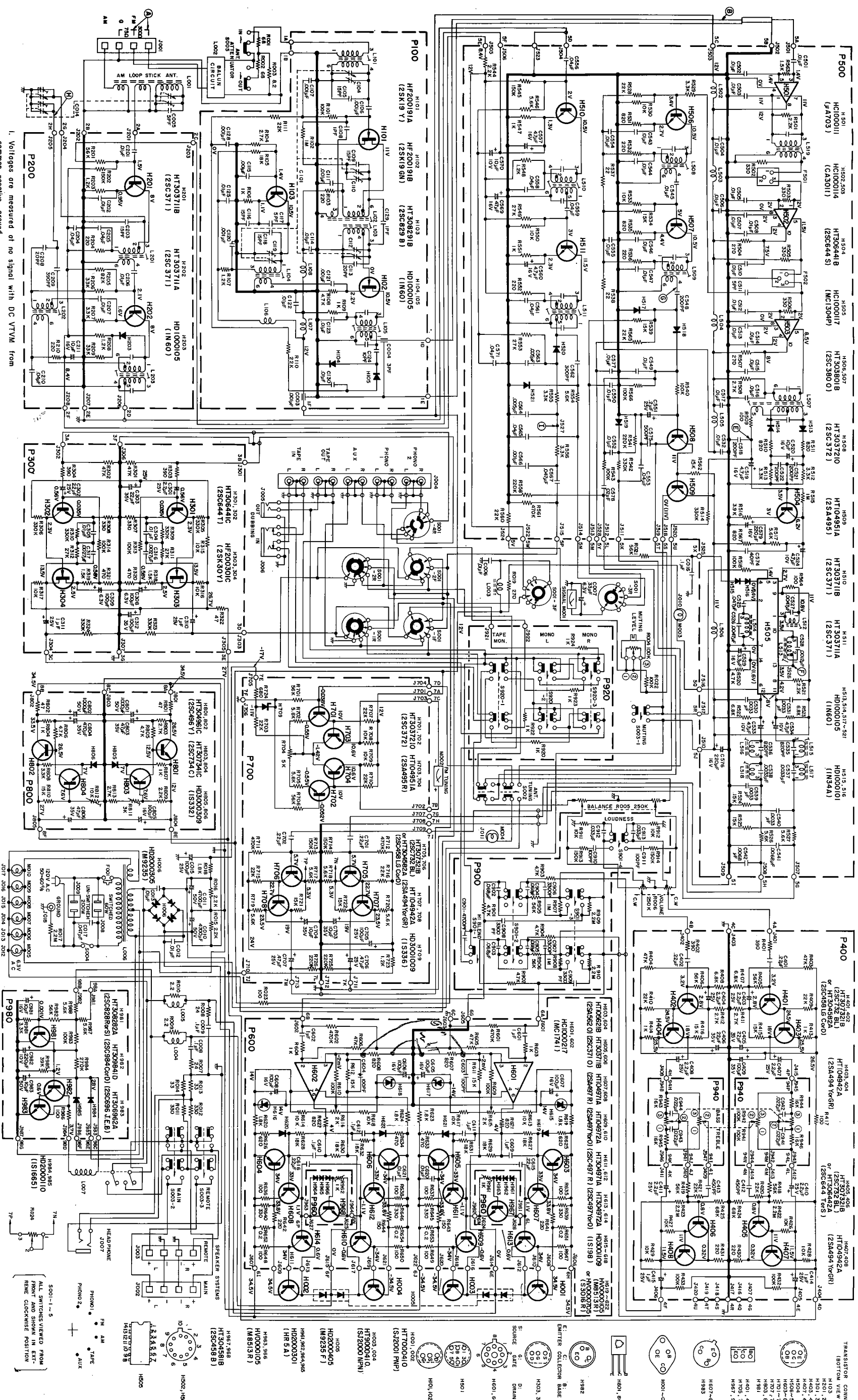


Figure 18 Schematic Diagram

NOTE :

PARTS LIST

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
A001	257806301-3	Escutcheon	A530	257715402-0	Power Knob
A002	257800301-0	Punched Plate	A533	257705301-2	MPX Lamp Cover
A003	257825701-2	Lid			
A004	257826701-0	Heat-Sink	B001	257825702-2	Lid
A005	257810301-2	Pointer	B003	257810550-2	Main Chassis K
A006	257826501-2	Indicator	B004	257810501-2	Chassis
A008	257806701-0	Selector Knob Cap	B005	257816001-2	Bracket
A009	257806701-0	Balance Knob Cap	B006	257816001-2	Bracket
A010	257806701-0	Volume Knob Cap	B007	257816002-0	Bracket
			B008	257816002-0	Bracket
A011	257806702-0	Bass Knob Cap	B009	257816002-0	Bracket
A012	257806702-0	Treble Knob Cap	B010	257816002-0	Bracket
A013	257806703-0	Bass Knob Cap	B011	257816009-0	Bracket
A014	257806703-0	Treble Knob Cap	B012	257816050-3	Front Bracket K
A016	257706702-2	Tape Mon. Cap	B013	257816003-2	Bracket
A017	257706702-2	Mono L. Cap	B014	257810101-0	Support
A018	257706702-2	Mono R. Cap	B015	257810101-0	Support
A019	257706702-2	Hi Blend Cap	B016	257810101-0	Support
A020	257706702-2	Low Filter Cap	B018	257816051-2	Tuner Block Bracket K
			B019	257816004-2	Bracket
A021	257706702-2	Hi Filter Cap	B020	257811201-0	Shaft
A022	257706702-2	Loudness Cap	B022	257816052-2	AM Antenna Bracket K
A023	257706702-2	Muting Off Cap	B023	257816005-2	Bracket
A024	257706702-2	Speaker Main Cap	B024	257816006-2	Bracket
A025	257706702-2	Speaker Rem. Cap	B025	550203041-0	S.H.Rivet
A026	257706702-2	Power Cap	B026	550203041-0	S.H.Rivet
A028	257706302-2	Escutcheon	B028	257816053-0	Pulley Bracket K
A029	257727301-0	Fly-Wheel	B029	257816007-0	Bracket
A030	257706303-2	Escutcheon	B030	257711202-0	Shaft
			B031	257711202-0	Shaft
A501	257840101-2	Frame	B041	257816054-0	Pulley Bracket K
A502	257830201-0	Dial	B042	257816008-0	Bracket
A503	257810701-2	Sheet	B043	259716004-0	Bracket
A504	257815401-0	Selector Knob	B044	259711201-0	Shaft
A505	257815401-0	Balance Knob	B045	133611201-0	Shaft
A506	257815401-0	Volume Knob	B049	257816010-0	Heat Sink + Chassis K Bracket
A509	257815402-0	Bass Knob	B050	257816011-0	Heat Sink + Chassis K Bracket
A510	257815402-0	Treble Knob	B051	257816012-2	Rotary Sw. + Chassis K Bracket
			B052	257816013-2	Bracket
A511	257815403-0	Bass Knob	B055	257810950-0	FM Tuner Shield K
A512	257815403-0	Treble Knob	B056	257810901-0	Shield
A513	257815404-0	Antenna Tuning Knob	B057	257810102-0	Support
A515	257812001-0	Dubbing In Insulator	B058	257810102-0	Support
A516	257812001-0	Dubbing Out Insulator	B059	257810102-0	Support
A517	257812001-0	Head Phones Insulator	B060	257810102-0	Support
A520	257715402-0	Tape Mon. Knob	B062	257810902-0	FM Tuner Shield
			B068	257810906-0	Tone Volume Shield
A521	257715402-0	Mono L. Knob	B070	257810907-2	10P Terminal Shield
A522	257715402-0	Mono R. Knob	B072	257810908-2	Shield
A523	257715402-0	Hi Blend Knob	B080	257805150-0	Pointer Guide K
A524	257715402-0	Low Filter Knob	B081	257805101-0	Guide
A525	257715402-0	Hi Filter Knob	B082	254811201-0	Shaft
A526	257715402-0	Loudness Knob	B086	257810650-0	Fly Wheel Bearing K
A527	257715402-0	Muting Off Knob	B087	257810401-0	Retainer
A528	257715402-0	Main Speaker Knob	B088	257710601-0	Bearing
A529	257715402-0	Rem Speaker Knob	B091	257805301-0	Lamp Cover

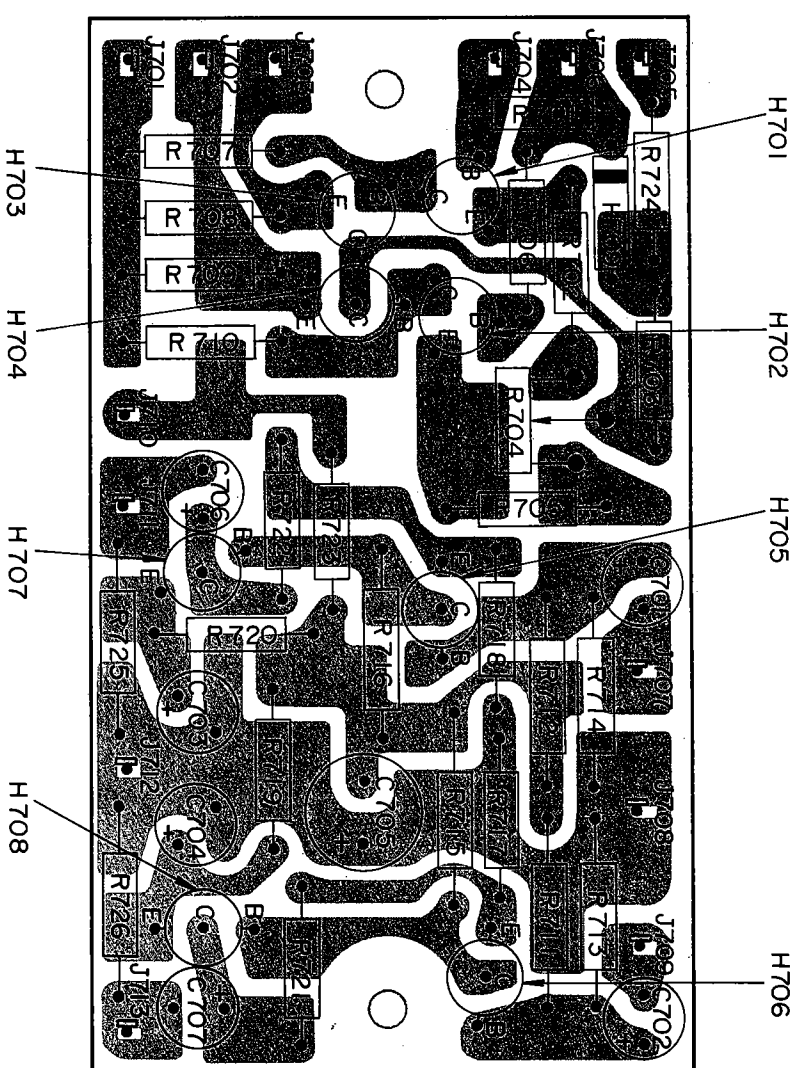


Figure 11 DC Amplifier and FM Audio Amplifier Assembly P700 Component Locations

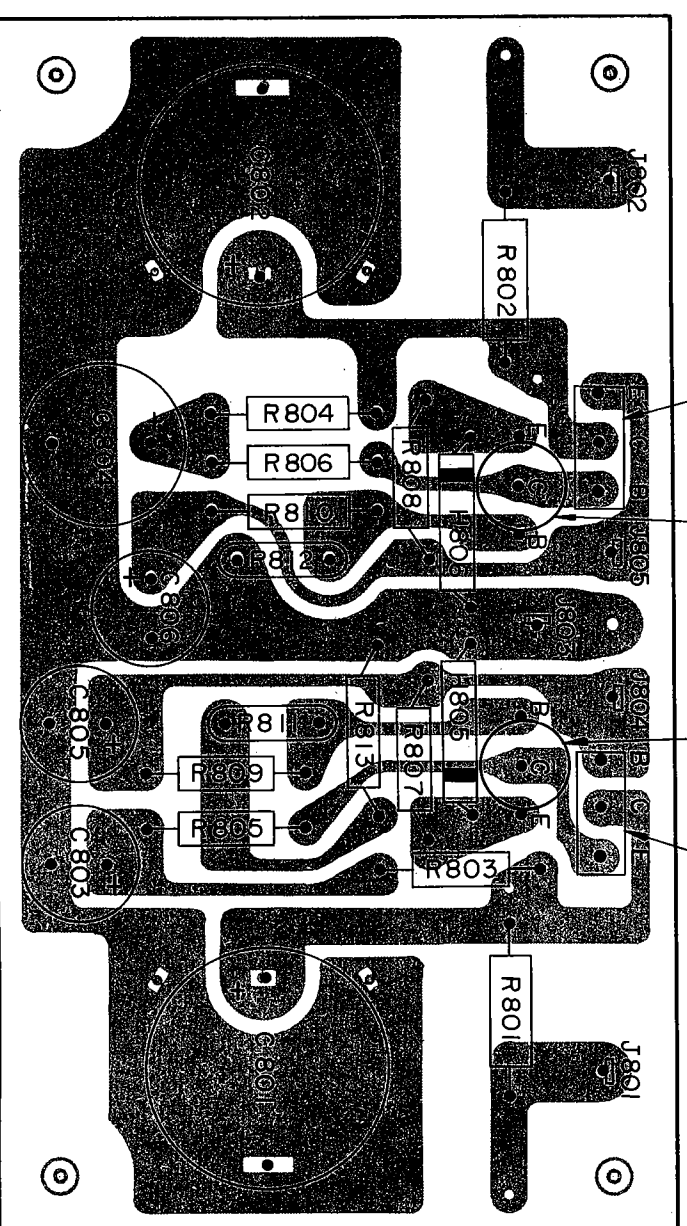


Figure 12 Regulated Power Supply Unit Assembly P800 Component Locations

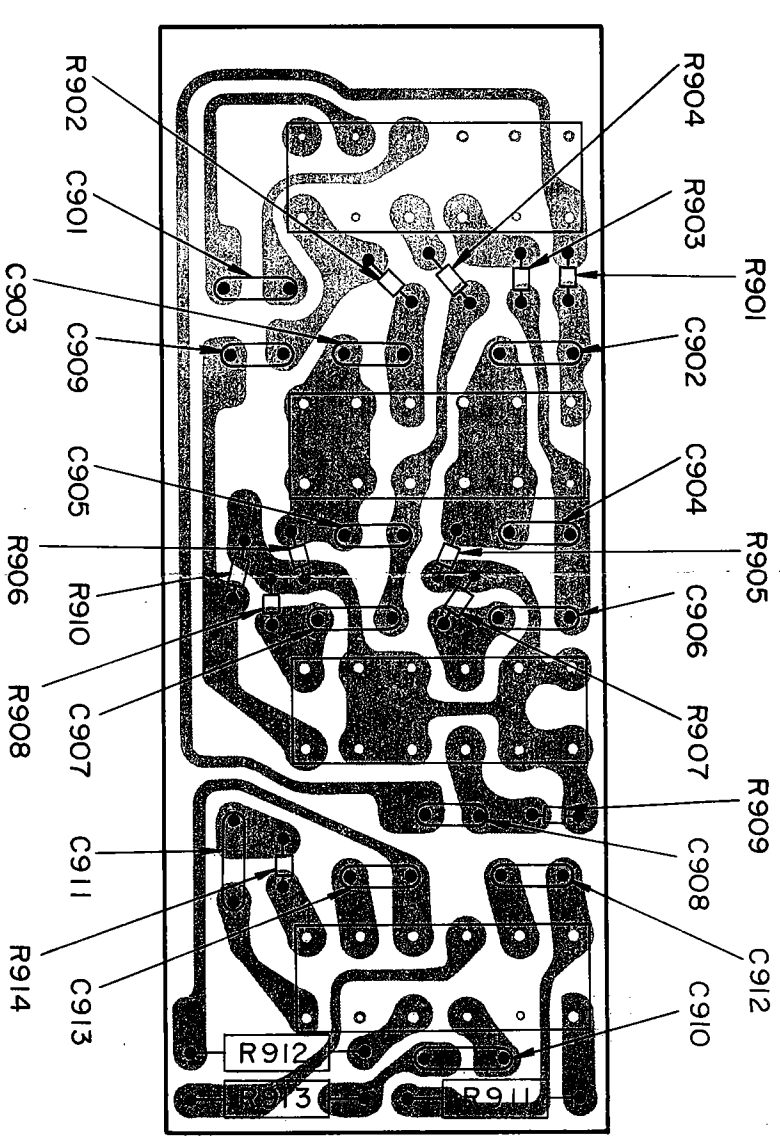


Figure 13 Hi Blend, Low Filter, Hi Filter and Loudness Switches Unit Assembly P900 Component Locations

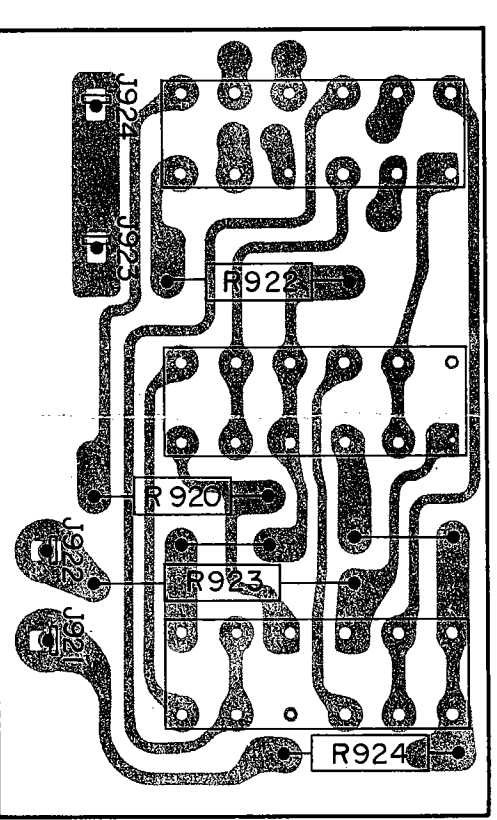


Figure 14 Tape Monitor and Mono in L.R. Switches Unit Assembly P920 Component Locations

NOTE:

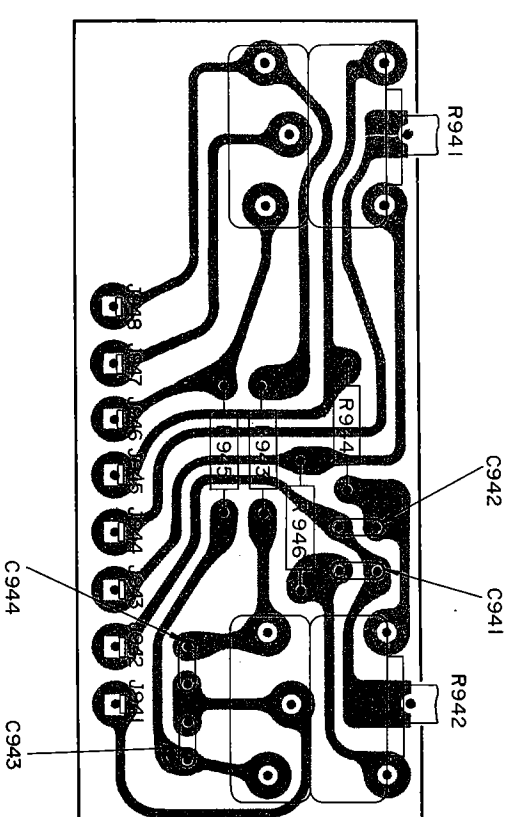


Figure 15 **Tone Control Unit Assembly P940 Component Locations**

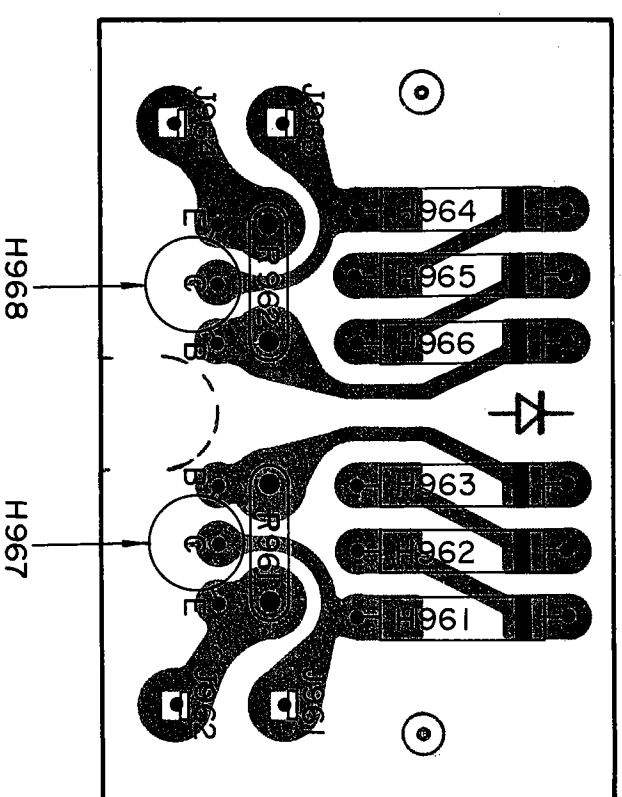


Figure 16 Temperature Compensation Unit Assembly P960 Component Locations

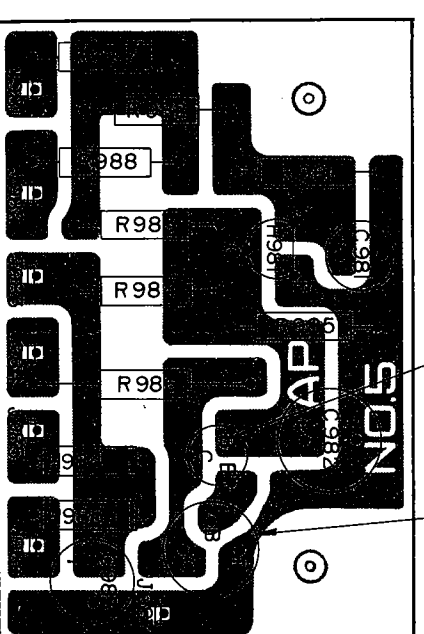


Figure 17 Speaker Protector Circuit Assembly P980 Component Locations

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
B093	257811202-2	Fly Wheel Shaft
B095	257805501-0	Head Phones Collar
B096	257805501-0	Head Phones Collar
B097	257805501-0	Head Phones Collar
B098	257805501-0	Head Phones Collar
B099	257805501-0	Head Phones Collar
B100	257805501-0	Head Phones Collar
B105	257810103-0	Heat-Sink + Punched Plate Support
B106	257810103-0	Heat-Sink + Punched Plate Support
B107	257810103-0	Heat-Sink + Punched Plate Support
B111	257810104-0	Escutcheon+Chassis(K)Support
B112	257810104-0	Escutcheon+Chassis(K)Support
B113	257810104-0	Escutcheon Front Bracket (K) Support
B114	257810104-0	Escutcheon Front Bracket (K) Support
B121	257810105-0	10P Terminal Support
B122	257810105-0	10P Terminal Support
B123	257810105-0	10P Terminal Support
B124	257810105-0	10P Terminal Support
B125	257810105-0	P.C Board Support
B126	257810105-0	P.C Board Support
B128	257816015-0	Relay Bracket
B131	124705850-0	Gear (K)
B132	124705801-0	Gear
B133	124705802-0	Gear
B134	121811202-0	Shaft
B136	124705850-0	Gear (K)
B137	124705801-0	Gear
B138	124705802-0	Gear
B139	121811202-0	Gear
B141	138200503-0	Clamper
B142	138200503-0	Clamper
B143	138200503-0	Clamper
B144	138200503-0	Clamper
B145	138200503-0	Clamper
B146	138200503-0	Clamper
B147	138200503-0	Clamper
B148	138200503-0	Clamper
B149	138200503-0	Clamper
B150	138200503-0	Clamper
D151	138200503-0	Clamper
D152	138200503-0	Clamper
D153	138200503-0	Clamper
B161	257905502-0	Push Switch(Ant Tuning) Collar
B162	257905502-0	Push Switch(Ant Tuning) Collar
B170	120225801-0	Hook
B171	71101239M-0	Spring
B174	71400219Q-0	MPX Lamp Spring

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
B178	71400149Q-0	Knob Spring
B179	71400149Q-0	Knob Spring
B182	257716017-0	Circuit Breaker Bracket
B184	257700501-0	Coil + Chassis (K) Clamper
B185	257700501-0	Coil + Chassis (K) Clamper
B187	53228059E-0	Muting Level Nut
B189	71101559M-0	Gear Spring
B190	71101559M-0	Gear Spring
B192	114325904-0	Bush
B193	114325904-0	Bush
B501	257815901-0	Drum
B503	257812002-0	Head Phone Insulator
B504	257812003-0	Head Phone Insulator
B506	257811801-0	Power Transistor Spacer
B507	257811802-0	Power Transistor Spacer
B508	257811802-0	Power Transistor Spacer
B509	257811802-0	Power Transistor Spacer
B510	257811802-0	Power Transistor Spacer
B513	257805601-0	Buffer
B517	257805302-2	Cover
B518	257805303-0	Cover
B520	257825902-0	MPX Stereo Lamp Bush
B543	257711803-0	Lid Spacer
B544	257726201-0	Pulley
B545	257726201-0	Pulley
B546	257726201-0	Pulley
B547	257726201-0	Pulley
B548	257726201-0	Pulley
B550	59114289C-0	Coil+Chassis(K) Washer
B551	59114289C-0	Coil+Chassis(K) Washer
B552	59110339H-0	Coil+Chassis(K) Washer
B553	59110339H-0	Coil+Chassis(K) Washer
B556	145525901-0	AC Cord Bush
B557	145525901-0	Ant. Cord Bush
B559	72081604A-0	62 3/4" String
B561	250605701-0	Leg
B562	250605701-0	Leg
B563	250605701-0	Leg
B564	250605701-0	Leg
B566	141511801-0	Fly Wheel Spacer
B567	257710602-0	Fly Wheel Bearing
B569	257711805-0	MPX Lamp Spacer
B570	149325902-0	MPX Lamp Bush
B571	149325902-0	Meter Lamp Bush
B572	149325902-0	Meter Lamp Bush
B573	102025901-0	Bush
B574	102025901-0	Bush
D001	51570306B-0	Power Amp P.C Board P. Tapt Screw

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D002	51570306B-0	Power Amp P.C Board P. Tapt Screw
D003	51570306B-0	Power Amp P.C Board P. Tapt Screw
D004	51570306B-0	Power Amp P.C Board P.Tapt Screw
D005	51570306B-0	Power Amp P.C Board P. Tapt Screw
D006	51570306B-0	Power Amp P.C Board P. Tapt Screw
D007	51570306B-0	IF P.C Board P.Tapt Screw
D008	51570306B-0	IF P.C Board P.Tapt Screw
D009	51570306B-0	IF P.C Board P.Tapt Screw
D010	51570306B-0	IF P.C Board P.Tapt Screw
D011	51570306B-0	IF P.C Board P.Tapt Screw
D012	51570306B-0	IF P.C Board P.Tapt Screw
D013	51570306B-0	Supply P.C Board P. Tapt Screw
D014	51570306B-0	Supply P.C Board P. Tapt Screw
D015	51570308B-0	Supply P.C Board P. Tapt Screw
D016	51570308B-0	Supply P.C Board P. Tapt Screw
D017	51570306B-0	Tone P.C Board P. Tapt Screw
D018	51570306B-0	Tone P.C Board P. Tapt Screw
D019	51570306B-0	Tone P.C Board P. Tapt Screw
D020	51570306B-0	Tone P.C Board P. Tapt Screw
D021	51570306B-0	Phone P.C Board P. Tapt Screw
D022	51570306B-0	Phone P.C Board P. Tapt Screw
D023	51570306B-0	Phone P.C Board P. Tapt Screw
D024	51570306B-0	Phone P.C Board P. Tapt Screw
D025	51570306B-0	Meter P.C Board P. Tapt Screw
D026	51570306B-0	Meter P.C Board P. Tapt Screw
D027	51570306B-0	AM RF P.C Board P. Tapt Screw
D028	51570306B-0	AM RF P.C Board P. Tapt Screw
D029	51570306B-0	AM RF P.C Board P. Tapt Screw
D030	51570306B-0	FM RF P.C Board P. Tapt Screw
D031	51570306B-0	FM RF P.C Board P. Tapt Screw
D032	51570306B-0	FM RF P.C Board P. Tapt Screw

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D033	51570306B-0	FM RF P.C Board P. Tapt Screw
D041	51570306B-0	7P Terminal P.Tapt Screw
D042	51570306B-0	7P Terminal P.Tapt Screw
D043	51570306B-0	7P Terminal P.Tapt Screw
D044	51570306B-0	7P Terminal P.Tapt Screw
D045	51570306B-0	7P Terminal P.Tapt Screw
D046	51570306B-0	7P Terminal P.Tapt Screw
D047	51570306B-0	7P Terminal P.Tapt Screw
D048	51570306B-0	7P Terminal P.Tapt Screw
D049	51570306B-0	7P Terminal P.Tapt Screw
D050	51570306B-0	7P Terminal P.Tapt Screw
D051	51570306B-0	5P Terminal P.Tapt Screw
D052	51570306B-0	5P Terminal P.Tapt Screw
D053	51570306B-0	Bracket+Chassis K P. Tapt Screw
D054	51570306B-0	Bracket+Chassis K P. Tapt Screw
D055	51570306B-0	Bracket+Chassis K Pulley Bracket P. Tapt Screw
D056	51570306B-0	Pulley Bracket P.Tapt Screw
D057	51570306B-0	Condencer P. Tapt Screw
D058	51570306B-0	Condencer P. Tapt Screw
D059	51570306B-0	Condencer P. Tapt Screw
D060	51570306B-0	Condencer P. Tapt Screw
D061	51570306B-0	Shield (Tone) P.Tapt Screw
D062	51570306B-0	Shield (Tone) P.Tapt Screw
D063	51570306B-0	Bracket P. Tapt Screw
D064	51570306B-0	Bracket P. Tapt Screw
D065	51570306B-0	FRONT Bracket+Chassis K P. Tapt Screw
D066	51570306B-0	FRONT Bracket+Chassis K P. Tapt Screw
D067	51570306B-0	FRONT Bracket+Chassis K P. Tapt Screw
D068	51570306B-0	FRONT Bracket+Chassis K P. Tapt Screw
D069	51570306B-0	Shield P. Tapt Screw
D070	51570306B-0	Shield P. Tapt Screw
D071	51570306B-0	P. Tapt Screw
D072	51570306B-0	P. Tapt Screw
D073	51570306B-0	P. Tapt Screw
D074	51570306B-0	P. Tapt Screw
D081	51570306B-0	Transistor Socket P.Tapt Screw
D082	51570306B-0	Transistor Socket P.Tapt Screw
D083	51570306B-0	Transistor Socket P.Tapt Screw
D084	51570306B-0	Transistor Socket P.Tapt Screw
D085	51570306B-0	Transistor Socket P.Tapt Screw
D086	51570306B-0	Transistor Socket P.Tapt Screw
D087	51570306B-0	Transistor Socket P.Tapt Screw
D088	51570306B-0	Transistor Socket P.Tapt Screw
D089	51570306B-0	Push Terminal P. Tapt Screw
D090	51570306B-0	Push Terminal P. Tapt Screw

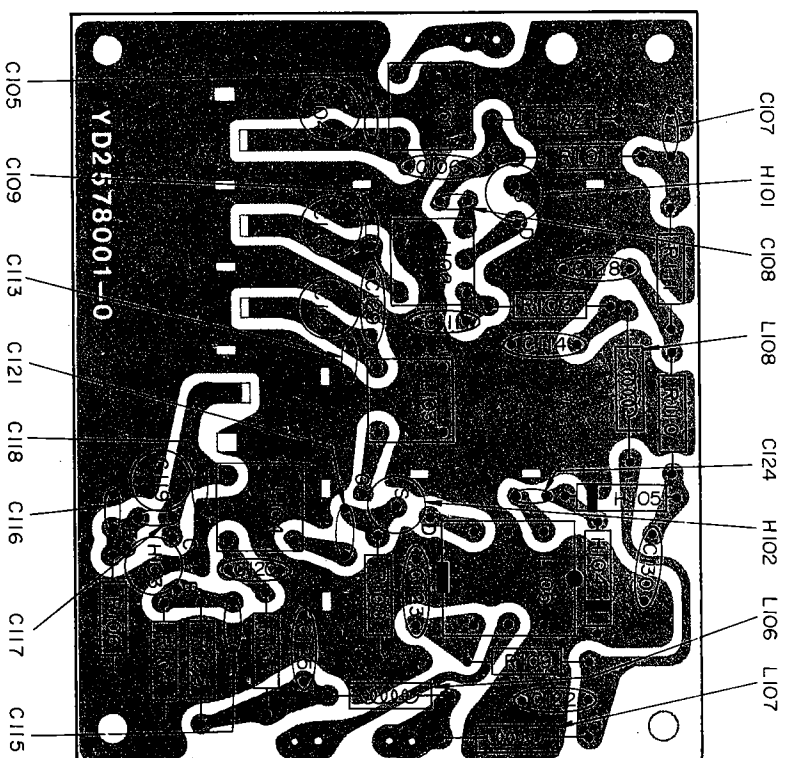


Figure 5 FM Front End Assembly P100 Component Locations

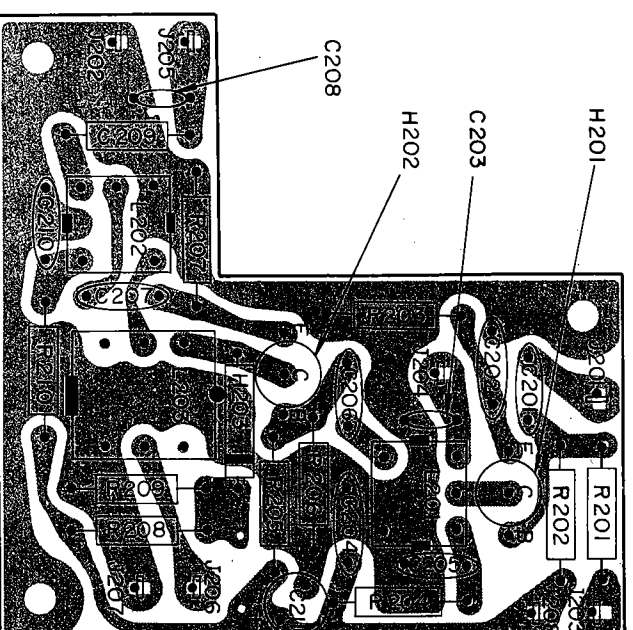


Figure 6 AM Front End Assembly P200 Component Locations

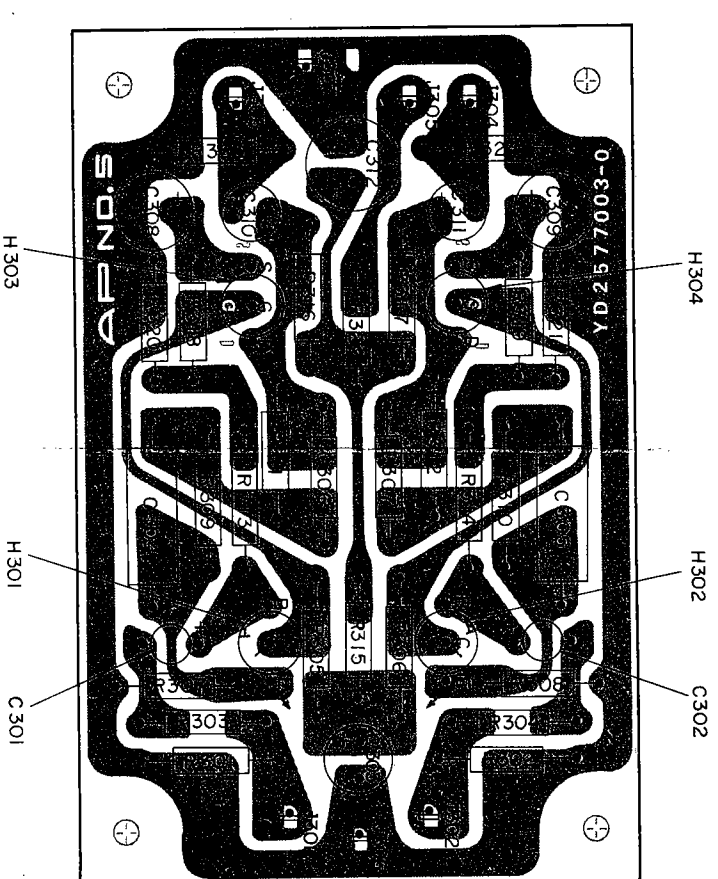


Figure 7 PHONO Amplifier Assembly P300 Component Locations

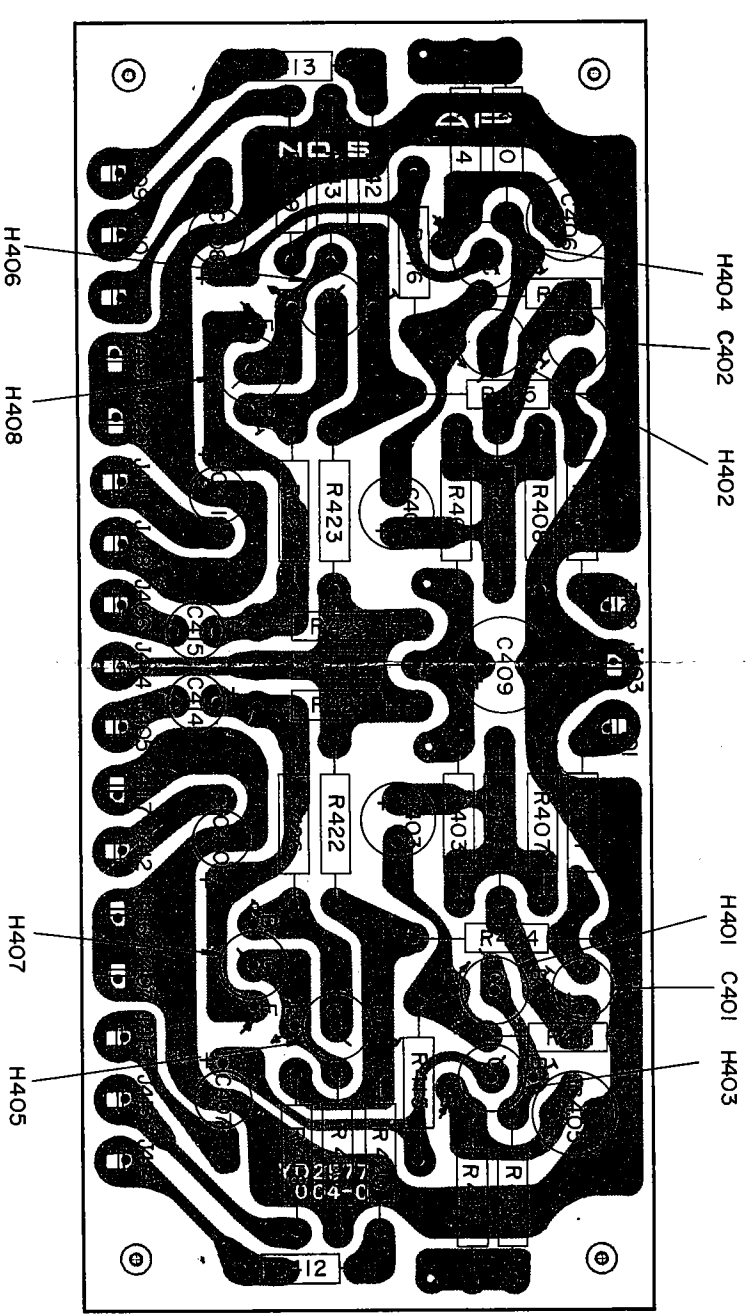


Figure 8 Tone and Pre Amplifier Assembly P400 Component Locations

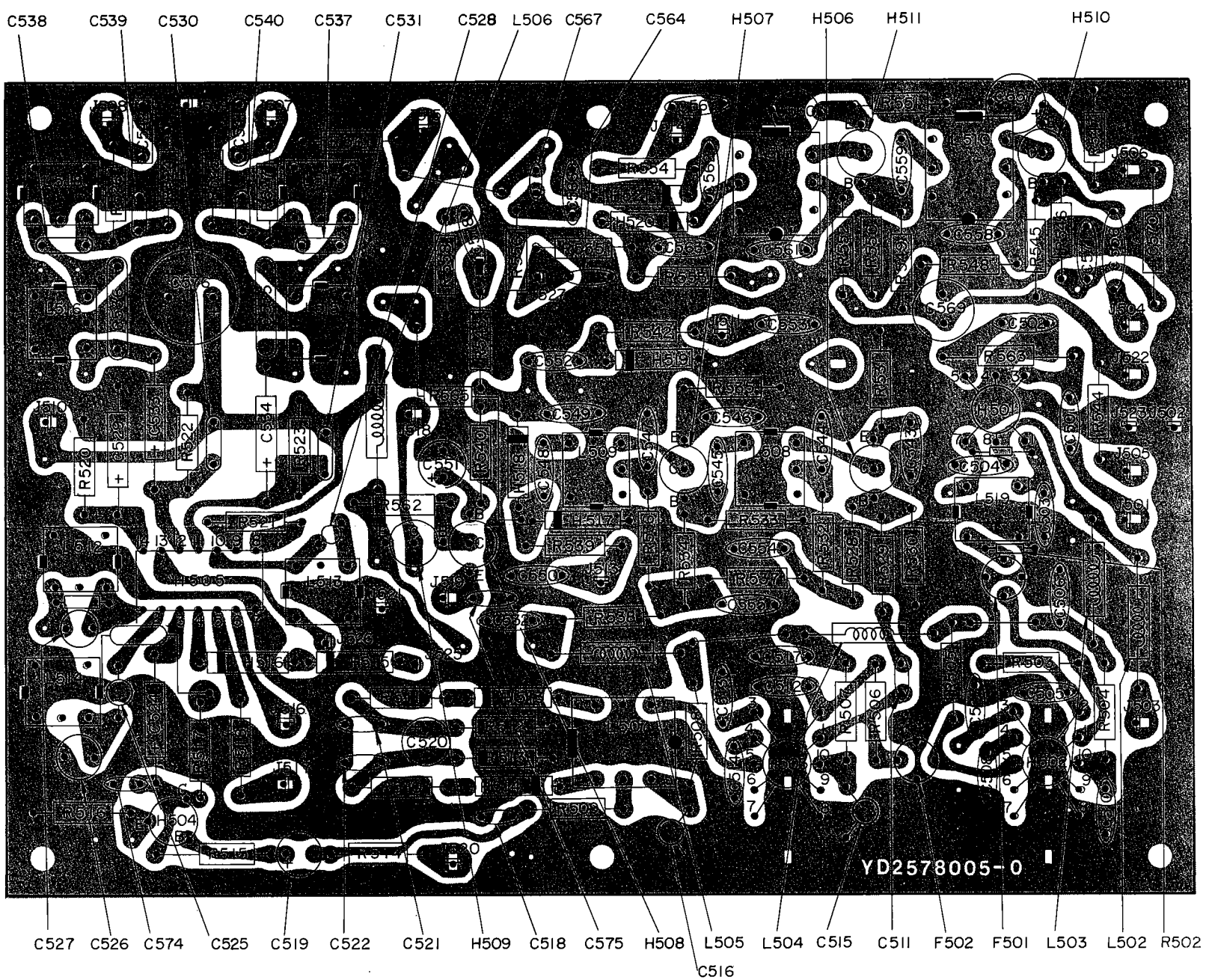


Figure 9 AM-FM IF and FM-MPX Demodulator Assembly P500 Component Locations

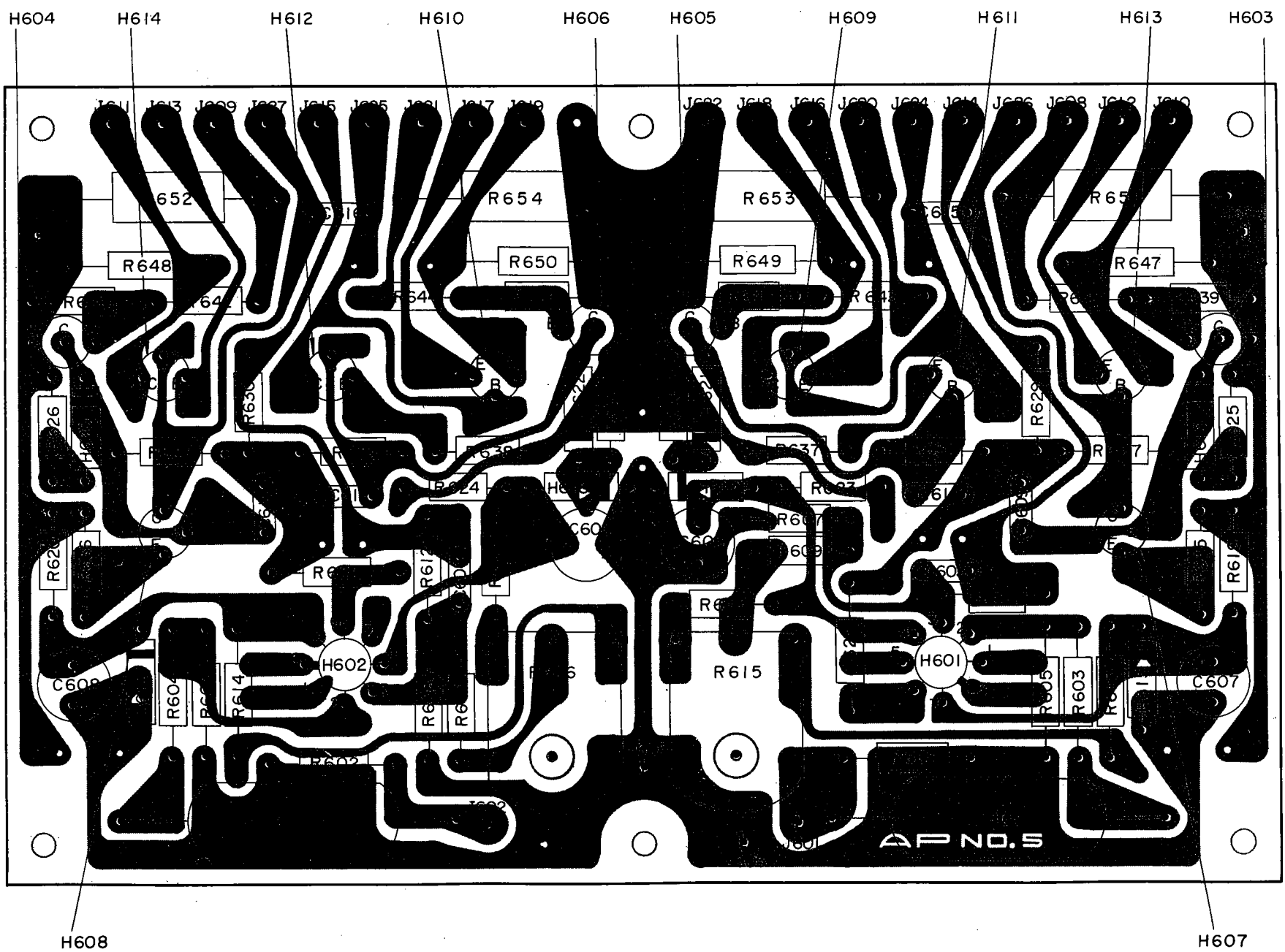


Figure 10 Main Amplifier Assembly P600 Component Locations

marantz® SERVICE BULLETIN	model number 22-23-24-25	bulletin number M-G-7
	for serial numbers ALL	
	subject PARTS SUBSTITUTION LIST	
	engineering approval N/A	date 3-15-73

Below is a list of semiconductors used in some Marantz models. These parts can be directly interchanged with either the alternate Marantz parts or the commercially available type listed.

MODEL 22 RECEIVER

MARANTZ PART NUMBER	ALTERNATE MARANTZ PART NUMBER	COMMERCIAL PART NUMBER
HT 9004100	462-1006	SJ-2000 (Motorola)
HT 7004100	461-1005	SJ-2001 "
HC 1000217	466-1000	MC-1741 "
HC 1000111	466-1004	UA-703 (Fairchild)
HC 1000114	466-1003	CA-3011 (RCA)
HC 1000117	466-1002	MC-1304 (Motorola)

MODEL 23 & 24

HC 1000114	466-1003	CA-3011 (RCA)
HC 1000111	466-1004	UA-703 (Fairchild)
HC 1000117	466-1002	MC-1304 (Motorola)

MODEL 25 RECEIVER

HT 9000310	462-1005	SJ-2008 (Motorola)
HT 9000310	461-1004	SJ-2009 "
HC 1000217	466-1000	MC-1741 "

This bulletin supersedes the previous service bulletin 70-10/0-0 dated 5-14-70 on this subject.


H. P. F.

marantz® SERVICE BULLETIN	model number 22	bulletin number M-22-6
	for serial numbers ALL	
	subject ELIMINATING AM "WHISTLING" ON EDGE OF PASSBAND	
	engineering approval N/A	date 3-14-73

To eliminate the whistling sounds that occur when tuning stations, (prior to full muting), we suggest the following modification:

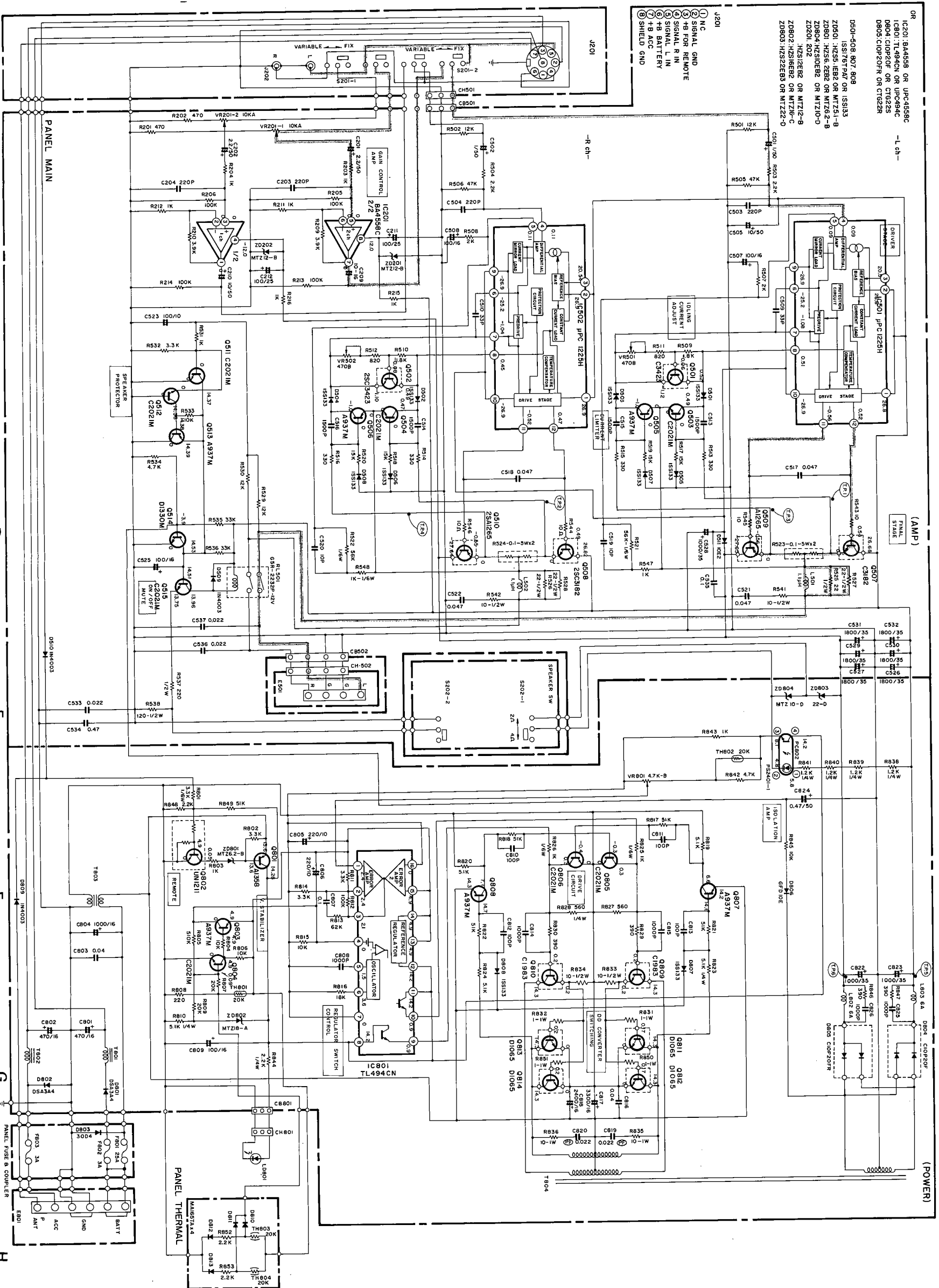
Install a 180K, $\frac{1}{2}$ watt resistor from the collector of H509 to ground. Transistor H509 is located on board number P500.

This bulletin supersedes the previous service bulletin 70-13/22-2 on this subject, dated 6-22-70.


Hector E. Gervasio, Manager
Technical Services

Schematic Diagram

ICs	IC201	IC501	IC502	PC802	IC801
Transistors	Q501-Q506	Q507-Q510	Q805-Q808	Q809-Q814	
Diodes	ZD201 ZD202	D501 D503 D505 D507 D511 D502 D504 D506 D508 D509	D806 D807 D808 D804 D805 D801 D809 ZD802 D801-D803	D810-D811 LD801	



age measuring conditions
ply voltage
Digital Multimeter
With respect to the
primary ground potential
(POWER)
With respect to the
secondary ground
potential (AMPLIFIER)
No signal input

A B C D E F G H

the crowning touch of perfection



marantz

MODEL 22RSERVICE MANUAL

This Service Manual is the first revised edition for model 22.

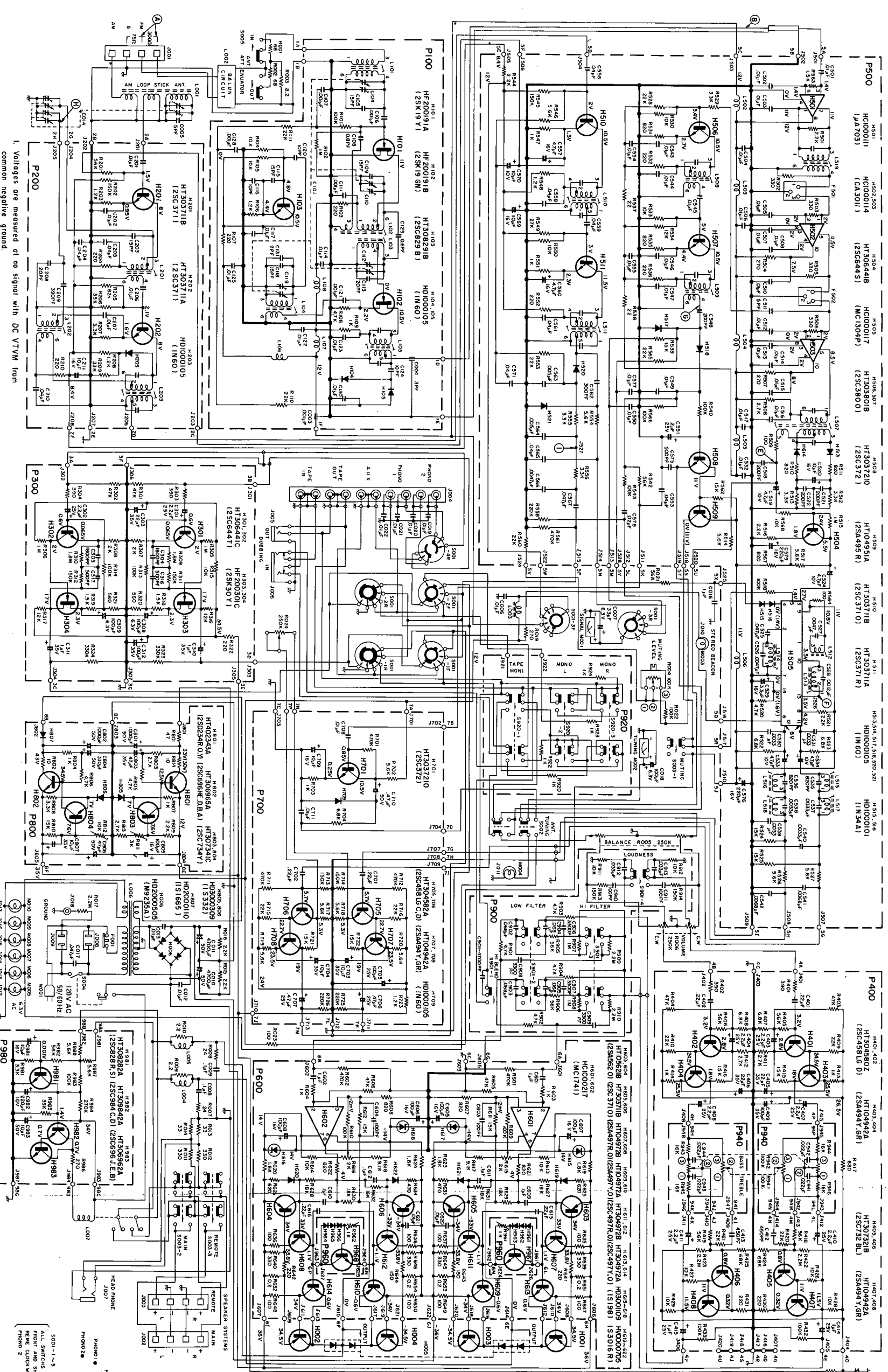
Included in this service manual are schematic diagram and indivisual parts list.

On the circuit description alignment method and repairing hints, refer to the original service manual.

TABLE OF CONTENTS

Schematic Diagram	1
Parts List	2

marantz



TRANSISTOR CONNECTION (BOTTOM VIEW)

TRANSISTOR	TYPE	REMARKS
6X4	6X4	6X4
6X5	6X5	6X5
6X6	6X6	6X6
6X7	6X7	6X7
6X8	6X8	6X8
6X9	6X9	6X9
6X10	6X10	6X10
6X11	6X11	6X11
6X12	6X12	6X12
6X13	6X13	6X13
6X14	6X14	6X14
6X15	6X15	6X15
6X16	6X16	6X16
6X17	6X17	6X17
6X18	6X18	6X18
6X19	6X19	6X19
6X20	6X20	6X20
6X21	6X21	6X21
6X22	6X22	6X22
6X23	6X23	6X23
6X24	6X24	6X24
6X25	6X25	6X25
6X26	6X26	6X26
6X27	6X27	6X27
6X28	6X28	6X28
6X29	6X29	6X29
6X30	6X30	6X30
6X31	6X31	6X31
6X32	6X32	6X32
6X33	6X33	6X33
6X34	6X34	6X34
6X35	6X35	6X35
6X36	6X36	6X36
6X37	6X37	6X37
6X38	6X38	6X38
6X39	6X39	6X39
6X40	6X40	6X40
6X41	6X41	6X41
6X42	6X42	6X42
6X43	6X43	6X43
6X44	6X44	6X44
6X45	6X45	6X45
6X46	6X46	6X46
6X47	6X47	6X47
6X48	6X48	6X48
6X49	6X49	6X49
6X50	6X50	6X50
6X51	6X51	6X51
6X52	6X52	6X52
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6X73	6X73	6X73
6X74	6X74	6X74
6X75	6X75	6X75
6X76	6X76	6X76
6X77	6X77	6X77
6X78	6X78	6X78
6X79	6X79	6X79
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6X81	6X81	6X81
6X82	6X82	6X82
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6X84	6X84	6X84
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6X86	6X86	6X86
6X87	6X87	6X87
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6X89	6X89	6X89
6X90	6X90	6X90
6X91	6X91	6X91
6X92	6X92	6X92
6X93	6X93	6X93
6X94	6X94	6X94
6X95	6X95	6X95
6X96	6X96	6X96
6X97	6X97	6X97
6X98	6X98	6X98
6X99	6X99	6X99
6X100	6X100	6X100

SCHEMATIC DIAGRAM OF MODEL 22R

1970-7-13

1. Voltages are measured with no signal with DC VTVM from common negative ground.
2. Voltages in parentheses are values measured at 100V FM stereo signal applied. Stereo switch in stereo position.

PARTS LIST

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
A001	2578063013	Escutcheon	B007	2578160020	Bracket
A002	2578003010	Punched Plate	B008	2578160020	Bracket
A003	2578257012	Lid	B009	2578160020	Bracket
A004	2578267014	Heat Sink	B010	2578160020	Bracket
A005	2578103012	Pointer	B011	2578160090	Bracket
A006	2578265012	Indicator	B012	2763160500	Bracket K
A008	2578067010	Cap	B013	2763160010	Bracket
A009	2578067010	Cap	B014	2578101010	Support
A010	2578067010	Cap	B015	2578101010	Support
A011	2578067020	Cap	B016	2578101010	Support
A012	2578067020	Cap	B018	2578160512	Bracket K
A013	2578067030	Cap	B019	2578160042	Bracket
A014	2578067030	Cap	B020	2578112010	Shaft
A016	2577067022	Cap	B022	2578160522	Bracket K
A017	2577067022	Cap	B023	2578160052	Bracket
A018	2577067022	Cap	B024	2578160062	Bracket
A019	2577067022	Cap	B025	5502030410	S. H. Rivet
A020	2577067022	Cap	B026	5502030410	S. H. Rivet
A021	2577067022	Cap	B028	2578160530	Bracket K
A022	2577067022	Cap	B029	2578160070	Bracket
A023	2577067022	Cap	B030	2577112020	Shaft
A024	2577067022	Cap	B031	2577112020	Shaft
A025	2577067022	Cap	B041	2578160540	Bracket K
A026	2577067022	Cap	B042	2578160080	Bracket
A028	2577063022	Escutcheon	B043	2597160040	Bracket
A029	2577273010	Fly Wheel	B044	2597112010	Shaft
A030	2577063032	Escutcheon	B045	1336112010	Shaft
A031	2578401012	Frame	B049	2578160102	Bracket
A501	2763302012	Dial	B050	2578160112	Bracket
A502	2678107012	Sheet	B051	2578160122	Bracket
A503	2678107012	Sheet	B053	2578160170	Bracket
A504	2578107030	Sheet	B055	2578109502	Shield K
A505	2578154010	Knob	B056	2578109012	Shield
A506	2578154010	Knob	B057	2578101020	Support
A507	2578154010	Knob	B058	2578101020	Support
A509	2578154020	Knob	B059	2578101020	Support
A510	2578154020	Knob	B060	2578101020	Support
A511	2578154030	Knob	B062	2578109022	Shield
A512	2578154030	Knob	B068	2578109060	Shield
A513	2578154040	Knob	B070	2578109072	Shield
A515	2578120010	Insulator	B072	2578109080	Shield
A516	2578120010	Insulator	B080	2578051500	Guide K
A517	2578120010	Insulator	B081	2578051010	Guide
A519	2763107010	Sheet	B082	2548112010	Shaft
A520	2577154020	Knob	B086	2578106500	Bearing K
A521	2577154020	Knob	B087	2578104010	Retainer
A522	2577154020	Knob	B088	2577106610	Bearing
A523	2577154020	Knob	B091	2763053010	Cover
A524	2577154020	Knob	B093	2578112022	Shaft
A525	2577154020	Knob	B095	2578055010	Collar
A526	2577154020	Knob	B096	2578055010	Collar
A527	2577154020	Knob	B097	2578055010	Collar
A528	2577154020	Knob	B098	2578055010	Collar
A529	2577154020	Knob	B099	2578055010	Collar
A530	2577154020	Knob	B100	2578055010	Collar
B001	2578257022	Lid	B105	2578101030	Support
B003	2578105502	Chassis K	B106	2578101030	Support
B004	2578105012	Chassis	B107	2578101030	Support
B005	2578160012	Bracket	B111	2578101040	Support
B006	2578160012	Bracket			

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
B112	2578101040	Support	B541	2763259010	Bush
B113	2578101040	Support	B542	2763259010	Bush
B114	2578101040	Support	B543	2577118030	Spacer
B121	2578101050	Support	B544	2577262010	Pulley
B122	2578101050	Support	B545	2577262010	Pulley
B123	2578101050	Support	B546	2577262010	Pulley
B124	2578101050	Support	B547	2577262010	Pulley
B125	2578101050	Support	B548	2577262010	Pulley
B126	2578101050	Support	B550	59114289C0	Washer
B128	2578160152	Bracket	B551	59114289C0	Washer
B131	1247058500	Gear K	B552	59110339H0	Washer
B132	1247058010	Gear	B553	59110339H0	Washer
B133	1247058020	Gear	B556	1455259010	Bush
B134	1218112020	Shaft	B558	1366120020	Insulator
B136	1247058500	Gear	B559	72081604A0	String
B137	1247058010	Gear	B560	1455120010	Insulator
B138	1247058020	Gear	B561	2506057010	Leg
B139	1218112020	Gear	B562	2506057010	Leg
B140	1382005030	Clamper	B564	2506057 10	Leg
B141	1382005030	Clamper	B566	1415118010	Spacer
B142	1382005030	Clamper	B567	2577106020	Bearing
B143	1382005030	Clamper	B571	71400219Q0	Spring
B144	1382005030	Clamper	B572	71400219Q0	Spring
B145	1382005030	Clamper	B573	1020259010	Bush
B146	1382005030	Clamper	B574	1020259010	Bush
B147	1382005030	Clamper	B575	2763053020	Cover
B148	1382005030	Clamper	D001	51570306B0	P. Tapt Screw
B149	1382005030	Clamper	D002	51570306B0	P. Tapt Screw
B150	1382005030	Clamper	D003	51570306B0	P. Tapt Screw
B151	1382005030	Clamper	D004	51570306B0	P. Tapt Screw
B152	1382005030	Clamper	D005	51570306B0	P. Tapt Screw
B153	1382005030	Clamper	D006	51570306B0	P. Tapt Screw
B154	1382005030	Clamper	D007	51570306B0	P. Tapt Screw
B155	1382005030	Clamper	D008	51570306B0	P. Tapt Screw
B161	2579055020	Collar	D009	51570306B0	P. Tapt Screw
B162	2579055020	Collar	D010	51570306B0	P. Tapt Screw
B166	2722160030	Bracket	D011	51570306B0	P. Tapt Screw
B168	2578160160	Bracket	D012	51570306B0	P. Tapt Screw
B170	1202258010	Hook	D013	51570306B0	P. Tapt Screw
B171	71101239M0	Spring	D014	51570306B0	P. Tapt Screw
B178	71400149Q0	Spring	D015	51570308B0	P. Tapt Screw
B179	71400149Q0	Spring	D016	51570308B0	P. Tapt Screw
B182	2577160170	Bracket	D017	51570306B0	P. Tapt Screw
B184	2577005010	Clamper	D018	51570306B0	P. Tapt Screw
B185	2577005010	Clamper	D019	51570306B0	P. Tapt Screw
B187	53228059E0	Nut	D020	51570306B0	P. Tapt Screw
B189	71101559M0	Spring	D021	51570306B0	P. Tapt Screw
B190	71101559M0	Spring	D022	51570306B0	P. Tapt Screw
B192	1143259040	Bush	D023	51570306B0	P. Tapt Screw
B193	1143259040	Bush	D024	51570306B0	P. Tapt Screw
B501	2578159010	Drum	D025	51570306B0	P. Tapt Screw
B503	2578120020	Insulator	D026	51570306B0	P. Tapt Screw
B504	2578120030	Insulator	D027	51570306B0	P. Tapt Screw
B507	2578118020	Spacer	D028	51570306B0	P. Tapt Screw
B508	2578118020	Spacer	D029	51570306B0	P. Tapt Screw
B509	2578118020	Spacer	D030	51570306B0	P. Tapt Screw
B510	2578118020	Spacer	D031	51570306B0	P. Tapt Screw
B513	2578056010	Buffer	D032	51570306B0	P. Tapt Screw
B517	2578053022	Cover	D033	51570306B0	P. Tapt Screw
B518	2578053030	Cover	D034	51570306B0	P. Tapt Screw
B522	2579118010	Spacer	D035	51570306B0	P. Tapt Screw
B523	2578118040	Spacer	D041	51570306B0	P. Tapt Screw
B524	2686118010	Spacer			

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D368	54050300R0	T. L. Washer OR	L101	LA10046200	Ant Coil	R510	RT108221140	820Ω ±10% ¼W, Carbon Film	C510	DK17103010	0.01μF ±20% Cer.
D369	54050300R0	T. L. Washer OR	L102	LA10046160	RF Coil	R511	RT108221140	820Ω ±10% ¼W, Carbon Film	C511	DD11050010	5pF ±0.5pF Cer.
D371	51122608E0	T. H. M. Screw	L103	LA10046190	RF Coil	R512	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C512	DK17103010	0.01μF ±20% Cer.
D372	51122608E0	T. H. M. Screw	L104	LO12026020	OSC Coil	R513	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C513	DK17103010	0.01μF ±20% Cer.
D373	51122608E0	T. H. M. Screw	L105	LI14016190	IFT	R514	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C514	DK17103010	0.01μF ±20% Cer.
D374	51122608E0	T. H. M. Screw	L106	LC13020010	Choke Coil	R515	RN10105140	1MΩ ±10% ¼W, Carbon Film	C515	DK17103010	0.01μF ±20% Cer.
D377	54020401S0	Flat Washer S	L107	LC13020010	Choke Coil	R516	RT10222140	2.2KΩ ±10% ¼W, Carbon Film	C516	DK17103010	0.01μF ±20% Cer.
D378	54020401S0	Flat Washer S	L108	LC13020010	Choke Coil	R517	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C517	DK17103010	0.01μF ±20% Cer.
D379	54020401S0	Flat Washer S	L109	LC13020010	Choke Coil	R518	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C518	DD16201010	200pF ±10% Cer.
D380	54020401S0	Flat Washer S	L110	LC13020010	Choke Coil	R519	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C519	ED47501020	4.7μF ±10% Cer.
D382	54020401E0	Flat Washer P	T102	2578109040	Shield	R520	RT10472140	4.7KΩ ±10% ¼W, Carbon Film	C520	EA10601620	10μF ±10% Cer.
D383	54020401E0	Flat Washer P	T103	2578109050	Shield	R521	RT10222140	2.2KΩ ±10% ¼W, Carbon Film	C521	DD16201010	200pF ±10% Cer.
D384	54020401E0	Flat Washer P	H101	HF200191A0	2SK19Y Transistor	R522	RT10682140	6.8KΩ ±10% ¼W, Carbon Film	C522	ED47501020	4.7μF ±10% Cer.
D385	54020401E0	Flat Washer P	H102	HF200191B0	2SK19GN Transistor	R523	RT10682140	6.8KΩ ±10% ¼W, Carbon Film	C523	ED47501020	4.7μF ±10% Cer.
D387	51060312E9	P. H. M. Screw	H103	HT308291B0	2SC829B Transistor	R524	RT10153140	15KΩ ±10% ¼W, Carbon Film	C524	DF17473010	0.047μF ±5% Mylar
D388	51060312E9	P. H. M. Screw	H104	HD10001050	1N60 Diode	R525	RT10153140	15KΩ ±10% ¼W, Carbon Film	C525	DF17473010	0.047μF ±5% Mylar
D389	51060312E9	P. H. M. Screw	H105	HD10001050	1N60 Diode	R526	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C526	DF55472010	0.0047μF ±5% Mylar
D390	51060312E9	P. H. M. Screw	W101	YW27630010	Wire Materials	R527	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C527	DF55472010	0.0047μF ±5% Mylar
D391	51060312E9	P. H. M. Screw	P200	YD25780020	PC Board	R528	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C528	DF54122010	0.0012μF ±2% Mylar
D392	51060312E9	P. H. M. Screw	R201	RT10562140	56KΩ ±10% ¼W, Carbon Film	R529	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C529	ED33501630	3.3μF ±10% Mylar
D393	51060312E9	P. H. M. Screw	R202	RT10154140	150KΩ ±10% ¼W, Carbon Film	R530	RT10103140	10KΩ ±10% ¼W, Carbon Film	C530	DF16332010	0.0033μF ±10% Mylar
D394	51060312E9	P. H. M. Screw	R203	RT10154140	1.2KΩ ±10% ¼W, Carbon Film	R531	RT10821140	820Ω ±10% ¼W, Carbon Film	C531	DF16332010	0.0033μF ±10% Mylar
P100	YD25780130	PC Board	R204	RT10221140	220Ω ±10% ¼W, Carbon Film	R532	RT10221140	220Ω ±10% ¼W, Carbon Film	C532	DK17103010	0.01μF ±20% Cer.
R101	RC10104120	100KΩ ±10% ¼W, Solid	R205	RT10823140	82KΩ ±10% ¼W, Carbon Film	R533	RT10103140	10KΩ ±10% ¼W, Carbon Film	C533	ED47501020	4.7μF ±10V Elect.
R102	RC10104120	1MΩ ±10% ¼W, Solid	R206	RT10333140	33KΩ ±10% ¼W, Carbon Film	R534	RT10123140	12KΩ ±10% ¼W, Carbon Film	C534	ED47501020	4.7μF ±10V Elect.
R103	RC10221120	220Ω ±10% ¼W, Solid	R207	RT10333140	3.3KΩ ±10% ¼W, Carbon Film	R535	RT10821140	820Ω ±10% ¼W, Carbon Film	C535	DF65821010	820pF ±5% Mylar
R104	RC10103120	10KΩ ±10% ¼W, Solid	R208	RT10122140	1.2KΩ ±10% ¼W, Carbon Film	R536	RT10221140	220Ω ±10% ¼W, Carbon Film	C536	DF65821010	820pF ±5% Mylar
R105	RC10103120	10KΩ ±10% ¼W, Solid	R209	RT10333140	33KΩ ±10% ¼W, Carbon Film	R537	RT10221140	220Ω ±10% ¼W, Carbon Film	C537	DF16332010	0.0033μF ±10% Mylar
R106	RC10122120	1.2KΩ ±10% ¼W, Solid	R210	RT10122140	220Ω ±10% ¼W, Carbon Film	R538	RT10220140	220Ω ±10% ¼W, Carbon Film	C538	DF16332010	0.0033μF ±10% Mylar
R107	RC10221120	220Ω ±10% ¼W, Solid	C201	DK17103010	0.01μF ±20% Cer.	R539	RT10153140	15KΩ ±10% ¼W, Carbon Film	C539	DF16332010	0.0033μF ±10% Mylar
R108	RC10472120	4.7KΩ ±10% ¼W, Solid	C202	DK17103010	0.01μF ±20% Cer.	R540	RT10104140	100KΩ ±10% ¼W, Carbon Film	C540	DF16332010	0.0033μF ±10% Mylar
R109	RC10102120	1KΩ ±10% ¼W, Solid	C203	DD16150010	15pF ±10% Cer.	R542	RT10563140	56KΩ ±10% ¼W, Carbon Film	C541	DF16682010	0.0068μF ±20% Mylar
R110	RC10102120	1KΩ ±10% ¼W, Solid	C204	DK18403010	0.04μF +100% -0% Cer.	R543	RT10104140	100KΩ ±10% ¼W, Carbon Film	C542	DF16682010	0.0068μF ±20% Mylar
R111	RC10223120	22KΩ ±10% ¼W, Solid	C205	DK18403010	0.04μF +100% -0% Cer.	R544	RT10222140	2.2KΩ ±10% ¼W, Carbon Film	C543	DK17103010	0.01μF ±20% Cer.
C101	CA40000010	FM 4Gang Variable with Trimmer	C206	DK17103010	0.01μF ±20% Cer.	R545	RT10154140	150KΩ ±10% ¼W, Carbon Film	C544	DK17103010	0.01μF ±20% Cer.
C104	CT11000020	2.8pF -12.8pF Trimmer	C207	DK17103010	0.01μF ±20% Cer.	R546	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C545	DK17103010	0.01μF ±20% Cer.
C105	DD16150010	15pF ±10% Cer.	C208	DD16200010	20pF ±10% Cer.	R547	RT10102140	1KΩ ±10% ¼W, Carbon Film	C546	DK17103010	0.01μF ±20% Cer.
C106	DK17102010	0.001μF ±20% Cer.	C209	DF65391500	390pF ±5% Mylar	R548	RT10122140	1.2KΩ ±10% ¼W, Carbon Film	C547	DK17103010	0.01μF ±20% Cer.
C107	DK17102010	0.001μF ±20% Cer.	C210	DK18403010	0.04μF ±5% Mylar	R549	RT10273140	27KΩ ±10% ¼W, Carbon Film	C548	DD16201010	200pF ±10% Cer.
C108	DD16080010	0.8pF ±10% Cer.	C211	EA10601620	10μF 16V Elect.	R550	RT10103140	10KΩ ±10% ¼W, Carbon Film	C549	DK17103010	0.01μF ±20% Cer.
C109	DD16150010	15pF ±10% Cer.	L202	LO10010350	RF Coil	R551	RT10102140	1KΩ ±10% ¼W, Carbon Film	C550	DK17103010	0.01μF ±20% Cer.
C110	CT11000020	2.8pF -12.8pF Trimmer	L201	LA10010140	OSC Coil	R552	RT10221140	220Ω ±10% ¼W, Carbon Film	C551	EV22402510	0.2μF ±2.5V Elect.
C111	DK17102010	0.001μF ±20% Cer.	L203	LI14010010	IFT	R553	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C552	EA10700610	100μF 6.3V Elect.
C112	CT11000020	2.8pF -12.8pF Trimmer	H201	HT303711B0	2SC371 Transistor	R554	RT10562140	5.6KΩ ±10% ¼W, Carbon Film	C553	DK18403010	0.04μF ±100% -0% Cer.
C113	DD16200010	2.0μF ±10% Cer.	H202	HT303711A0	2SC371 Transistor	R555	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C554	DK17103010	0.01μF ±20% Cer.
C114	DK17103010	0.01μF ±20% Cer.	H203	HD10001050	1N60 Diode	R556	RT10332140	3.3KΩ ±10% ¼W, Carbon Film	C555	DK17103010	0.01μF ±20% Cer.
C115	DD16150030	15pF ±10% CH Cer.	J201	YP10000360	Plug	R558	RT10224140	220KΩ ±10% ¼W, Carbon Film	C556	EA47501610	4.7μF ±16V Elect.
C116	DD12100060	10pF ±10% CH Cer.	J202	YP10000360	Plug	R559	RT10223140	22KΩ ±10% ¼W, Carbon Film	C557	DK18403010	0.04μF +100% -0% Cer.
C117	DK17103010	0.01μF ±20% Cer.	J203	YP10000360	Plug	R560	RT10474140	470KΩ ±10% ¼W, Carbon Film	C558	DK18403010	0.04μF +100% -0% Cer.
C118	DD16150060	15pF ±10% PH Cer.	J204	YP10000360	Plug	R561	RT10153140	15KΩ ±10% ¼W, Carbon Film	C559	EA47501610	4.7μF ±16V Elect.
C119	CT10500010	1~5pF CH Trimmer	J205	YP10000360	Plug	R562	RT10153140	15KΩ ±10% ¼W, Carbon Film	C560	EA47501610	4.7μF ±16V Elect.
C120	DD12100060	10pF ±1pF CH Cer.	J206	YP10000360	Plug	R563	RT10152140	1.5KΩ ±10% ¼W, Carbon Film	C561	DK18403010	0.04μF +100% -0% Cer.
C121	DK17102010	0.001μF ±20% Cer.	J207	YP10000360	Plug	R564	RT10101140	100Ω ±10% ¼W, Carbon Film	C562	DD15301010	300pF ±5% Cer.
C122	DK17103010	0.01μF ±20% Cer.	J208	YD25780050	PC Board	R565	RC10223120	22KΩ ±10% ¼W, Solid	C563	DK17502010	0.005μF ±20% Cer.
C123	DK17103010	0.01μF ±20% Cer.	P500	YD25780050	PC Board	R566	RT10104140	100KΩ ±10% ¼W, Carbon Film	C564	DK17502010	0.005μF ±20% Cer.
C124	DD12100010	10pF ±1pF Cer.	R501	RT10222140	2.2KΩ ±10% ¼W, Carbon Film	R567	RT10821140	820Ω ±10% ¼W, Carbon Film	C565	DK18403010	0.04μF +100% -0% Cer.
C125	DK17103010	0.01μF ±20% Cer.	R502	RT10331140	330Ω ±10% ¼W, Carbon Film	R568	RT10103140	10KΩ ±10% ¼W, Carbon Film	C566	DF17472010	0.0047μF ±20% Mylar
C004	DC11030020	3pF ±0.5pF Feed Through	R503	RT10271140	270Ω ±10% ¼W, Carbon Film	C501	DK17103010	0.01μF ±20% Cer.	C567	DF17473010	0.047μF ±20% Mylar
C003	DC18102010	0.001μF ±100% -0% Feed Through	R504	RT10331140	330Ω ±10% ¼W, Carbon Film	C502	DK17103010	0.01μF ±20% Cer.	C568	EA10601620	10μF ±16V Elect.
C128	DK17102010	0.001μF ±20% Cer.	R505	RT10331140	330Ω ±10% ¼W, Carbon Film	C503	DK17103010	0.01μF ±20% Cer.	C569	ED10601020	10μF ±10V Elect.
C129	DD10010010	1.0pF ±0.25pF Cer.	R506	RT10331140	330Ω ±10% ¼W, Carbon Film	C504	DK17103010	0.01μF ±20% Cer.	C570	DK18403010	0.04μF +100% -0% Cer.
C130	DK17103010	0.01μF ±20% Cer.	R507	RT10271140	270Ω ±10% ¼W, Carbon Film	C505	DK17103010	0.01μF ±20% Cer.	C571	DD16501010	500pF ±10% Cer.
C131	DD11020040	2pF ±0.5pF CH Cer.	R508	RT10272140	2.7KΩ ±10% ¼W, Carbon Film	C506	DK17103010	0.01μF ±20% Cer.	C575	EA22701640	220μF ±16V Elect.
			R509	RT10101140	100Ω ±10% ¼W, Carbon Film	C507	DK17103010	0.01μF ±20% Cer.	C576	DK17103010	0.01μF ±20% Cer.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C578	DK18203010	0.02 μ F +100%-0% Cer.
C579	EA22701620	220 μ F 16V Elect.
L502	LC12230010	22 μ H Choke Coil
L503	LC12230010	22 μ H Choke Coil
L504	LC12230010	22 μ H Choke Coil
L505	LC12230010	22 μ H Choke Coil
L506	LC12230010	22 μ H Choke Coil
L507	LI14016043	FM IFT (Det)
L508	LI10156010	FM IFT (Sub)
L509	LI10156020	FM IFT (Sub)
L510	LI14010040	AM IFT
L511	LI14010050	AM IFT
L512	LS10010070	19KHz MPX Coil
L513	LS10010070	19KHz MPX Coil
L514	LS10010070	38KHz MPX Coil
L515	LS10010060	38KHz Trap Coil
L516	LS10010060	38KHz Trap Coil
L517	LS10010060	19KHz Trap Coil
L518	LS10010060	19KHz Trap Coil
L519	LI10016160	FM IFT
F501	FF11070010	SFC 10.7MA Ceramic Filter
F502	FF11070010	SFC 10.7MA Ceramic Filter
H501	HC10001110	μ A703 IC
H502	HC10001140	CA3011 IC
H503	HC10001140	CA3011 IC
H504	HT306441B0	2SC644S Transistor
H505	HC10001170	MC1304P IC
H506	HT303801B0	2SC3800 Transistor
H507	HT303801B0	2SC3800 Transistor
H508	HT30372100	2SC372 Transistor
H509	HT104951A0	2SA495 Transistor
H510	HT303711B0	2SC371 Transistor
H511	HT303711A0	2SC371 Transistor
H513	HD10001050	1N60 Diode
H514	HD10001050	1N60 Diode
H515	HD10001010	1N34A Diode
H516	HD10001010	1N34A Diode
H517	HD10001050	1N60 Diode
H518	HD10001050	1N60 Diode
H520	HD10001050	1N60 Diode
H521	HD10001050	1N60 Diode
J501	YP10000360	Plug
J502	YP10000360	Plug
J503	YP10000360	Plug
J504	YP10000360	Plug
J505	YP10000360	Plug
J506	YP10000360	Plug
J507	YP10000360	Plug
J508	YP10000360	Plug
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J515	YP10000360	Plug
J516	YP10000360	Plug
J517	YP10000360	Plug
J518	YP10000360	Plug
J519	YP10000360	Plug
J520	YP10000360	Plug
J521	YP10000360	Plug
J522	YP10000360	Plug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
J523	YP10000360	Plug
J525	YP10000010	Plug
J526	YP10000010	Plug
J527	YP10000010	Plug
J528	YP10000010	Plug
W501	YW27630022	Wire Materials
P700	YD25780140	PC Board
R701	RT10474140	470K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R702	RT10562140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R703	RT10102140	1K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R704	RT10682140	6.8K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R711	RN10474140	470K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R712	RN10474140	470K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R713	RN10154140	150K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R714	RN10154140	150K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R715	RN10223140	22K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R716	RN10223140	22K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R717	RT10562140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R718	RT10562140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R719	RT10102140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R720	RT10102140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R721	RT10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R722	RT10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R723	RT10562140	5.6K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R725	RT10224140	220K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R726	RT10224140	220K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
C701	DF17224020	0.22 μ F $\pm$ 20% 50V Mylar
C702	DF17224020	0.22 μ F $\pm$ 20% 50V Mylar
C703	EA10603510	10 μ F $\pm$ 20% 35V Elect.
C704	EA10603510	10 μ F $\pm$ 20% 35V Elect.
C705	EA10702520	100 μ F $\pm$ 20% 25V Elect.
C706	EM47402510	0.47 μ F $\pm$ 20% 25V Elect.
C707	EM47402510	0.47 μ F $\pm$ 20% 25V Elect.
C708	DF17104020	0.1 μ F $\pm$ 20% 50V Mylar
C709	EA10601620	10 μ F $\pm$ 20% 16V Elect.
C710	EA47405010	0.47 μ F $\pm$ 20% 50V Elect.
C711	DK17103010	0.01 μ F $\pm$ 20% Cer.
H701	HT30372100	2SC372 Transistor
H705	HT304582A0	2SC458LG $\odot$ or $\odot$ Transistor
H706	HT304582A0	2SC458LG $\odot$ or $\odot$ Transistor
H707	HT104942A0	2SA494 (Y or GR) Transistor
H708	HT104942A0	2SA494 (Y or GR) Transistor
H709	HD10001050	1N60 Diode
J701	YP10000360	Plug
J702	YP10000360	Plug
J703	YP10000360	Plug
J704	YP10000360	Plug
J707	YP10000360	Plug
J708	YP10000360	Plug
J709	YP10000360	Plug
J710	YP10000360	Plug
J711	YP10000360	Plug
J712	YP10000360	Plug
J713	YP10000360	Plug
P300	YD25770030	Phono Amp. PC Board
R301	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R302	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R303	RT10391140	390 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R304	RT10391140	390 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R305	RN10105140	1M Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R306	RN10105140	1M Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R307	GT05202120	2K Ω $\pm$ 5% $\frac{1}{2}$ W, Carbon Film
R308	GT05202120	2K Ω $\pm$ 5% $\frac{1}{2}$ W, Carbon Film

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R309	GT05185120	1.8M Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R310	GT05185120	1.8M Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R311	GT05154120	150K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R312	GT05154120	150K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R313	RN10104140	100K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R314	RN10104140	100K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R315	RT10103140	10K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R316	RN10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R317	RN10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R318	RT10152140	1.5K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R319	RT10152140	1.5K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R320	RT10561140	560 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R321	RT10561140	560 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R322	RT10221140	220 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R323	RN10334140	330K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R324	RN10334140	330K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
C301	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C302	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C303	EA22603510	22 μ F 35V $\pm$ 100% -0% Elect.
C304	DF65182010	1800pF 50V $\pm$ 5 % Mylar
C305	DF65182010	1800pF 50V $\pm$ 5 % Mylar
C308	EA10700610	100 μ F 6.3V $\pm$ 100% -0% Elect.
C309	EA10700610	100 μ F 6.3V $\pm$ 100% -0% Elect.
C310	EV10503510	1 μ F 35V $\pm$ 40% -20% Elect.
C311	EV10503510	1 μ F 35V $\pm$ 40% -20% Elect.
C312	EA10705010	100 μ F 50V Elect.
C316	DF65501010	500pF 50V $\pm$ 5 % Mylar
C317	DF65501010	500pF 50V $\pm$ 5 % Mylar
H301	HT306441C0	2SC644(T) Transistor
H302	HT306441C0	2SC644(T) Transistor
H303	HF200301C0	2SK30 (Y) Transistor
H304	HF200301C0	2SK30 (Y) Transistor
J301	YP10000360	Plug
J302	YP10000360	Plug
J303	YP10000360	Plug
J304	YP10000360	Plug
J305	YP10000360	Plug
J306	YP10000360	Plug
J307	YP10000360	Plug
P400	YD25770040	Tone Amp. PC Board
R401	RT10391140	390 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R402	RT10391140	390 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R403	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R404	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R405	RN10563140	56K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R406	RN10563140	56K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R407	RT05682140	6.8K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R408	RT05682140	6.8K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R409	RN10223140	22K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R410	RN10223140	22K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R411	RT05272140	2.7K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R412	RT05272140	2.7K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R413	RT10102140	1K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R414	RT10102140	1K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R415	RN10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R416	RN10153140	15K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R417	RT10681140	680 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R418	RN10563140	56K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R419	RN10563140	56K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R420	RT05223140	22K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R421	RT05223140	22K Ω $\pm$ 5 % $\frac{1}{4}$ W, Carbon Film
R422	RN10225140	2.2M Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R423	RN10225140	2.2M Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R424	RN10683140	68K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R425	RN10683140	68K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R426	RT10103140	10K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R427	RT10103140	10K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R428	RT10103140	10K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R429	RT10103140	10K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R430	RT10221140	220 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R431	RT10221140	220 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R432	RN10104140	100K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R433	RN10104140	100K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
C401	DF17224020	0.22 μ F 50V $\pm$ 20% Elect.
C402	DF17224020	0.22 μ F 50V $\pm$ 20% Elect.
C403	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C404	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C405	EA22603510	22 μ F 25V Elect.
C406	EA22603510	22 μ F 35V Elect.
C407	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C408	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C409	EA10703510	100 μ F 35V Elect.
C410	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C411	EV22502510	2.2 μ F 25V $\pm$ 40% -20% Elect.
C412	DF65451010	450pF $\pm$ 5 % Mylar
C413	DF65451010	450pF $\pm$ 5 % Mylar
C414	EV10502520	1 μ F 25V $\pm$ 40% -20% Elect.
C415	EV10502520	1 μ F 25V $\pm$ 40% -20% Elect.
H401	HT304580Z0	2SC458 LG $\odot$ Transistor
H402	HT304580Z0	2SC458 LG $\odot$ Transistor
H403	HT104942A0	2SA494 (Y or GR) Transistor
H404	HT104942A0	2SA494 (Y or GR) Transistor
H405	HT307321B0	2SC732 (BL) Transistor
H406	HT307321B0	2SC732 (BL) Transistor
H407	HT104942A0	2SA494 (Y or GR) Transistor
H408	HT104942A0	2SA494 (Y or GR) Transistor
J401	YP10000360	Plug
J402	YP10000360	Plug
J403	YP10000360	Plug
J404	YP10000360	Plug
J405	YP10000360	Plug
J406	YP10000360	Plug
J407	YP10000360	Plug
J408	YP10000360	Plug
J409	YP10000360	Plug
J410	YP10000360	Plug
J411	YP10000360	Plug
J412	YP10000360	Plug
J413	YP10000360	Plug
J414	YP10000360	Plug
J415	YP10000360	Plug
J416	YP10000360	Plug
J418	YP10000360	Plug
J419	YP10000360	Plug
J420	YP10000360	Plug
W401	YW27630030	Wire Materials
P600	YD25780060	Main Amp. PC Board
R601	RN10474140	470K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R602	RN10474140	470K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R603	GT05102120	1K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R604	GT05102120	1K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R605	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R606	RN10473140	47K Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R607	GT02821120	820 Ω $\pm$ 2 % $\frac{1}{2}$ W, Carbon Film
R608	GT02821120	820 Ω $\pm$ 2 % $\frac{1}{2}$ W, Carbon Film

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R609	GT05104120	100K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R610	GT05104120	100K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R611	GT05153120	15K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R612	GT05153120	15K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R613	GT05103120	10K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R614	GT05103120	10K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R615	RA02020030	2K Ω B Semi Fixed
R616	RA02020030	2K Ω B Semi Fixed
R617	GT05912120	9.1K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R618	GT05912120	9.1K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R619	RC10182120	1.8K Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R620	RC10182120	1.8K Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R621	RT10821140	820 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R622	RT10821140	820 Ω $\pm$ 10% $\frac{1}{4}$ W, Carbon Film
R623	RC10182120	1.8K Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R624	RC10182120	1.8K Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R625	GT05621120	620 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R626	GT05621120	620 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R627	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R628	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R629	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R630	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R631	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R632	GT05183120	18K Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R633	GT05471120	470 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R634	GT05471120	470 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R635	RC10101120	100 Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R636	RC10101120	100 Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R637	RC10101120	100 Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R638	RC10101120	100 Ω $\pm$ 10% $\frac{1}{2}$ W, Solid
R639	GT05331120	330 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R640	GT05331120	330 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R641	GT05221120	220 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R642	GT05221120	220 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R643	GT05151120	150 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R644	GT05151120	150 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R645	GT05331120	330 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R646	GT05331120	330 Ω $\pm$ 5 % $\frac{1}{2}$ W, Carbon Film
R647	RJ10101010	100 Ω $\pm$ 10% 1 W, Solid
R648	RJ10101010	100 Ω $\pm$ 10% 1 W, Solid
R649	RJ10101010	100 Ω $\pm$ 10% 1 W, Solid
R650	RJ10101010	100 Ω $\pm$ 10% 1 W, Solid
R651	GW10202050	0.2 Ω $\pm$ 10% 5 W, Carbon Film
R652	GW10202050	0.2 Ω $\pm$ 10% 5 W, Wire Wound
R653	GW10202050	0.2 Ω $\pm$ 10% 5 W, Wire Wound
R654	GW10202050	0.2 Ω $\pm$ 10% 5 W, Wire Wound
C601	DF27105500	1 μ F $\pm$ 20% 100V Mylar
C602	DF27105500	1 μ F $\pm$ 20% 100V Mylar
C603	DF36101520	100pF $\pm$ 10% 500V Mylar
C604	DF36101520	100pF $\pm$ 10% 500V Mylar
C605	EA10701630	100 μ F 16V Elect.
C606	EA10701630	100 μ F 16V Elect.
C607	EA10701630	100 μ F 16V Elect.
C608	EA10701630	100 μ F 16V Elect.
C609	DF17104510	0.1 μ F $\pm$ 20% 100V Mylar
C610	DF17104510	0.1 μ F $\pm$ 20% 100V Mylar
C611	DF17104510	0.1 μ F $\pm$ 20% 100V Mylar
C612	DF17104510	0.1 μ F $\pm$ 20% 100V Mylar
C615	DF17224020	0.22 μ F $\pm$ 20% 100V Mylar
C616	DF17224020	0.22 μ F $\pm$ 20% 100V Mylar
C620	DK18103510	0.01 μ F 500V +100% -0% Cer.
C621	DK18103510	0.01 μ F 500V +100% -0% Cer.
H601	HC10002170	MC1741 (Motorola) IC

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
H602	HC10002170	MC1741 (Motorola) IC
H603	HT105621B0	2SA562(O) Transistor
H604	HT105621B0	2SA562(O) Transistor
H605	HT303711B0	2SC371(O) Transistor
H606	HT303711B0	2SC371(O) Transistor
H607	HT104972B0	2SA497(R or O) Transistor
H608	HT104972B0	2SA497(R or O) Transistor
H609	HT104972A0	2SA497(O or Y) Transistor
H610	HT104972A0	2SA497(O or Y) Transistor
H611	HT304972B0	2SC497(R or O) Transistor
H612	HT304972B0	2SC497(R or O) Transistor
H613	HT304972A0	2SC497(O or Y) Transistor
H614	HT304972A0	2SC497(O or Y) Transistor
H615	HD30011090	1S198 Diode
H616	HD30011090	1S198 Diode
H617	HD30011090	1S198 Diode
H618	HD30011090	1S198 Diode
H619	HV00007050	S3016-R Varistor
H620	HV00007050	S3016-R Varistor
H621	HV00007050	S3016-R Varistor
H622	HV00007050	S3016-R Varistor
J601	YP10000360	Plug
J602	YP10000360	Plug
J605	YP10000360	Plug
J606	YP10000360	Plug
J607	YP10000360	Plug
J608	YP10000360	Plug
J609	YP10000360	Plug
J610	YP10000360	Plug
J611	YP10000360	Plug
J612	YP10000360	Plug
J613	YP10000360	Plug
J614	YP10000360	Plug
J615	YP10000360	Plug
J616	YP10000360	Plug
J617	YP10000360	Plug
J618	YP10000360	Plug
J619	YP10000360	Plug
J620	YP10000360	Plug
J621	YP10000360	Plug
J622	YP10000360	Plug
J624	YP10000360	Plug
J625	YP10000360	Plug
J626	YP10000360	Plug
J627	YP10000360	Plug
T601	1988267030	Heat Sink
T602	1988267030	Heat Sink
T603	1988267030	Heat Sink
T604	1988267030	Heat Sink
T605	1988267030	Heat Sink
T606	1988267030	Heat Sink
T607	1988267030	Heat Sink
T608	1988267030	Heat Sink
T609	2577118060	Spacer
T610	2577118060	Spacer
T611	2577118060	Spacer
T612	2577118060	Spacer
T613	2577118060	Spacer
T614	2577118060	Spacer
T615	2577118060	Spacer
T616	2577118060	Spacer
P800	YD25780150	Power Supply PC Board
T801	2577118060	Spacer

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R801	RW10470020	47Ω ±10% 2 W, Wire Wound
R802	RC10100120	10Ω ±10% ½W, Solid
R803	RC10272120	2.7KΩ ±10% ½W, Solid
R804	RC10102120	1KΩ ±10% ½W, Solid
R805	RC10472120	4.7KΩ ±10% ½W, Solid
R806	RC10472120	4.7KΩ ±10% ½W, Solid
R807	RC10102120	1KΩ ±10% ½W, Solid
R808	RC10332120	3.3KΩ ±10% ½W, Solid
R809	RC10222120	2.2KΩ ±10% ½W, Solid
R810	RC10153120	15KΩ ±10% ½W, Solid
R811	RA03020010	3KΩ B Semi Fixed
R812	RA01030010	10KΩ B Semi Fixed
R813	RC10272120	2.7KΩ ±10% ½W, Solid
R814	RC10100120	10Ω ±10% ½W, Solid
C801	EB10805010	1000μF 50V Elect.
C802	EB10805010	1000μF 50V Elect.
C803	EA47603520	47μF 35V Elect.
C804	EA33705020	330μF 50V Elect.
C805	EA10701630	100μF 16V Elect.
C806	EA47605010	47μF 50V Elect.
C807	EA10603510	10μF 35V Elect.
H801	HT402343A0	2SD234 (R.O.Y) Transistor
H802	HT306965A0	2SC696 (H.E.D.B.A) Transistor
H803	HT307341C0	2SC734 (Y) Transistor
H804	HT307341C0	2SC734 (Y) Transistor
H805	HD30003090	1S332 Diode
H806	HD30003090	1S332 Diode
H807	HD20001100	1S1665 Diode
J801	YP10000360	Plug
J802	YP10000360	Plug
J803	YP10000360	Plug
J804	YP10000360	Plug
J805	YP10000360	Plug
P900	YD25780090	Switch PC Board
R901	GT05472120	4.7KΩ ±5% ½W, Carbon Film
R902	GT05472120	4.7KΩ ±5% ½W, Carbon Film
R903	GT05472120	4.7KΩ ±5% ½W, Carbon Film
R904	GT05472120	4.7KΩ ±5% ½W, Carbon Film
R905	GT05563120	56KΩ ±5% ½W, Carbon Film
R906	GT05563120	56KΩ ±5% ½W, Carbon Film
R907	RN10105140	1MΩ ±10% ¼W, Carbon Film
R908	RN10105140	1MΩ ±10% ¼W, Carbon Film
R909	RN10225140	2.2MΩ ±10% ¼W, Carbon Film
R910	RN10225140	2.2MΩ ±10% ¼W, Carbon Film
R911	RT10103140	10KΩ ±10% ¼W, Carbon Film
R912	RT10103140	10KΩ ±10% ¼W, Carbon Film
R913	RT10154140	150KΩ ±10% ¼W, Carbon Film
R914	RT10154140	150KΩ ±10% ¼W, Carbon Film
C901	DF55472010	4700pF ±5% Mylar
C902	DF16683010	0.068μF ±10% Mylar
C903	DF16683010	0.068μF ±10% Mylar
C904	DF16683010	0.068μF ±10% Mylar
C905	DF16683010	0.068μF ±10% Mylar
C906	DF16332010	3300pF ±10% Mylar
C907	DF16332010	3300pF ±10% Mylar
C908	DF16332010	3300pF ±10% Mylar
C909	DF16332010	3300pF ±10% Mylar
C910	DF36101010	100pF ±10% Mylar
C911	DF36101010	100pF ±10% Mylar
C912	DF17333010	0.033μF ±20% Mylar
C913	DF17333010	0.033μF ±20% Mylar
S901	SP04040012	Push Switch.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
P920	YD25780030	Switch PC Board
R920	RT10102140	1KΩ ±10% ¼W, Carbon Film
R922	RT10102140	1KΩ ±10% ¼W, Carbon Film
R923	RT10102140	1KΩ ±10% ¼W, Carbon Film
R924	RT10102140	1KΩ ±10% ¼W, Carbon Film
S921	SP04030012	Push Switch. S920-1, Tape Moni, S920-2, Mono "L" S920-3, Mono "R"
J921	YP10000360	Plug
J922	YP10000360	Plug
J923	YP10000360	Plug
W921	YW27630040	Wire Materials
P940	YD25780100	Tone-Control PC Board
R941	RD01040010	100KΩ B Treble, Variable
R942	RD01040010	100KΩ B Bass, Variable
R943	GT05163120	16KΩ ±5% ½W, Carbon Film
R944	GT05163120	16KΩ ±5% ½W, Carbon Film
R945	GT05163120	16KΩ ±5% ½W, Carbon Film
R946	GT05163120	16KΩ ±5% ½W, Carbon Film
C941	DF16223010	0.022μF ±10% Mylar
C942	DF16223010	0.022μF ±10% Mylar
C943	DF16223010	0.022μF ±10% Mylar
C944	DF16223010	0.022μF ±10% Mylar
J941	57219520W0	Lug Eyelet
J942	57219520W0	Lug Eyelet
J943	57219520W0	Lug Eyelet
J944	57219520W0	Lug Eyelet
J945	57219520W0	Lug Eyelet
J946	57219520W0	Lug Eyelet
J947	57219520W0	Lug Eyelet
J948	57219520W0	Lug Eyelet
P960	YD25780070	Comp, Circuit PC Board
R961	RA01020010	1KΩ B Semi Fixed
R962	RA01020010	1KΩ B Semi Fixed
H961	HD20003010	HR-5A Diode
H962	HD20003010	HR-5A Diode
H963	HV00007050	S3016-R Varistor
H964	HD20003010	HR-5A Diode
H965	HD20003010	HR-5A Diode
H966	HV00007050	S3016-R Varistor
H967	HT304580K0	2SC458 (LB) Transistor
H968	HT304580K0	2SC458 (LB) Transistor
J961	57271240W0	Lug Eyelet
J962	57271240W0	Lug Eyelet
J963	57271240W0	Lug Eyelet
J964	57271240W0	Lug Eyelet
H001	HT70004100	SJ2001 (PNP) Transistor
H002	HT70004100	SJ2001 (PNP) Transistor
H003	HT90004100	SJ2000 (NPN) Transistor
H004	HT90004100	SJ2000 (NPN) Transistor
H005	HD20004050	M9235F Diode
H006	HD20005050	M9235A Diode
C019	DK18103010	0.01μF 50V +100%-0% Cer.
C020	DK18103010	0.01μF 50V +100%-0% Cer.
C021	DK18103010	0.01μF 50V +100%-0% Cer.
C022	DK18103010	0.01μF 50V +100%-0% Cer.
R001	RC10680120	68Ω ±10% ½W, Solid
R002	RC10680120	68Ω ±10% ½W, Solid
R003	RC10082120	8.2Ω ±10% ½W, Solid
R004	RK01040030	100KΩ (B) Variable
R005	RM02540080	250KΩ (MN) Variable
R006	RM02540090	250KΩ (A) Variable

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R007	GS10240020	24Ω ±10% 2 W, Wire Wound	J 025	YL01070010	7P Terminal
R008	GS10240020	24Ω ±10% 2 W, Wire Wound	J 026	YL01070010	7P Terminal
R009	GS10022020	2.2Ω ±10% 2 W, Wire Wound	J 027	YL01070010	7P Terminal
R010	GS10022020	2.2Ω ±10% 2 W, Wire Wound	J 028	YL01050040	5P Terminal
R011	RT10331010	330Ω ±10% 1 W, Carbon Film	J 029	YL01030030	3P Terminal
R012	RT10331010	330Ω ±10% 1 W, Carbon Film	J 030	YL01030020	3P Terminal
R013	RC10330120	33Ω ±10% ½W, Solid	J 031	YL01030010	3P Terminal
R014	RC10330120	33Ω ±10% ½W, Solid	J 032	YL01030030	3P Terminal
R015	RJ10222020	2.2KΩ ±10% 2 W, Solid	J 033	YL01030010	3P Terminal
R016	RJ10222020	2.2KΩ ±10% 2 W, Solid	M001	IM11036040	AM-FM Tuning DC Meter
R017	RT10225010	2.2MΩ ±10% 1 W, Carbon Film	M002	IM11036050	FM Tuning DC Meter
R018	RC10182120	1.8KΩ ±10% ½W, Solid	M003	IN10120040	STEREO Ind. Lamp.
R019	RC10271120	270Ω ±10% ½W, Solid	M004	IN10080010	ANT. Tuning Lamp
R021	RT10563140	56KΩ ±10% ¼W, Carbon Film	M005	IN10060030	Meter Illumination Lamp
C016	DK18104020	0.1μF +100%-0% Cer.	M006	IN10060030	Meter Illumination Lamp
C017	DO07473530	0.047μF 600V DC Oil Fillect	M007	IN10060030	Dial Illumination Lamp
C003	DC18102010	0.001μF +100%-0% Feed Through	M008	IN10060030	Dial Illumination Lamp
C004	DC11030022	3pF ±0.5pF Feed Through	M009	IN10060030	Dial Illumination Lamp
C005	DD11050010	5pF ±0.5pF Cer.	M010	IN10060030	Dial Illumination Lamp
C006	DK17103010	0.01μF ±20% Cer.	W001	YC02400060	AC Power Cord
C007	ED33600610	33μF 6.3V Elect.	W002	YW27630050	Wire Material
C008	DF17104520	0.1μF 200V ±20% Mylar	W003	YX27630010	Wire Material
C009	DF17104520	0.1μF 200V ±20% Mylar	F001	FR10400010	4.0A (NW-1) Circuit Breaker
C010	EC47805020	4700μF 50V Elect.	L001	LF11400360	AM Ant Coil
C011	EC47805020	4700μF 50V Elect.	L002	LB30075250	Balun Coil
C012	DG07103500	0.01μF ±20% 250V MP Cap	L003	LC12230010	2μH Ring Core Choke Coil
C013	DG07103500	0.01μF ±20% 250V MP Cap	L004	LC21020010	2μH Ring Core Choke Coil
C014	CA03300010	AM 3 Gang Variable	L005	LC21020010	2μH Ring Core Choke Coil
C015	EA10705010	100μF 50V Elect.	L006	TS60501040	Power Trasf.
C018	EA10700610	100μF 6.3V Elect.	L007	LY20240032	24V DC Relay
S001	SR06060060	Function Rotary Switch	R024	RK02540020	250KΩ B Variable
S002	SP04010070	ANT. Tuning Push Switch	R022	RT10104140	100KΩ ±10% ¼W, Carbon Film
S003	SP04030012	Push Switch	R023	RC10101120	100Ω ±10% ½W, Solid
		S003-1, Muting S003-2, Main, S003-3, Remote.	P980	YD25780112	Speaker Protector PC Board
S004	SP04010062	AC Supply Push Switch	R981	RT10332140	3.3KΩ ±10% ¼W, Carbon Film
S005	SS02020170	FM-Ant. Attenuator Slide Switch	R982	RT10563140	56KΩ ±10% ¼W, Carbon Film
J 001	YT03040030	AM-FM Ant 4P Terminal	R983	RT10104140	100KΩ ±10% ¼W, Carbon Film
J 002	YT03040030	Main SP. 4P Terminal	R984	RT10274140	270KΩ ±10% ¼W, Carbon Film
J 003	YT03040030	Remote SP. 4P Terminal	R985	RT10393140	39KΩ ±10% ¼W, Carbon Film
J 004	YT02100010	Phono, AUX. Tape -OUT & IN 10P Terminal	R986	RC10271120	270Ω ±10% ½W, Carbon Film
J 005	YJ01000550	Dubbing OUT Jack	R987	RC10562120	5.6KΩ ±10% ½W, Carbon Film
J 006	YJ01000550	Dubbing IN Jack	R988	RC10562120	5.6KΩ ±10% ½W, Carbon Film
J 007	YJ01000650	Headphone Jack	T981	2577118060	Spacer
J 008	YJ04000320	AC Supply Socket	C981	EA10601620	10μF 16V Elect.
J 009	YJ04000320	AC Supply Socket	C982	EA22701040	220μF 10V Elect.
J 010	YJ02000070	MPX Lamp Socket	C983	EA10605010	10μF 50V Elect.
J 011	YJ02000070	ANT Tuning Socket	H981	HT308282A0	2SC828 R or S Transistor
J 012	YJ02000480	Meter Illumination Socket	H982	HT309842A0	2SC984 C or D Transistor
J 013	YJ02000480	Meter Illumination Socket	H983	HT306962A0	2SC696 E or B Transistor
J 014	YJ02000380	Dial Illumination Socket	J 981	YP10000360	Plug
J 015	YJ02000390	Dial Illumination Socket	J 982	YP10000360	Plug
J 016	YJ02000400	Dial Illumination Socket	J 983	YP10000360	Plug
J 017	YJ02000410	Dial Illumination Socket	J 984	YP10000360	Plug
J 018	YT01010030	Ground Terminal	J 987	YP10000360	Plug
J 019	YJ05000140	Power Transistor Socket			
J 020	YJ05000140	Power Transistor Socket			
J 021	YJ05000140	Power Transistor Socket			
J 022	YJ05000140	Power Transistor Socket			
J 023	YL01070010	7P Terminal			
J 024	YL01070010	7P Terminal			

INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service data for the Marantz Model 22 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. A brief functional description and associated block diagram, furnished in the Operating Instruction Manual for the Model 22 Receiver, provides functional data about the Receiver as an aid in this understanding.

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

1. SERVICE NOTES

As can be seen from the circuit diagram the chassis of the Model 22 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. FM Front End Unit mounted on PC board, P100
2. AM Front End Unit mounted on PC board, P200
3. AM IF Amplifier, FM IF Amplifier, FM MPX Stereo Demodulator, and FM Sub-IF Amplifier All are mounted on PC board, P500
4. Auxiliary Audio Amplifier for FM tuner output, and FM Center tuning Meter Amplifier mounted on PC board, P700
5. Tone Amplifier mounted on PC board, P400
6. PHONO Amplifier mounted on PC board, P300
7. Main Amplifier mounted on PC board, P600
8. High and Low Filter Unit mounted on PC board, P900
9. Regulated Power Supply Unit mounted on PC board, P800
10. Protector Relay Driving Unit mounted on PC board, P980

2. AM TUNER

2.1 Circuit Description

The AM tuner consists of two units, front end and IF amplifier unit mounted on a part of PC board P500.

The front end mounted on a PC board P200 is comprised of an RF amplifier, converter and a diode. The AM signals induced in a ferrite bar antenna are applied to base of the RF amplifier transistor H201 through a capacitor C201 and amplified to the level required for overcoming the converter noise, thus assures good SN performance. The tuned circuits

inserted in out- and input circuit of the RF amplifier gives very high image and spurious rejection performance. Thus amplified and selected signals are applied to the base of converter transistor H202 through a coupling capacitor C206. While the local oscillator voltage is injected to the emitter of H202 through capacitor C207. Both the signals are then mixed at base-emitter junction and converted into 455KHz intermediate frequency. The amplified IF signals obtained from the collector of H202 is applied to the first IF transformer L203.

The diode H203, reverse-biased by resistor R208 and R209, eliminates signal overload distortion without sacrificing any receiving sensitivity.

The IF signal output is led to the IF amplifier consisting of two stages (H510 and H511) through the pin J206 and J504, and amplified to the high level. The amplified IF output is applied to the diode H520 to detect audio signal. Then the detected audio signal is led to the output pin J515 through filtering network. The DC component of the detected IF signals is used as AGC voltage to control emitter current of H510 and RF amplifier transistor H201. A part of IF signal output is also applied to diode H521 through capacitor C562 and rectified to obtain DC current for energizing the signal strength meter M001.

2.2 Suggestion for Trouble Shooting of AM Tuner

Symptom: No AM Reception

First try to tune stations by rotating fly-wheel tuning knob slowly and observe the AM signal strength meter whether it deflects or not. If the signal strength meter gives a deflection at several frequency received, no failure exists in the stages at least preceeding IF transformer L511. Next connect an oscilloscope to the tuner output pin J515 and check audio signal. If the signal strength meter does not deflect, check the local oscillator circuit. Normal oscillator voltage at hot end of the oscillator capacitor is 2 to 3 volts, varying with tuning capacitor position. When measuring oscillator voltage use an RF VTVM, no circuit tester gives correct indication. If the local oscillator voltage is normal, check all voltage distribution in the tuner circuit by using a circuit tester and compare the measured values with those written in the schematic diagram.

3. FM TUNER

3.1 Circuit Description

The FM tuner section consists of three printed circuit boards, FM front end unit, IF amplifier / MPX stereo decoding unit, and DC meter amplifier / FM audio amplifier unit.

FM signals induced by an FM antenna are led to FM antenna coil L101 through an attenuator switch and a BALUN coil. These signals are then applied to FET RF amplifier, the amplified output is applied to FET Mixer H102 through two tuned circuit and converted into 10.7MHz IF signals. H103 is the local oscillator transistor. The AGC voltage, obtained by rectifying a part of first IF output, is applied to the gate of FET H101

through the network R110, R111 and R101. The converted IF signals are led to the input pin J501 of IF amplifier unit consisting of three ICs (H501, H502 and H503) and two ceramic filters having sharp cut off characteristics. The IF signals fully amplified is then applied to the FM discriminator transformer L507 and demodulated into audible signals. The demodulated signals are then applied to the base of composite amplifier transistor H509 to obtain enough output power necessary to drive the stereo decoding circuit packaged in IC H505. The amplified output is applied to the input pin 3 of the IC. Thus L and R channel stereophonic audio signals obtained are led to the FM audio amplifier mounted on a half of PC board P700.

The DC current caused at the point E in the FM discriminator circuit is used as a direct current source for driving the FM center tuning meter M002. First the direct current is led to the base of differential amplifier transistor H701 through R514 and antenna tuning switch S002. The amplified DC output obtained from the emitter of H703 is led to the center tuning meter. R704 is the trimming resistor for null adjustment of the meter.

The stereo decoding IC H505 is also equipped with an audio muting circuit and an automatic stereo-monophonic switching circuit. Activating signals required for these circuits are obtained from the FM sub-IF amplifier unit consisting of two transistors H506 and H507. The amplifier unit obtains its input signal from the second FM IF amplifier stage through a small coupling capacitor C511 and amplifies it. The amplified output is then applied to the diode H517 and H518 and rectified into direct current. A part of the DC current is supplied to the signal strength meter M001 through resistor R539 and rotary switch S001-3R. The other part is applied to the DC amplifier consisting of H508 and H509, and its output is then fed to the muting control pin of IC H505 through the muting switch S003-1 and resistor R518. R004 is a muting level control variable resistor. Stereo-monophonic, automatic switching signal is also obtained from the rectified circuit and applied to the pin 4 of IC H505 through a resistor R565, R021, Diode H516 and H515.

The model 22 is equipped with a multipath antenna tuning system for the best FM reception. The simple principle of the tuning is given as follows. An FM antenna not correctly positioned toward an FM station induces some kind of distortion in FM signals. Thus deteriorating tonal quality of the programs. To reduce this distortion a suitable antenna direction must be found. For this purpose, the multipath antenna tuning system is employed.

The FM signals converted into 10.7MHz is applied to the sub-IF amplifier, the amplified output is then rectified by the diodes H517 and H518 as stated above. The rectified output is not true direct current but includes many amplitude modulated components caused by unsuitable FM antenna direction. These amplitude modulated components are separated by again detecting the rectified output by the diode H519 and led to the antenna tuning (FM center tuning) meter M002 through antenna tuning switch S002. The greater the deflection of the antenna tuning meter, the greater

the distortion of signal.

3.2 Suggestions for Trouble Shooting of FM Tuner

3.2.1 Symptom: No FM Reception

First turn on the power switch and try to tune FM stations. Rotate the fly wheel tuning knob slowly and observe the FM signal strength meter and FM center tuning meter. If the center tuning meter deflects at several frequency, the tuner circuits preceeding the discriminator circuit may have no failure. When the signal strength meter deflects but no deflection is obtained in the center tuning meter, there may be some defects between final FM IF amplifier H404 and the discriminator circuit. When no reading are obtained in both meters, check the local oscillator circuit by using an RF VTVM. Normal local oscillator voltage is about, 1 to 2 volts at hot end of the tank circuit. If the oscillator voltage is normal, check all the voltage distributions and compare them with those shown in the schematic diagram. When both meters deflect but no FM station is obtained check the following points by using a high sensitive oscilloscope; collector of composite amplifier transistor. Multiplex stereo output pin J507 or J508 and FM audio output terminal J711 or J713.

3.2.2 Symptom: No Stereo Separation

First check the MONO (L.R.) switches are in normal "out" position. Connect FM RF signal output modulated by stereo signal to the rear FM antenna terminals and check the stereo beacon lamp is turned on or not. When the lamp is not turned on, connect an oscilloscope to the test point F and observe 38KHz stereo subcarrier is correctly generated or not.

4. FM AND AM TUNER ALIGNMENT

The following alignment for FM and AM tuner requires many precision measurement equipments. No alignment should be performed in the field unless the service man has those equipments and enough knowledge in solid state amplifier components, since all the units are factory aligned and not become misaligned by themselves.

4.1 AM Front End

4.1.1 Local Oscillator and Tracking Alignment

- 1) Set AM signal generator to 600KHz, 400Hz 30% modulation. Tune the receiver to the same frequency and adjust oscillator coil L202 until the dial pointer coincides with the 600KHz marking on the dial.
- 2) Set AM Signal generator to 1400KHz. Tune the receiver to the same frequency and adjust the trimming capacitor mounted on the tuning capacitor.
- 3) Repeat procedure 1 and 2 until no further adjustment is necessary

between the low end and the high end.

- 4) Set the generator to 600KHz. Tune the receiver to the same frequency and adjust antenna coil L001 in the plastic case and RF coil L201 for maximum output.
- 5) Set the generator to 1400KHz. Tune the receiver to the same frequency and adjust each antenna trimming capacitor and RF trimming capacitor mounted on the tuning capacitor for maximum output.
- 6) Repeat procedure 4 and 5 until no further improvement is obtained.

Note: During tracking alignment reduce the signal generator output as necessary to avoid AGC action.

4.2 AM IF Amplifier

For aligning the AM IF-amplifier, a sweep generator with marker generator combined is necessary.

- 1) Connect sweep generator across pin J205 and common ground, connect an oscilloscope to test pin J527.
- 2) Turn each primary and secondary core of IF transformers L203, L510 and L511 for maximum and symmetrical response.

4.3 FM Front End

4.3.1 Local Oscillator Adjustment

1) Measuring instruments connection

Connect an FM signal generator to the FM antenna terminals on the back side of the set. Connect a VTVM or an oscilloscope across the speaker system terminals.

- 2) Set FM signal generator to 90MHz, 400Hz 100% modulation. Tune the receiver to the same frequency and adjust oscillator coil L104 until the dial pointer coincides with the 90MHz marking on the dial.
- 3) Set FM signal generator to 106MHz. Tune the receiver to the same frequency and adjust the trimming capacitor C119 until the dial pointer coincides with the 106MHz marking on the dial.
- 4) Repeat procedure 2 and 3 until no further adjustment is necessary between the low end and the high end.

4.3.2 FM Tracking Alignment

- 1) Set FM signal generator to provide about 5uV at 90MHz. Tune the receiver to the same frequency and turn each core of L101, L102 and L103 for maximum output.
- 2) Set FM signal generator to 106MHz. Tune the receiver to the

same frequency and adjust trimming capacitors C104, C110 and C112 for maximum output.

- 3) Repeat procedure until no further improvement is obtained.

4.3.3 FM IF Amplifier

To align this IF amplifier, connect FM signal generator to the FM antenna terminals and set the generator to 98MHz, 400Hz 100% modulation with output level about 5uV. Tune the receiver to this frequency and turn each core of IF transformers, L105 and L519 for maximum output. To align the discriminator transformer L507, increase the FM signal output level to about 2KuV and connect a distortion meter across the tuner output or speaker output terminals.

- 1) First tune the receiver off station until only interstation noise is heard, then turn the secondary core of L507 so that the pointer of center tuning meter indicates its center.
- 2) Tune the receiver to 98MHz FM signals again with center tuning meter in its null position, then turn the primary core of discriminator transformer L507 so that minimum distortion is obtained.

4.3.4 FM Stereo Demodulator

A stereo multiplex and RF FM signal generator is required to make the separation adjustment on this circuit.

Perform the following adjustments in sequence.

- 1) Set FM signal generator to 97MHz, 2KuV output level. Tune the receiver to the same frequency, be sure the pointer of center tuning meter is at the center position, and MONO (L+R) switch is in its normal "out" position.
- 2) Connect oscilloscope probe to pin J526 and turn each core of L514, L512 and L513 for maximum stereo carrier wave on the CRT.
- 3) Turn the core of L514 again so that same stereo separation is obtained in both L and R channels.
- 4) Adjust a trimming resistor R024 for maximum and same stereo separation in both channels.

Note: In early units no trimming resistor is provided.

4.3.5 FM Sub-IF Amplifier Alignment

To align the sub-IF amplifier, tune the receiver to FM signals and turn each core of L508 and L509 so that the FM signal strength meter reads maximum deflection. To read the signal strength meter the antenna tuning switch must be in its normal out position.

5. POWER AMPLIFIER

5.1 Circuit Description

5.1.1 Amplifier

The signal from the tone amplifier is applied to the inverting input (pin 2) of the operational amplifier H601 through the input coupling network R601, C601 and R603. This network provides a high input impedance to the amplifier and prevents any DC from appearing at the op amp input.

The output of the op amp is divided by networks C609/R627 and C611/R631, and is applied to the base of H607 and H611. H607 and H611 provide the voltage amplification necessary to drive the driver (buffer) transistors H613 and H609. H613 and H609 are operated in a complimentary-symmetry configuration with their respective power transistors H001 and H003.

The output of H613 is applied to the base of H001, and the output of H609 is applied to H003. The combined operation of PNP transistors H001 and NPN transistors H003 provide a push-pull output appearing at diodes H005. This output is applied to network R610, L005, and viarelay L007 contact to the LOUDSPEAKER output terminals (J002).

To maintain overall amplifier stability and linearity, degenerative feedback is utilized throughout the amplifier. This feedback is also necessary to reduce distortion to within specified limits. R/C network R611, C603, and R607 condition the feedback signal for application to the non-inverting input (pin 3) of the op amp.

Except for the input, the amplifier uses direct coupling throughout. An offset voltage is applied to pin 3 of the op amp to nullify any undesirable DC output signal. The offset voltage is provided by a voltage divider consisting of R613, R617, and R615 between the plus and minus 14 volt source such that DC OFFSET ADJ. R615 may be adjusted through a plus or minus 1.3 volt range.

5.1.2 Dynamic Bias

Dynamic bias is applied to the bases of driver transistors H613 and H609. H613 and H609, in turn, determine the class of operation for the power amplifier (PA) transistors H001 and H003, thus maintaining a constant class of operation by establishing and maintaining the proper collector-to-emitter current. This dynamic bias circuit is comprised of H967, R961, and temperature sensitive diode H961, H962, H963. The circuit provides a variable base bias for driver transistors H613 and H609 that automatically maintains the proper base voltage (bias condition) with temperature change. Temperature sensitive biasing components of the dynamic bias circuit are thermally coupled through a heatsink to the PA transistors.

5.1.3 Amplifier Protection (figure 5)

Protection for the amplifier is provided by sensing-resistors R641

and R643 operating in conjunction with H603 and H605. When the output power transistors H001 and H003 are over-driven, and the output power exceeds an approximate 55 watts, the current increase through the power output transistors causes an increases current flow through R641 and R643. The resulting voltage drop across R641 and R643 controls the biasing of H603 and H605, resulting in the clipping of any input signal of greater amplitude than is required to cause the power output stage to deliver approximately 55 watts.

5.2 DC Balance and Bias Adjustment of The Main Amplifier

Connect a VTVM across the speaker system output terminal for the channel being tested. Set the voltage range on VTVM to the lowest scale possible, preferably 100 or 300 mV full scale deflection. First turn Bias control resistor R961 and R962 fully clockwise. Adjust DC balance control R615 until no DC voltage is obtained at the speaker terminal strip. Repeat the procedure for the other channel.

Next proceed to the Bias adjustment.

Connect the VTVM across R651 or R653 and adjust bias control resistor R961 until the VTVM reads 10mV. To adjust the other channel bias current connect the VTVM across resistor R654 or R652 and adjust bias control resistor R962 for the same voltage reading.

Note: PC board P960, on which bias control resistors R961 and R962 are located is mounted on backside of the power transistor.

5.3 Suggestions for Trouble Shooting of Power Amplifier

5.3.1 Excessive line consumption (100 watt or more).

- a. Check for shorted rectifiers H006; also check C010 and C011.
- b. Check for shorted transistors H613, H609, H001 and H003, or check H967. Check for open control R961, and bias diode H961--H963. Check L006 for short.

CAUTION: Because the driver and output stages are direct coupled components may fail as a direct result of an initial component failure. If a shorted transistor or Zener diode is found, or control or bias diode, be sure to check the remaining driver and output components for short or open circuit before re-energizing the amplifier.

5.3.2 No Line Consumption or Zero Bias

- a. Check line cord, fuse, transistors H967, H001 and H003, bias diode H961---H963.
- b. Check for open rectifiers H006, or open L006.

5.3.3 High D-C Voltage at Loudspeaker Terminals at all Times.

- a. Check H005 for open or short.

5.3.4 No D-C Balance

- a. Check A1 (op amp) and Zener diodes H615 and H617.
- b. Check R613, R615, and R617.

6. SPEAKER PROTECTOR RELAY CIRCUIT

The speaker protector Relay circuit, mounted on PC board, P980, protects the speaker systems against any loud "POP" sound developed. This circuit is so designed that no sound is heard for the first five seconds after the power switch is turned on by the time constant of capacitor C982 and resistor R984. This circuit also protects the speaker systems against some troubles due to DC off balance between the speaker system terminals by instantly operating the relay and cutting off the speaker systems from the circuit.

7. REGULATED POWER SOURCE ALIGNMENT

The regulated power supply unit mounted on PC board P800 is dual unit. One unit consisting of transistor H801 and H803, supplies its regulated DC current to each unit, FM Front End, AM Front End, AM IF/FM IF and MPX Demodulator and differential amplifier mounted on half of PC board P700. Adjust trimming resistor R811 until the DC voltage between the J804 and ground is 12V. Any short-circuit of the DC output line may damage transistor H801. Be extremely careful not to make a short-circuit. The other unit consisting of transistor H802 and H804, furnishes its regulated output to the Tone amplifier, Phono amplifier and Auxiliary amplifier mounted on half of PC board P700. Adjust trimming resistor R812 for 27V DC output at pin J805. Be careful not to make a short-circuit. Any short circuit may damage transistor H802.

8. CENTER TUNING METER NULL ALIGNMENT

A differential amplifier consisting of four transistors (H701, H702, H703 and H704) is used to drive center tuning meter M002. The input current to the differential amplifier is obtained from the FM discriminator through resistor of R514 and antenna tuning switch S002. The null adjustment of this meter amplifier is done by adjusting trimming resistor R704 with the selector switch placed in the PHONO 1 or 2 position.

9. PHONO and tone amplifiers consist of conventional negative feedback amplifiers and no analytical circuit description may be required.

10. TEST EQUIPMENT FOR SERVICING

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal Source for AM Alignment
Test Loop		Used with AM Signal Generator
FM Signal Generator	Less than 0.3% distortion	Signal source for FM Alignment
Audio Oscillator	Less than 0.02% residual distortion is required	Sine wave source for modulating AM or FM Signal Generator, or trouble shooting
Stereo Modulator	Less than 0.3% distortion	Modulating FM Signal Generator for Separation Alignment and trouble shooting
Oscilloscope	High Sensitivity	Wave form analysis and trouble shooting
VTVM	with RF probe	Trouble shooting
Circuit tester		Trouble shooting
Sweep Generator	For 455KHz and 10.7 MHz IF alignment	AM and FM IF alignment
8-ohm Resistors	$\pm 0.5\%$ 50W (no inductive Resistance)	Dummy Load
Line Voltmeter	0---150V AC	Monitors line voltage
Variable Auto transformer	0 to 140V, 10amps	Adjust level of primary power to amplifier

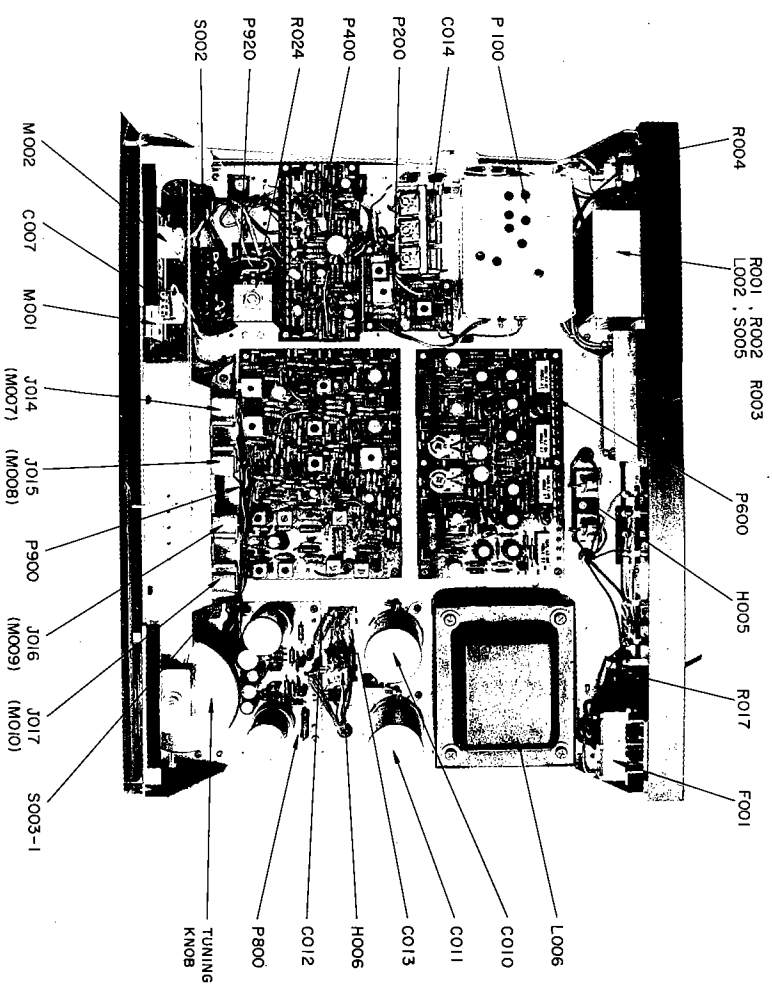


Figure 1 Main Chassis Component Locations Top View

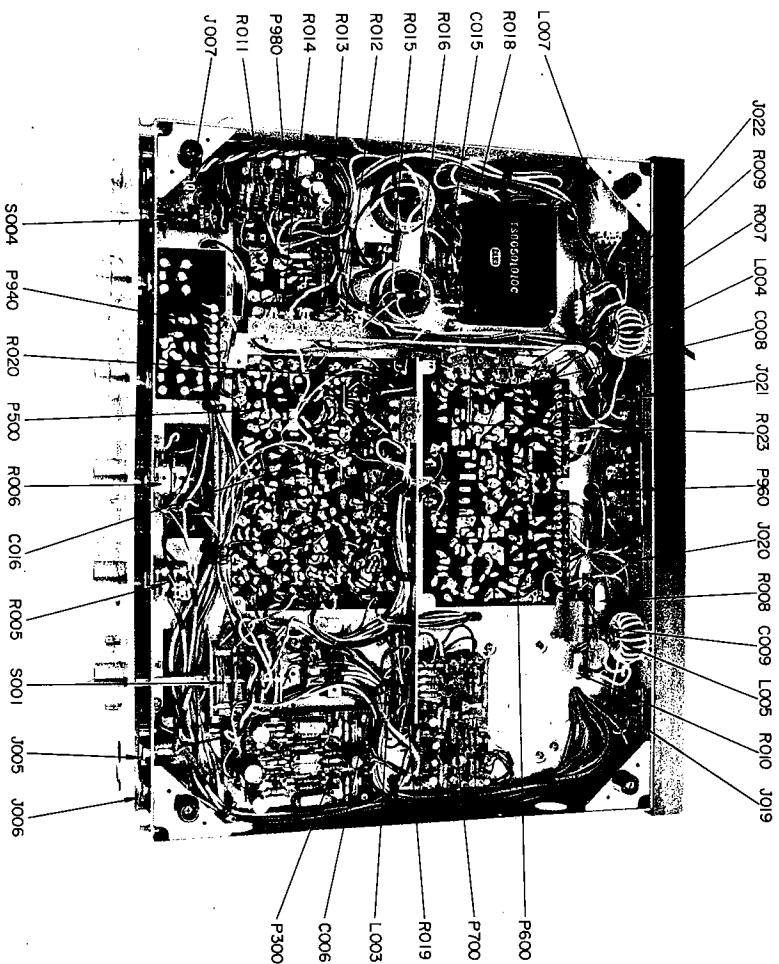


Figure 2 Main Chassis Component Locations Bottom View

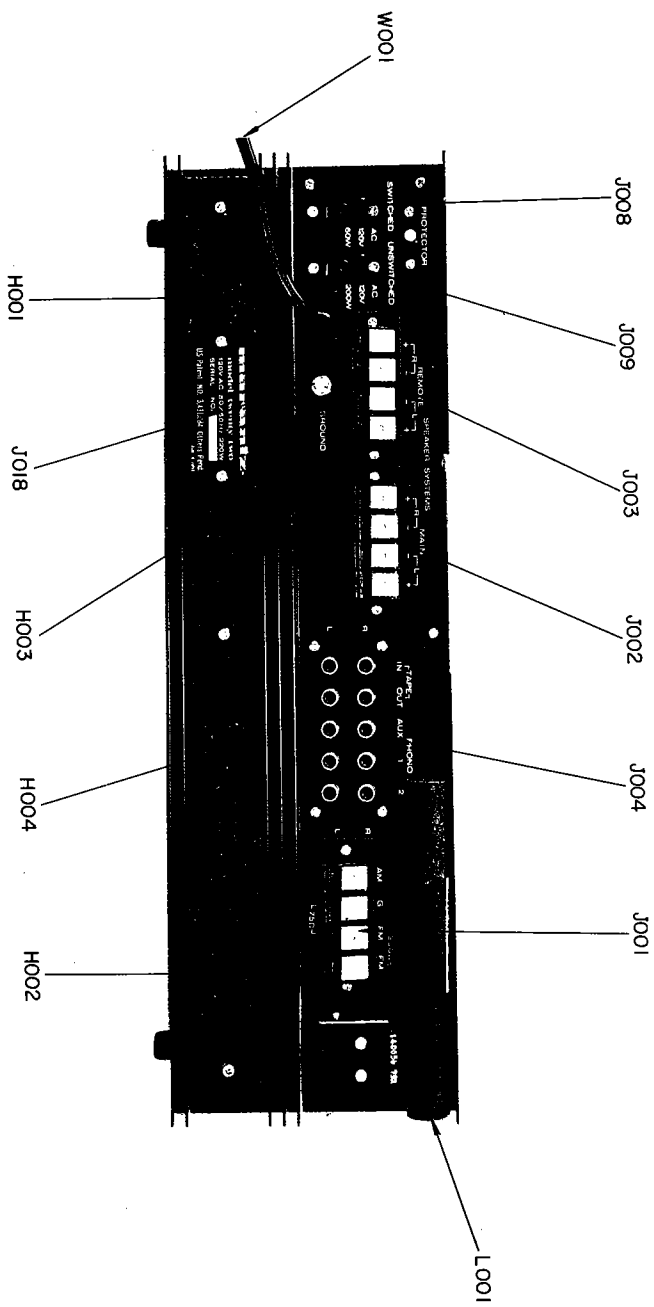


Figure 3 Rear Terminal Component Locations

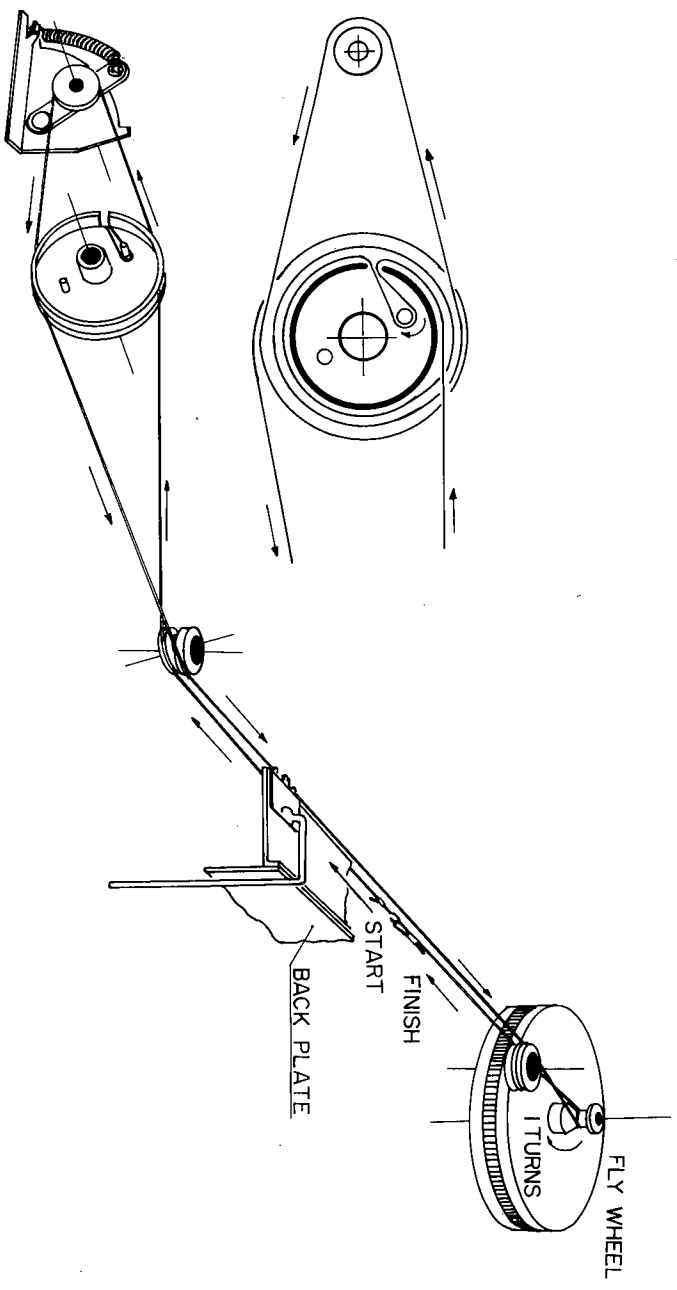


Figure 4 Dial Stringing Diagram

REF.	MARANTZ		REF.	MARANTZ	
DESIG.	PART NO.	DESCRIPTION	DESIG.	PART NO.	DESCRIPTION
D091	51570306B-0	Push Terminal P. Tapt Screw	D154	53112603E-0	Relay Hexagon Nut
D092	51570306B-0	Push Terminal P. Tapt Screw	D155	54042602N-0	Relay Spring Washer
D093	51570306B-0	Push Terminal P. Tapt Screw			
D094	51570306B-0	Push Terminal P. Tapt Screw	D161	51060306E-9	Heat-Sink + Bracket P.H.M.Screw
D095	51570306B-0	P. Tapt Screw	D162	51060306E-9	Heat-Sink + Bracket P.H.M.Screw
D096	51570306B-0	P. Tapt Screw	D163	51060306E-9	Heat-Sink + Bracket P.H.M.Screw
D097	51570306B-0	P. Tapt Screw	D164	51060306E-9	Heat-Sink + Bracket P.H.M.Screw
D098	51570306B-0	P. Tapt Screw			
D099	51570306B-0	P. Tapt Screw	D173	51060306E-9	Bracket K+ Chassis K P.H.M.Screw
D100	51570306B-0	P. Tapt Screw	D174	51060306E-9	Bracket K+ Chassis K P.H.M.Screw
D101	51570306B-0	P. Tapt Screw	D175	51060306E-9	Bracket K+ Chassis K P.H.M.Screw
D102	51570306B-0	P. Tapt Screw			
D103	51570306B-0	P. Tapt Screw	D176	51060306E-9	Spring P.H.M.Screw
D104	51570306B-0	P. Tapt Screw	D177	51060306E-9	P.C. Board P.H.M.Screw
D105	51570306B-0	P. Tapt Screw	D178	51060306E-9	P.C. Board P.H.M.Screw
D106	51570306B-0	P. Tapt Screw	D181	51060306E-9	(AM Ant. Core) Bracket P.H.M.Screw
D107	51570306B-0	P. Tapt Screw	D182	51060306E-9	(AM Ant. Core) Bracket P.H.M.Screw
D108	51570312B-0	P. Tapt Screw	D183	51060306E-9	(AM Ant. Core) Bracket P.H.M.Screw
D109	51570312B-0	P. Tapt Screw			
D110	51570312B-0	Head Phone Insulator P. Tapt Screw	D184	51060306E-9	Circuit Breaker P.H.M.Screw
D111	51570312B-0	Head Phone Insulator P. Tapt Screw	D185	51060306E-9	Circuit Breaker P.H.M.Screw
D112	51570312B-0	Head Phone Insulator P. Tapt Screw	D186	51060306E-9	Slide Switch P.H.M.Screw
D113	51570312B-0	Head Phone Insulator P. Tapt Screw	D187	51060306E-9	Slide Switch P.H.M.Screw
D114	51570312B-0	Head Phone Insulator P. Tapt Screw	D188	51060306E-9	P.H.M. Screw
D115	51570312B-0	Head Phone Insulator P. Tapt Screw	D189	51060308E-9	AM Ant. + Bracket P.H.M.Screw
D121	51060304H-9	Cover+ Bracket P.H.M.Screw	D190	51060308E-9	AM Ant. + Bracket P.H.M.Screw
D122	51060304H-9	Cover+ Bracket P.H.M.Screw			
D123	51060304H-9	Cover+ Bracket (Guide K) P.H.M.Screw	D191	51060308E-9	10P Terminal P.H.M.Screw
D124	51060304H-9	Cover+ Bracket (Guide K) P.H.M.Screw	D192	51060308E-9	10P Terminal P.H.M.Screw
D125	51060304E-9	Shield+ Shield P.H.M.Screw	D193	51060308E-9	10P Terminal P.H.M.Screw
D126	51060304E-9	Shield+ Shield P.H.M.Screw	D194	51060308E-9	10P Terminal P.H.M.Screw
D129	51060305E-9	Bracket+ Chassis K P.H.M.Screw			
D130	51060305E-9	Bracket+ Chassis K P.H.M.Screw	D201	51140305E-9	Push Switch O.C.H.M.Screw
D131	51060305E-9	Bracket+ Chassis K P.H.M.Screw	D202	51140305E-9	Push Switch O.C.H.M.Screw
D132	51060305E-9	Bracket+ Chassis K P.H.M.Screw	D203	51140305E-9	Push Switch O.C.H.M.Screw
D133	51060305E-9	Meter Bracket P.H.M.Screw	D204	51140305E-9	Push Switch O.C.H.M.Screw
D134	51060305E-9	Meter Bracket P.H.M.Screw	D205	51140305E-9	Push Switch O.C.H.M.Screw
D135	51060305E-9	Meter Bracket P.H.M.Screw	D206	51140305E-9	Push Switch O.C.H.M.Screw
D136	51060305E-9	Bearing K P.H.M.Screw	D207	51140305E-9	Push Switch O.C.H.M.Screw
D137	51060305E-9	Bearing K P.H.M.Screw	D208	51140305E-9	Push Switch O.C.H.M.Screw
D138	51060305E-9	Pulley Bracket K P.H.M.Screw	D209	51140305E-9	AM Variable Cap. O.C.H.M.Screw
D139	51060305E-9	Pulley Bracket K P.H.M.Screw	D210	51140305E-9	AM Variable Cap. O.C.H.M.Screw
D140	51060305E-9	Indicator+ Punched Plate P.H.M.Screw	D211	51140305E-9	AM Variable Cap. O.C.H.M.Screw
D141	51060305E-9	Indicator + Punched Plate P.H.M.Screw	D212	51140308E-9	Push Switch (Ant. Tuning) O.C.H.M. Screw
D142	51060305E-9	Indicator + Punched Plate P.H.M.Screw	D213	51140308E-9	Push Switch (Ant. Tuning) O.C.H.M. Screw
D143	51060305E-9	Indicator + Punched Plate P.H.M.Screw	D214	51570306B-0	Bracket (Relay) P. Tapt Screw
D144	51060305E-9	Punched Plate P.H.M.Screw			
D145	51060305E-9	Shield (10P Terminal) P.H.M.Screw	D215	51570306B-0	Bracket (Relay) P. Tapt Screw
D146	51060305E-9	Shield (10P Terminal) P.H.M.Screw	D216	51570306B-0	Lid P. Tapt Screw
D147	51060305E-9	Shield (10P Terminal) P.H.M.Screw	D217	51570306B-0	Lid P. Tapt Screw
D148	51060305E-9	Shield (10P Terminal) P.H.M.Screw	D218	51570306B-0	Lid P. Tapt Screw
D149	51060305E-9	Shield K+ Bracket K P.H.M.Screw			
D150	51060305E-9	Shield K+ Bracket K P.H.M.Screw			
D151	51060305E-9	Shield K+ Bracket K P.H.M.Screw			
D152	51060305E-9	Shield K+ Bracket K P.H.M.Screw			

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D219	51570306B-0	Lid P.Tapt Screw	D288	54110503E-9	Power Transformer Hexagon Nut
D220	51060406E-0	Heat-Sink + Chassis K P.H.M. Screw	D289	54110403E-9	Fly Wheel Hexagon Nut
D221	51060410E-9	Leg P.H.M. Screw	D291	53110303E-9	Indicator Hexagon Nut
D222	51060410E-9	Leg P.H.M. Screw	D292	53110303E-9	Indicator Hexagon Nut
D223	51060410E-9	Leg P.H.M. Screw	D293	53110303E-9	AM Ant. Hexagon Nut
D224	51060410E-9	Leg P.H.M. Screw	D294	53110303E-9	AM Ant. Hexagon Nut
D225	51060425E-9	Coil + Chassis K P.H.M. Screw	D295	53110303E-9	Hexagon Nut
D226	51060425E-9	Coil + Chassis K P.H.M. Screw	D298	53110603E-0	Fly Wheel Hexagon Nut
D227	51060304E-9	P.H.M. Screw	D300	54040302N-0	Lid Spring Washer
D228	51140305E-9	Bearing (Fly Wheel) O.C.H.M. Screw	D301	54040302N-0	Lid Spring Washer
D229	51140305E-9	Bearing (Fly Wheel) O.C.H.M. Screw	D302	54040302N-0	Lid Spring Washer
D231	51100406S-9	Lid + Chassis K B.H.M. Screw	D303	54040302N-0	Lid Spring Washer
D232	51100406S-9	Lid + Chassis K B.H.M. Screw	D304	54040302N-0	Indicator Spring Washer
D233	51100406S-9	Lid + Chassis K B.H.M. Screw	D305	54040302N-0	Indicator Spring Washer
D234	51100406S-9	Lid + Chassis K B.H.M. Screw	D306	54050300R-0	Terminal T.L. Washer OR
D241	51650304D-0	Gear Set Screw H.P.	D307	54050300R-0	Terminal T.L. Washer OR
D242	51650304D-0	Gear Set Screw H.P.	D308	54050300R-0	Terminal T.L. Washer OR
D243	51650304D-0	Gear Set Screw H.P.	D309	54050300R-0	Terminal T.L. Washer OR
D244	51650304D-0	Gear Set Screw H.P.	D310	54050300R-0	Terminal T.L. Washer OR
D247	51640412D-9	Fly Wheel Set Screw C.P.	D311	54050300R-0	Terminal T.L. Washer OR
D249	54040302N-0	Power Transistor Spring Washer	D312	54050300R-0	Terminal T.L. Washer OR
D250	54040302N-0	Power Transistor Spring Washer	D313	54050300R-0	Terminal T.L. Washer OR
D251	54040302N-0	Power Transistor Spring Washer	D314	54050300R-0	Terminal T.L. Washer OR
D252	54040302N-0	Power Transistor Spring Washer	D315	54050300R-0	Terminal T.L. Washer OR
D253	54040302N-0	Power Transistor Spring Washer	D321	54040402N-0	Leg Spring Washer
D254	54040302N-0	Power Transistor Spring Washer	D322	54040402N-0	Leg Spring Washer
D255	54040302N-0	Power Transistor Spring Washer	D323	54040402N-0	Leg Spring Washer
D256	54040302N-0	Power Transistor Spring Washer	D324	54040402N-0	Leg Spring Washer
D258	51570408R-0	P.H. Tapt Screw	D325	54040502N-0	Power Transformer Spring Washer
D259	51570408R-0	P.H. Tapt Screw	D326	54040502N-0	Power Transformer Spring Washer
D261	50060305B-9	Transistor P.H.M. Screw	D327	54040502N-0	Power Transformer Spring Washer
D264	51042608E-0	AC Socket F.H.M. Screw	D328	54040502N-0	Power Transformer Spring Washer
D265	51042608E-0	AC Socket F.H.M. Screw	D329	54040402N-0	Support Spring Washer
D266	51042608E-0	AC Socket F.H.M. Screw	D330	54040402N-0	Support Spring Washer
D267	51042608E-0	AC Socket F.H.M. Screw	D331	54040402N-0	Support Spring Washer
D268	54052600R-0	AC Socket T.L. Washer OR	D332	54040402N-0	Support Spring Washer
D269	54052600R-0	AC Socket T.L. Washer OR	D333	54040402N-0	Fly Wheel Spring Washer
D270	54052600R-0	AC Socket T.L. Washer OR	D334	54040602N-0	Fly Wheel Spring Washer
D271	54052600R-0	AC Socket T.L. Washer OR	D335	54020401E-0	Leg Flat Washer P.
D272	53112603E-0	AC Socket Hexagon Nut	D336	54020401E-0	Leg Flat Washer P.
D273	53112603E-0	AC Socket Hexagon Nut	D337	54020401E-0	Leg Flat Washer P.
D274	53112603E-0	AC Socket Hexagon Nut	D338	54020401E-0	Leg Flat Washer P.
D275	53112603E-0	AC Socket Hexagon Nut	D339	54020501E-0	Power Transformer Flat Washer P.
D281	54050300R-0	Terminal T.L. Washer OR	D340	54020501E-0	Power Transformer Flat Washer P.
D282	54050300R-0	Terminal T.L. Washer OR	D341	54020501E-0	Power Transformer Flat Washer P.
D283	54050300R-0	Terminal T.L. Washer OR	D342	54020501E-0	Power Transformer Flat Washer P.
D285	53110503E-9	Power Transformer Hexagon Nut	D344	54020601E-0	Fly Wheel Flat Washer P.
D286	53110503E-9	Power Transformer Hexagon Nut	D346	54050300R-0	AM Antnna T.L. Washer OR
D287	54110503E-9	Power Transformer Hexagon Nut	D347	54050300R-0	AM Antnna T.L. Washer OR
			D349	54050400R-0	Ground Terminal T.L. Washer OR
			D350	62041760N-0	Ground Terminal Lug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D353	56382040G-0	Eyelet
D354	57271240W-0	Shield K Lug Eyelet
D361	64002400R-0	Pulley RG Ring E
D362	64002400R-0	Pulley RG Ring E
D363	64002400R-0	Pulley RG Ring E
D364	64002400R-0	Pulley RG Ring E
D366	64000400R-0	Drum RG Ring E
D371	51122608E-0	Escutcheon T.H.M. Screw
D372	51122608E-0	Escutcheon T.H.M. Screw
D373	51122608E-0	Escutcheon T.H.M. Screw
D374	51122608E-0	Escutcheon T.H.M. Screw
D377	54020401S-0	Lid Flat Washer S.
D378	54020401S-0	Lid Flat Washer S.
D379	54020401S-0	Lid Flat Washer S.
D380	54020401S-0	Lid Flat Washer S.
D382	54020401E-0	Lid Flat Washer P.
D383	54020401E-0	Lid Flat Washer P.
D384	54020401E-0	Lid Flat Washer P.
D385	54020401E-0	Lid Flat Washer P.
D387	51060312E-9	Power Transistor P.H.M. Screw
D388	51060312E-9	Power Transistor P.H.M. Screw
D389	51060312E-9	Power Transistor P.H.M. Screw
D390	51060312E-9	Power Transistor P.H.M. Screw
D391	51060312E-9	Power Transistor P.H.M. Screw
D392	51060312E-9	Power Transistor P.H.M. Screw
D393	51060312E-9	Power Transistor P.H.M. Screw
D394	51060312E-9	Power Transistor P.H.M. Screw
P100	YD2578001-0	PC Board
R101	RC1010412-0	100K ohm $\pm 10\%$ 1/2W Carbon Film
R102	RC1010512-0	1M ohm $\pm 10\%$ 1/2W Carbon Film
R103	RC1022112-0	220 ohm $\pm 10\%$ 1/2W Carbon Film
R104	RC1027212-0	2.7K ohm $\pm 10\%$ 1/2W Carbon Film
R105	RC1018312-0	18K ohm $\pm 10\%$ 1/2W Carbon Film
R106	RC1010212-0	1K ohm $\pm 10\%$ 1/2W Carbon Film
R107	RC1012212-0	1.2K ohm $\pm 10\%$ 1/2W Carbon Film
R108	RC1047212-0	4.7K ohm $\pm 10\%$ 1/2W Carbon Film
R109	RC1010212-0	1K ohm $\pm 10\%$ 1/2W Carbon Film
R110	RC1022312-0	22K ohm $\pm 10\%$ 1/2W Carbon Film
R111	RC1022312-0	22K ohm $\pm 10\%$ 1/2W Carbon Film
C101	CA4000001-0	FM 4 Gang Variable with Trimmer
C104	CT1100002-0	2.8PF-12.8PF Trimmer
C105	DD1615001-0	15PF $\pm 10\%$ Ceramic
C106	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C107	CK1710201-0	0.001uF $\pm 20\%$ Ceramic
C108	DD1001001-0	1.0PF ± 0.25 PF Ceramic
C109	DD1615001-0	15PF $\pm 10\%$ Ceramic
C110	CT1100002-0	2.8PF-12.8PF Trimmer
C111	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C112	CT1100002-0	2.8PF-12.8PF Trimmer

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C113	DD1620001-0	20PF $\pm 10\%$ Ceramic
C114	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C115	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C116	DD1615003-0	15PF $\pm 10\%$ Ceramic
C117	DD1105002-0	5PF ± 0.5 PF Ceramic
C118	DD1615004-0	15PF $\pm 10\%$ Ceramic
C119	CT1100002-0	2.8PF-12.8PF Trimmer
C120	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C121	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C122	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C123	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C124	DD1210001-0	10PF ± 1 PF Ceramic
C125	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C126	DC1103002-2	3PF ± 0.5 PF Feed Through
C127	DC1810201-0	0.001uF +100, -0% Feed Through
C128	DK1710201-0	0.001uF $\pm 20\%$ Ceramic
C129	DD1001001-0	1PF ± 0.25 PF Ceramic
C130	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
L101	LA1004618-0	Antenna Coil
L102	LA1004616-0	RF Coil
L103	LA1004619-0	RF Coil
L104	LO1004603-0	OSC Coil
L105	LI1401619-0	IFT
L106	LC1302001-0	Choke Coil
L107	LC1302001-0	Choke Coil
L108	LC1302001-0	Choke Coil
T101	257810903-0	Shield
T102	257810904-0	Shield
T103	257810905-0	Shield
H101	HF200191A-0	2SK19Y Transistor
H102	HF200191B-0	2SK19GN Transistor
H103	HT308291B-0	2SC829B Transistor
H104	HD1000105-0	IN-60 Diode
H105	HD1000105-0	IN-60 Diode
P200	YD2578002-0	PC Board
R201	RT1056214-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
R202	RT1015414-0	150K ohm $\pm 10\%$ 1/4W Carbon Film
R203	RT1012214-0	1.2K ohm $\pm 10\%$ 1/4W Carbon Film
R204	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R205	RT1082314-0	82K ohm $\pm 10\%$ 1/4W Carbon Film
R206	RT1033314-0	33K ohm $\pm 10\%$ 1/4W Carbon Film
R207	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R208	RT1012214-0	1.2K ohm $\pm 10\%$ 1/4W Carbon Film
R209	RT1033314-0	33K ohm $\pm 10\%$ 1/4W Carbon Film
R210	RT1012214-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
C201	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C202	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C203	DD1615001-0	15PF $\pm 10\%$ Ceramic
C204	DK1840301-0	0.04uF +100, -0% Ceramic
C205	DK1840301-0	0.04uF +100, -0% Ceramic
C206	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C207	DK1710301-0	0.01uF $\pm 20\%$ Ceramic
C208	DD1620001-0	20PF $\pm 10\%$ Ceramic
C209	DF6539150-0	390PF $\pm 5\%$ Poly
C210	DK1840301-0	0.04uF +100, -0% Ceramic

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C211	EA1060162-0	10uF 16V Electroly
L201	LA1001014-0	RF Coil
L202	LO1001035-0	OSC Coil
L203	LI1401001-0	IFT
H201	HT303711B-0	Transistor
H202	HT303711A-0	Transistor
H203	HD1000105-0	Diode
J201	YP1000036-0	Plug
J202	YP1000036-0	Plug
J203	YP1000036-0	Plug
J204	YP1000036-0	Plug
J205	YP1000036-0	Plug
J206	YP1000036-0	Plug
J207	YP1000036-0	Plug
J208	YP1000036-0	Plug
P500	YD2578005-0	PC Board
R502	RT1033114-0	330 ohm $\pm 10\%$ 1/4W Carbon Film
R503	RT1033114-0	330 ohm $\pm 10\%$ 1/4W Carbon Film
R504	RT1027114-0	270 ohm $\pm 10\%$ 1/4W Carbon Film
R505	RT1033114-0	330 ohm $\pm 10\%$ 1/4W Carbon Film
R506	RT1033114-0	330 ohm $\pm 10\%$ 1/4W Carbon Film
R507	RT1027114-0	270 ohm $\pm 10\%$ 1/4W Carbon Film
R508	RT1027214-0	2.7K ohm $\pm 10\%$ 1/4W Carbon Film
R509	RT1010114-0	100 ohm $\pm 10\%$ 1/4W Carbon Film
R510	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R511	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R512	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R513	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R514	RT1033414-0	330K ohm $\pm 10\%$ 1/4W Carbon Film
R515	RN1010514-0	1M ohm $\pm 10\%$ 1/4W Carbon Film
R516	RT1039214-0	3.9K ohm $\pm 10\%$ 1/4W Carbon Film
R517	RT1056214-0	5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R518	RT1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
R520	RT1047214-0	4.7K ohm $\pm 10\%$ 1/4W Carbon Film
R521	RT1022214-0	2.2K ohm $\pm 10\%$ 1/4W Carbon Film
R522	RT1068214-0	6.8K ohm $\pm 10\%$ 1/4W Carbon Film
R523	RT1068214-0	6.8K ohm $\pm 10\%$ 1/4W Carbon Film
R524	RT1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R525	RT1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R526	RT1056214-0	5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R527	RT1056214-0	5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R528	RT1022314-0	22K ohm $\pm 10\%$ 1/4W Carbon Film
R529	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R530	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R531	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R532	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R533	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R534	RT1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R535	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R536	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R537	RT1022014-0	22 ohm $\pm 10\%$ 1/4W Carbon Film
R538	RT1022014-0	22 ohm $\pm 10\%$ 1/4W Carbon Film
R539	RT1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R540	RT1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R541	RT1022414-0	220K ohm $\pm 10\%$ 1/4W Carbon Film
R542	RT1033414-0	330K ohm $\pm 10\%$ 1/4W Carbon Film
R543	RT1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
R544	RT1022214-0	2.2K ohm $\pm 10\%$ 1/4W Carbon Film
R545	RT1015414-0	150K ohm $\pm 10\%$ 1/4W Carbon Film
R546	RT1056214-0	5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R547	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
R548	RT1012214-0	1.2K ohm $\pm 10\%$ 1/4W Carbon Film
R549	RT1027314-0	27K ohm $\pm 10\%$ 1/4W Carbon Film
R550	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R551	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
R552	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R553	RT1027314-0	27K ohm $\pm 10\%$ 1/4W Carbon Film
R554	RT1056214-0	5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R555	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R556	RT1033214-0	3.3K ohm $\pm 10\%$ 1/4W Carbon Film
R558	RT1022414-0	220K ohm $\pm 10\%$ 1/4W Carbon Film
R560	RT1022314-0	22K ohm $\pm 10\%$ 1/4W Carbon Film
R561	RT1047414-0	470K ohm $\pm 10\%$ 1/4W Carbon Film
R562	RT1012314-0	12K ohm $\pm 10\%$ 1/4W Carbon Film
R563	RT1015214-0	1.5K ohm $\pm 10\%$ 1/4W Carbon Film
R564	RT1010114-0	100 ohm $\pm 10\%$ 1/4W Carbon Film
R565	RC1022312-0	22K ohm $\pm 10\%$ 1/2W Solid
R566	RT1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
R567	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R568	RC1010112-0	100 ohm $\pm 10\%$ 1/2W Solid
C501	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C502	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C503	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C504	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C505	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C506	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C507	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C508	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C510	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C511	DD1105001-0	5PF ± 0.5 PF Ceramic Cap.
C512	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C513	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C514	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C515	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C516	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C517	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C518	DD1620101-0	200PF $\pm 10\%$ Ceramic Cap.
C519	EA4750162-0	4.7uF 16V Electroly Cap.
C520	EA1060162-0	10uF 16V Electroly Cap.
C521	DD1620101-0	200PF $\pm 10\%$ Ceramic Cap.
C522	DD1620101-0	200PF $\pm 10\%$ Ceramic Cap.
C523	DD1650101-0	500PF $\pm 10\%$ Ceramic Cap.
C524	ED4750102-0	4.7uF 10V Electroly Cap.
C525	ED1747301-0	0.047uF $\pm 20\%$ Mylar
C526	DF5547201-0	0.0047uF $\pm 5\%$ Mylar
C527	DF5547201-0	0.0047uF $\pm 5\%$ Mylar
C528	DF5412201-0	0.0012uF $\pm 2\%$ Mylar
C529	ED3350163-0	3.3uF 16V Electroly Cap.
C530	DF1633201-0	0.0033uF $\pm 10\%$ Mylar
C531	DF1633201-0	0.0033uF $\pm 10\%$ Mylar

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C532	DK1710301-0	0.01uF ±20% Ceramic
C533	ED4750102-0	4.7uF 10V Electroly Cap.
C534	ED4750102-0	4.7uF 10V Electroly Cap.
C535	DF6582101-0	820PF ±5% Poly
C536	DF6582101-0	820PF ±5% Poly
C537	DF1633201-0	0.0033uF ±10% Mylar
C538	DF1633201-0	0.0033uF ±10% Mylar
C539	DF1633201-0	0.0033uF ±10% Mylar
C540	DF1633201-0	0.0033uF ±10% Mylar
C541	DF1668201-0	0.0068uF ±20% Mylar
C542	DF1668201-0	0.0068uF ±20% Mylar
C543	DK1710301-0	0.01uF ±20% Ceramic Cap.
C544	DK1710301-0	0.01uF ±20% Ceramic Cap.
C545	DK1710301-0	0.01uF ±20% Ceramic Cap.
C546	DK1710301-0	0.01uF ±20% Ceramic Cap.
C547	DK1710301-0	0.01uF ±20% Ceramic Cap.
C548	DD1620101-0	200PF ±10% Ceramic Cap.
C549	DK1710301-0	0.01uF ±20% Ceramic Cap.
C551	EM2240251-0	0.2uF 25V Electroly
C550	DK1710301-0	0.01uF ±20% Ceramic
C552	DK1710301-0	0.01uF ±20% Ceramic Cap.
C553	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C554	DK1710301-0	0.01uF ±20% Ceramic Cap.
C555	DK1710301-0	0.01uF ±20% Ceramic Cap.
C556	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C557	EA4750161-0	4.7uF 16V Electroly Cap.
C558	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C559	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C560	EA4750162-0	4.7uF 16V Electroly Cap.
C561	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C562	DD1530101-0	300PF ±5% Ceramic Cap.
C563	DK1750201-0	0.005uF ±20% Ceramic Cap.
C564	DK1750201-0	0.005uF ±20% Ceramic Cap.
C565	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C566	DK1710201-0	0.001uF ±20% Ceramic Cap.
C567	DF1747301-0	0.047uF ±20% Mylar
C569	EA4760163-0	47uF 16V Electroly Cap.
C570	ED1060102-0	10uF 10V Electroly Cap.
C571	DK1840301-0	0.04uF +100, -0% Ceramic Cap.
C574	DD1540001-0	40PF ±5% Ceramic Cap.
C575	DD1650101-0	500PF ±10% Ceramic Cap.
C576	EA2270164-0	220uF 16V Electroly Cap.
C577	DK1710301-0	0.01uF ±20% Ceramic Cap.
C578	DK1820301-0	0.02uF +100, -0% Ceramic Cap.
C579	EA2270162-0	220uF 16V Electroly Cap.
L502	LC1223001-0	22uH Coil
L503	LC1223001-0	22uH Coil
L504	LC1223001-0	22uH Coil
L505	LC1223001-0	22uH Coil
L506	LC1223001-0	22uH Coil
L507	LI1401604-3	FM IFT (DET)
L508	LI1015601-0	FM IFT (SUB)
L509	LI1015602-0	FM IFT
L510	LI1401004-0	AM IFT
L511	LI1401005-0	AM IFT
L512	LS1001001-0	19 KHz MPX Coil

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
L513	LS1001001-0	19 KHz MPX Coil
L514	LS1001001-0	38 KHz MPX Coil
L515	LS1001006-0	38 KHz Trap MPX Coil
L516	LS1001006-0	38 KHz Trap MPX Coil
L517	LS1001006-0	19 KHz Trap MPX Coil
L518	LS1001006-0	19 KHz Trap MPX Coil
L519	LI1001616-0	FM IFT
F501	FF1107001-0	SFC 10.7 MA Ceramic Cap.
F502	DD1107001-0	SFC 10.7 MA Ceramic Cap.
H501	HC1000111-0	uA703 IC
H502	HC1000114-0	cA3011 IC
H503	HC1000114-0	cA3011 IC
H504	HT306441B-0	2SC644 S Transistor
H505	HC1000117-0 MC1304P IC	466-1008-11A0
H506	HT303801B-0	2SC380 O Transistor
H507	HT303801B-0	2SC380 O Transistor
H508	HT3037210-0	2SC372 Transistor
H509	HT104951A-0	2SB495 Transistor
H510	HT303711B-0	2SC371 Transistor
H511	HT303711A-0	2SC371 Transistor
H513	HD1000105-0	IN-60 Diode
H514	HD1000105-0	IN-60 Diode
H515	HD1000101-0	IN34A Diode
H516	HD1000101-0	IN34A Diode
H517	HD1000105-0	IN-60 Diode
H518	HD1000105-0	IN-60 Diode
H519	HD1000105-0	IN-60 Diode
H520	HD1000105-0	IN-60 Diode
H521	HD1000105-0	IN-60 Diode
J501	YP1000036-0	Plug
J502	YP1000036-0	Plug
J503	YP1000036-0	Plug
J504	YP1000036-0	Plug
J505	YP1000036-0	Plug
J506	YP1000036-0	Plug
J507	YP1000036-0	Plug
J508	YP1000036-0	Plug
J509	YP1000036-0	Plug
J510	YP1000036-0	Plug
J511	YP1000036-0	Plug
J512	YP1000036-0	Plug
J513	YP1000036-0	Plug
J514	YP1000036-0	Plug
J515	YP1000036-0	Plug
J516	YP1000036-0	Plug
J517	YP1000036-0	Plug
J518	YP1000036-0	Plug
J519	YP1000036-0	Plug
J520	YP1000036-0	Plug
J521	YP1000036-0	Plug
J522	YP1000036-0	Plug
J523	YP1000036-0	Plug
J525	YP1000001-0	Plug

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J526 YP1000001-0 Plug
J527 YP1000001-0 Plug
J528 YP1000001-0 Plug

W501 YW2578001-0 Wire Materials

P700 YD2578004-0 PC Board

R701 RT1056314-0 56K ohm $\pm 10\%$ 1/4W Carbon Film
R702 RT1056214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R703 RT1022314-0 22K ohm $\pm 10\%$ 1/4W Carbon Film
R704 RA0502006-0 5K ohm (B) Trimmer
R705 RT1056214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R706 RT1056314-0 56K ohm $\pm 10\%$ 1/4W Carbon Film
R707 RT1022314-0 22K ohm $\pm 10\%$ 1/4W Carbon Film
R708 RT1010314-0 10K ohm $\pm 10\%$ 1/4W Carbon Film
R709 RT1010314-0 10K ohm $\pm 10\%$ 1/4W Carbon Film
R710 RT1022314-0 22K ohm $\pm 10\%$ 1/4W Carbon Film

R711 RN1047414-0 470K ohm $\pm 10\%$ 1/4W Carbon Film
R712 RN1047414-0 470K ohm $\pm 10\%$ 1/4 W Carbon Film
R713 RN1015414-0 150K ohm $\pm 10\%$ 1/4W Carbon Film
R714 RN1015414-0 150K ohm $\pm 10\%$ 1/4W Carbon Film
R715 RN1022314-0 22K ohm $\pm 10\%$ 1/4W Carbon Film
R716 RN1022314-0 22K ohm $\pm 10\%$ 1/4W Carbon Film
R717 RT1056214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R718 RT1056214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R719 RT1010214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film
R720 RT1010214-0 5.6K ohm $\pm 10\%$ 1/4W Carbon Film

R721 RT1015314-0 15K ohm $\pm 10\%$ 1/4W Carbon Film
R722 RT1015314-0 15K ohm $\pm 10\%$ 1/4W Carbon Film
R723 RT1012214-0 1.2K ohm $\pm 10\%$ 1/4W Carbon Film
R724 RT1068114-0 680 ohm $\pm 10\%$ 1/4W Carbon Film
R725 RT1022414-0 220K ohm $\pm 10\%$ 1/4W Carbon Film
R726 RT1022414-0 220K ohm $\pm 10\%$ 1/4W Carbon Film

C701 EN2240251-0 0.22uF $\pm 20\%$ 25V Electroly Cap.
C702 EV2240251-0 0.22uF $\pm 20\%$ 25V Electroly Cap.
C703 EA1060351-0 10uF 35V Electroly Cap.
C704 EA1060351-0 10uF 35V Electroly Cap.
C705 EA1070252-0 100uF 25V Electroly Cap.
C706 EM4740251-0 0.47uF $\pm 20\%$ 25V Electroly Cap.
C707 EM4740251-0 0.47uF $\pm 20\%$ 25V Electroly Cap.

H701 HT3037210-0 2SC372 Transistor
H702 HT3037210-0 2SC372 Transistor
H703 HT104951A-0 2SA495 R Transistor
H704 HT104951A-0 2SA495 R Transistor
H705 HT307321B-0 2SC732 BL Transistor
H706 HT307321B-0 2SC732 BL Transistor
H707 HT104941C-0 2SA494 Y Transistor
H708 HT104941C-0 2SA494 Y Transistor
H709 HD3001009-0 IS336 Diode

J701 YP1000036-0 Plug
J702 YP1000036-0 Plug
J703 YP1000036-0 Plug
J704 YP1000036-0 Plug
J705 YP1000036-0 Plug
J706 YP1000036-0 Plug

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J707 YP1000036-0 Plug
J708 YP1000036-0 Plug
J709 YP1000036-0 Plug
J710 YP1000036-0 Plug
J711 YP1000036-0 Plug
J712 YP1000036-0 Plug
J713 YP1000036-0 Plug

P300 YD2577003-0 Phono Amp PC Board

R301 RN1047314-0 47K ohm $\pm 10\%$ 1/4W Carbon Film
R302 RN1047314-0 47K ohm $\pm 10\%$ 1/4W Carbon Film
R303 RT1039114-0 390 ohm $\pm 10\%$ 1/4W Carbon Film
R304 RT1039114-0 390 ohm $\pm 10\%$ 1/4W Carbon Film
R305 RN1033414-0 330K ohm $\pm 10\%$ 1/4W Carbon Film
R306 RN1033414-0 330K ohm $\pm 10\%$ 1/4W Carbon Film
R307 GT0533112-0 330 ohm $\pm 5\%$ 1/2W Carbon Film
R308 GT0533112-0 330 ohm $\pm 5\%$ 1/2W Carbon Film
R309 GT0533412-0 330K ohm $\pm 5\%$ 1/2W Carbon Film
R310 GT0533412-0 330K ohm $\pm 5\%$ 1/2W Carbon Film

R311 GT0527312-0 27K ohm $\pm 5\%$ 1/2W Carbon Film
R312 GT0527312-0 27K ohm $\pm 5\%$ 1/2W Carbon Film
R313 RN1010414-0 100K ohm $\pm 10\%$ 1/4W Carbon Film
R314 RN1010414-0 100K ohm $\pm 10\%$ 1/4W Carbon Film
R315 RT1010314-0 10K ohm $\pm 10\%$ 1/4W Carbon Film
R316 RT1015314-0 15K ohm $\pm 10\%$ 1/4W Carbon Film
R317 RT1015314-0 15K ohm $\pm 10\%$ 1/4W Carbon Film
R318 RT1015214-0 1.5K ohm $\pm 10\%$ 1/4W Carbon Film
R319 RT1015214-0 1.5K ohm $\pm 10\%$ 1/4W Carbon Film
R320 RT1047114-0 470 ohm $\pm 10\%$ 1/4W Carbon Film

R321 RT1047114-0 470 ohm $\pm 10\%$ 1/4W Carbon Film
R322 RT1047014-0 47 ohm $\pm 10\%$ 1/4W Carbon Film
R323 RN1033414-0 330K ohm $\pm 10\%$ 1/4W Carbon Film
R324 RN1033414-0 330K ohm $\pm 10\%$ 1/4W Carbon Film

C301 EV2250251-0 2.2uF 25V +40, -20% Electroly Cap.
C302 EV2250251-0 2.2uF 25V +40, -20% Electroly Cap.
C303 EA2260351-0 22uF 35V +100, -0% Electroly Cap.
C304 DF6410301-0 0.01uF 50V $\pm 2\%$ Poly
C305 DF6410301-0 0.01uF 50V $\pm 2\%$ Poly
C308 EA1070061-0 100uF 6.3V +100, -0% Electroly Cap.
C309 EA1070061-0 100uF 6.3V +100, -0% Electroly Cap.
C310 EV1050251-0 1uF 25V +40 -20% Electroly Cap.

C311 EV1050251-0 1uF 25V +40 -20% Electroly Cap.
C312 EA1070351-0 100uF 35V Electroly Cap.

C316 DF6427201-0 0.0027uF 50V $\pm 2\%$ Poly
C317 DF6427201-0 0.0027uF 50V $\pm 2\%$ Poly

H301 HT306441C-0 2SC644(T) Transistor
H302 HT306441C-0 2SC644(T) Transistor
H303 HF200301C-0 2SK30(Y) Transistor
H304 HF200301C-0 2SK30(Y) Transistor

J301 YP1000036-0 Plug
J302 YP1000036-0 Plug
J303 YP1000036-0 Plug
J304 YP1000036-0 Plug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
J305	YP1000036-0	Plug
J306	YP1000036-0	Plug
J307	YP1000036-0	Plug
P400	YD2577004-0	Tone Amp PC Board
R401	RT1039114-0	390 ohm $\pm 10\%$ 1/4W Carbon Film
R402	RT1039114-0	390 ohm $\pm 10\%$ 1/4W Carbon Film
R403	RN1047314-0	47K ohm $\pm 10\%$ 1/4W Carbon Film
R404	RN1047314-0	47K ohm $\pm 10\%$ 1/4W Carbon Film
R405	RN1056314-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
R406	RN1056314-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
R407	RT1068214-0	6.8K ohm $\pm 10\%$ 1/4W Carbon Film
R408	RT1068214-0	6.8K ohm $\pm 10\%$ 1/4W Carbon Film
R409	RN1022314-0	22K ohm $\pm 10\%$ 1/4W Carbon Film
R410	RN1022314-0	22K ohm $\pm 10\%$ 1/4W Carbon Film
R411	RT1027214-0	2.7K ohm $\pm 10\%$ 1/4W Carbon Film
R412	RT1027214-0	2.7K ohm $\pm 10\%$ 1/4W Carbon Film
R413	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
R414	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
R415	RN1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R416	RN1015314-0	15K ohm $\pm 10\%$ 1/4W Carbon Film
R417	RT1010114-0	100 ohm $\pm 10\%$ 1/4W Carbon Film
R418	RN1056314-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
R419	RN1056314-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
R420	GT0522312-0	22K ohm $\pm 5\%$ 1/2W Carbon Film
R421	GT0522312-0	22K ohm $\pm 5\%$ 1/2W Carbon Film
R422	RN1022514-0	2.2M ohm $\pm 10\%$ 1/4W Carbon Film
R423	RN1022514-0	2.2M ohm $\pm 10\%$ 1/4W Carbon Film
R424	RN1068314-0	68K ohm $\pm 10\%$ 1/4W Carbon Film
R425	RN1068314-0	68K ohm $\pm 10\%$ 1/4W Carbon Film
R426	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R427	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R428	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R429	RT1010314-0	10K ohm $\pm 10\%$ 1/4W Carbon Film
R430	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R431	RT1022114-0	220 ohm $\pm 10\%$ 1/4W Carbon Film
R432	RN1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
R433	RN1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
C401	EV2240251-0	0.22uF 25V $\pm 20\%$ Electroly Cap.
C402	EV2240251-0	0.22uF 25V $\pm 20\%$ Electroly Cap.
C403	EA2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C404	EA2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C405	EA2260351-0	22uF 25V Electroly Cap.
C406	EA2260351-0	22uF 35V Electroly Cap.
C407	EV2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C408	EV2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C409	EA1070351-0	100uF 35V
C410	EV2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C411	EV2250251-0	2.2uF 25V +40, -20% Electroly Cap.
C412	DF6545101-0	450PF $\pm 5\%$ Poly
C413	DF6545101-0	450PF $\pm 5\%$ Poly
C414	EV1050251-0	1uF 25V +40, -20% Electroly Cap.
C415	EV1050251-0	1uF 25V +40, -20% Electroly Cap.
H401	HT307321B-0	2SC732 (BL) Transistor
H402	HT307321B-0	2SC732 (BL) Transistor

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
H403	HT104941C-0	2SA494 (Y) Transistor
H404	HT104941C-0	2SA494 (Y) Transistor
H405	HT307321B-0	2SC732 (BL) Transistor
H406	HT307321B-0	2SC732 (BL) Transistor
H407	HT104941B-0	2SA494 (Y) Transistor
H408	HT104941C-0	2SA494 (Y) Transistor
J401-J420	YP1000036-0	Plug
W401	YW2577004-0	Wire Materials
P600	YD2578006-0	Main Amp PC Board
R601	RN1047414-0	470K ohm $\pm 10\%$ 1/4W Carbon Film
R602	RN1047414-0	470K ohm $\pm 10\%$ 1/4W Carbon Film
R603	GT0510212-0	1K ohm $\pm 5\%$ 1/2W Carbon Film
R604	GT0510212-0	1K ohm $\pm 5\%$ 1/2W Carbon Film
R605	RN1047314-0	47K ohm $\pm 10\%$ 1/4W Carbon Film
R606	RN1047314-0	47K ohm $\pm 10\%$ 1/4W Carbon Film
R607	GT0282112-0	820 ohm $\pm 2\%$ 1/2W Carbon Film
R608	GT0282112-0	820 ohm $\pm 2\%$ 1/2W Carbon Film
R609	GT0510412-0	100K ohm $\pm 5\%$ 1/2W Carbon Film
R610	GT0510412-0	100K ohm $\pm 5\%$ 1/2W Carbon Film
R611	GT0515312-0	15K ohm $\pm 5\%$ 1/2W Carbon Film
R612	GT0515312-0	15K ohm $\pm 5\%$ 1/2W Carbon Film
R613	GT0510312-0	10K ohm $\pm 5\%$ 1/2W Carbon Film
R614	GT0510312-0	10K ohm $\pm 5\%$ 1/2W Carbon Film
R615	RA0202003-0	2K ohm (B) Semi Fix
R616	RA0202003-0	2K ohm (B) Semi Fix
R617	GT0510312-0	10K ohm $\pm 5\%$ 1/2W Carbon Film
R618	GT0510312-0	10K ohm $\pm 5\%$ 1/2W Carbon Film
R619	RC1018212-0	1.8K ohm $\pm 10\%$ 1/2W Solid
R620	RC1018212-0	1.8K ohm $\pm 10\%$ 1/2W Solid
R621	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R622	RT1082114-0	820 ohm $\pm 10\%$ 1/4W Carbon Film
R623	RC1018212-0	1.8K ohm $\pm 10\%$ 1/4W Solid
R624	RC1018212-0	1.8K ohm $\pm 10\%$ 1/4W Solid
R625	GT0562112-0	620 ohm $\pm 5\%$ 1/2W Carbon Film
R626	GT0562112-0	620 ohm $\pm 5\%$ 1/2W Carbon Film
R627	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R628	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R629	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R630	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R631	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R632	GT0518312-0	18K ohm $\pm 5\%$ 1/2W Carbon Film
R633	GT0547112-0	470 ohm $\pm 5\%$ 1/2W Carbon Film
R634	GT0547112-0	470 ohm $\pm 5\%$ 1/2W Carbon Film
R635	RC1010112-0	100 ohm $\pm 10\%$ 1/2W Solid
R636	RC1010112-0	100 ohm $\pm 10\%$ 1/2W Solid
R637	RC1010112-0	100 ohm $\pm 10\%$ 1/2W Solid
R638	RC1010112-0	100 ohm $\pm 10\%$ 1/2W Solid
R639	GT0533112-0	330 ohm $\pm 10\%$ 1/2W Carbon Film
R640	GT0533112-0	330 ohm $\pm 10\%$ 1/2W Carbon Film
R641	GT0522112-0	220 ohm $\pm 10\%$ 1/2W Carbon Film
R642	GT0522112-0	220 ohm $\pm 10\%$ 1/2W Carbon Film
R643	GT0515112-0	150 ohm $\pm 10\%$ 1/2W Carbon Film
R644	GT0515112-0	150 ohm $\pm 10\%$ 1/2W Carbon Film
R645	GT0533112-0	330 ohm $\pm 10\%$ 1/2W Carbon Film

REF. MARANTZ DESIG. PART NO.	DESCRIPTION	REF. MARANTZ DESIG. PART NO.	DESCRIPTION
R646	GT0533112-0 330 ohm $\pm 10\%$ 1/2W Carbon Film	T601-T608	257726702-0 Heat Sink
R647	RC1010112-0 100 ohm $\pm 10\%$ 1/2W Solid	T609-T616	257711806-0 Spacer
R648	RC1010112-0 100 ohm $\pm 10\%$ 1/2W Solid	P800	YD2578008-0 Power Supply PC Board
R649	RC1010112-0 100 ohm $\pm 10\%$ 1/2W Solid	R801	HW1047002-0 47 ohm $\pm 10\%$ 2W Wire Wound
R650	RC1010112-0 100 ohm $\pm 10\%$ 1/2W Solid	R802	RC1047012-0 47 ohm $\pm 10\%$ 2W Solid
R651	GW1020205-0 0.2 ohm $\pm 10\%$ 5W Wire Wound	R803	RC1027212-0 2.7K ohm $\pm 10\%$ 1/2W Solid
R652	GW1020205-0 0.2 ohm $\pm 10\%$ 5W Wire Wound	R804	RC1010212-0 1K ohm $\pm 10\%$ 1/2W Solid
R653	GW1020205-0 0.2 ohm $\pm 10\%$ 5W Wire Wound	R805	RC1047212-0 4.7K ohm $\pm 10\%$ 1/2W Solid
R654	GW1020205-0 0.2 ohm $\pm 10\%$ 5W Wire Wound	R806	RC1047212-0 4.7K ohm $\pm 10\%$ 1/2W Solid
C601	DF2710550-0 1uF $\pm 20\%$ 100V Mylar	R807	RC1010212-0 1K ohm $\pm 10\%$ 1/2W Solid
C602	DF2710550-0 1uF $\pm 20\%$ 100V Mylar	R808	RC1033212-0 3.3K ohm $\pm 10\%$ 1/2W Solid
C603	DF2610151-0 100PF $\pm 10\%$ 500V Mica	R809	RC1022212-0 2.2K ohm $\pm 10\%$ 1/2W Solid
C604	DF3610151-0 100PF $\pm 10\%$ 500V Mica	R810	RC1015312-0 15K ohm $\pm 10\%$ 1/2W Solid
C605	EA1070163-0 100uF 16V Electroly Cap.	R811	RA0302001-0 3K ohm (B) Trimmer
C606	EA1070163-0 100uF 16V Electroly Cap.	R812	RA0103001-0 10K ohm (B) Trimmer
C607	EA1070163-0 100uF 16V Electroly Cap.	R813	RC1027212-0 2.7K ohm $\pm 10\%$ 1/2W Solid
C608	EA1070163-0 100uF 16V Electroly Cap.	C801	EB1080501-0 1000uF 50V Electroly Cap.
C609	DF1710451-0 0.1uF $\pm 20\%$ 100V Mylar	C802	EB1080501-0 1000uF 50V Electroly Cap.
C610	DF1710451-0 0.1uF $\pm 20\%$ 100V Mylar	C803	EA4760352-0 47uF 35V Electroly Cap.
C611	DF1710451-0 0.1uF $\pm 20\%$ 100V Mylar	C804	EA4770351-0 470uF 35V Electroly Cap.
C612	DF1710451-0 0.1uF $\pm 20\%$ 100V Mylar	C805	EA1070163-0 100uF 16V Electroly Cap.
C615	DF1722402-0 0.22uF $\pm 20\%$ Mylar	C806	EA4760352-0 47uF 35V Electroly Cap.
C616	DF1722402-0 0.22uF $\pm 20\%$ Mylar	H801	HT304961C-0 2SC496 (Y) Transistor
C620	DK1810351-0 0.01uF 500V $\pm 100, -0\%$ Ceramic Cap.	H802	HT304961C-0 2SC496 (Y) Transistor
C621	DK1810351-0 0.01uF 500V $\pm 100, -0\%$ Ceramic Cap.	H803	HT307341C-0 2SC734 (Y) Transistor
H601	HC1000217-0 MC1741 (Motorola) IC	H804	HT307341C-0 2SC734 (Y) Transistor
H602	HC1000217-0 MC1741 (Motorola) IC	H805	HD3000309-0 IS332 Diode
H603	HT105621B-0 2SA562 (O) Transistor	H806	HD3000309-0 IS332 Diode
H604	HT105621B-0 2SA562 (O) Transistor	J801-J805	YP1000036-0 Plug
H605	HT303711B-0 2SC371 (O) Transistor	P900	YD2578009-0 For Switch PC Board
H606	HT303711B-0 2SC371 (O) Transistor	R901	GT0547212-0 4.7K ohm $\pm 5\%$ 1/2W Carbon Film
H607	HT104971A-0 2SA497 (R) Transistor	R902	GT0547212-0 4.7K ohm $\pm 5\%$ 1/2W Carbon Film
H608	HT104971A-0 2SA497 (R) Transistor	R903	GT0547212-0 4.7K ohm $\pm 5\%$ 1/2W Carbon Film
H609	HT104971A-0 2SA497 (R) Transistor	R904	GT0547212-0 4.7K ohm $\pm 5\%$ 1/2W Carbon Film
H610	HT104971A-0 2SA497 (R) Transistor	R905	GT0556312-0 56K ohm $\pm 5\%$ 1/2W Carbon Film
H611	HT304971A-0 2SC497 (R) Transistor	R906	GT0556312-0 56K ohm $\pm 5\%$ 1/2W Carbon Film
H612	HT304971A-0 2SC497 (R) Transistor	R907	RN1010514-0 1M ohm $\pm 10\%$ 1/4W Carbon Film
H613	HT304971A-0 2SC497 (R) Transistor	R908	RN1010514-0 1M ohm $\pm 10\%$ 1/4W Carbon Film
H614	HT304971A-0 2SC497 (R) Transistor	R909	RN1022514-0 2.2M ohm $\pm 10\%$ 1/4W Carbon Film
H615	HD3001109-0 IS198 Diode	R910	RN1022514-0 2.2M ohm $\pm 10\%$ 1/4W Carbon Film
H616	HD3001109-0 IS198 Diode	R911	RT1010314-0 10K ohm $\pm 10\%$ 1/4W Carbon Film
H617	HD3001109-0 IS198 Diode	R912	RT1010314-0 10K ohm $\pm 10\%$ 1/4W Carbon Film
H618	HD3001109-0 IS198 Diode	R913	RT1015414-0 150K ohm $\pm 10\%$ 1/4W Carbon Film
H619	HV0000105-0 M8513 (R) Varistor	R914	RT1015414-0 150K ohm $\pm 10\%$ 1/4W Carbon Film
H620	HV0000105-0 M8513 (R) Varistor	C901	DF5547201-0 4700PF $\pm 5\%$ Poly
H621	HV0000105-0 M8513 (R) Varistor	C902	DF1668301-0 0.068uF $\pm 10\%$ Mylar
H622	HV0000105-0 M8513 (R) Varistor	C903	DF1668301-0 0.068uF $\pm 10\%$ Mylar
J601-J603	YP1000036-0 Plug	C904	DF1668301-0 0.068uF $\pm 10\%$ Mylar
J605-J622	YP1000036-0 Plug	C905	DF1668301-0 0.068uF $\pm 10\%$ Mylar
J624-J627	YP1000036-0 Plug		

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C906	DF1633201-0	3300PF $\pm 10\%$ Mylar
C907	DF1633201-0	3300PF $\pm 10\%$ Mylar
C908	DF1633201-0	3300PF $\pm 10\%$ Mylar
C909	DF1633201-0	3300PF $\pm 10\%$ Mylar
C910	DF3610101-0	100PF $\pm 10\%$ Mica
C911	DF3610101-0	100PF $\pm 10\%$ Mica
C912	DF1733301-0	0.033uF $\pm 20\%$ Mylar
C913	DF1733301-0	0.033uF $\pm 20\%$ Mylar
S901	SP0404001-2	For Hi Blend Low Filter Hi Filter Loudness. Push Switch
P920	YD2578003-0	For Switch PC Board
R920	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
R922-R924	RT1010214-0	1K ohm $\pm 10\%$ 1/4W Carbon Film
S921	SP0403001-2	S920-1 S920-2 S920-3 Tape Moni. "L" Mono "R" Push Switch
J921-J923	YP1000036-0	Plug
W921	YW2578002-0	Wire Materials
P940	YD2578010-0	Tone-Control PC Board
R941	RD0104001-0	100K ohm B Treble Variable
R942	RD0104001-0	100K ohm B Bass Variable
R943	GT0516312-0	16K ohm $\pm 5\%$ 1/2W Carbon Film
R944	GT0516312-0	16K ohm $\pm 5\%$ 1/2W Carbon Film
R945	GT0516312-0	16K ohm $\pm 5\%$ 1/2W Carbon Film
R946	GT0516312-0	16K ohm $\pm 5\%$ 1/2W Carbon Film
C941-C944	DF1622301-0	0.022uF $\pm 10\%$ Mylar
J941-J948	57219520W-0	Lug Eyelet
P960	YD2578007-0	Comp Circuit PC Board
R961	RA0102001-0	1K ohm (B) Trimmer
R962	RA0102001-0	1K ohm (B) Trimmer
H961	HD2000301-0	HR-5A Diode
H962	HD2000301-0	HR-5A Diode
H963	HV0000105-0	M8513 (R) Varistor
H964	HD2000301-0	HR-5A Diode
H965	HD2000301-0	HR-5A Diode
H966	HV0000105-0	M8513 (R) Varistor
H967	HT304581B-0	2SC458 (B) Transistor
H968	HT304581B-0	2SC458 (B) Transistor
J961-J964	57271240W-0	Lug Eyelet
H001	HT7000410-0	SJ2001 (PNP) Transistor
H002	HT7000410-0	SJ2001 (PNP) Transistor
H003	HT9000410-0	SJ2000 (NPN) Transistor

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
H004	HT9000410-0	SJ2000 (NPN) Transistor
H005	HD2000405-0	M9235F For Protector Diode
R001	RC1068012-0	68 ohm $\pm 10\%$ 1/2W Solid
R002	RC1068012-0	68 ohm $\pm 10\%$ 1/2W Solid
R003	RC1008212-0	8.2 ohm $\pm 10\%$ 1/2W Solid
R004	RK0104003-0	100K ohm (B) Variable
R005	RM0254008-0	250K ohm (MN) Variable
R006	RM0254008-0	250K ohm (A) Variable
R007	GS1024002-0	24 ohm $\pm 10\%$ 2W Wire Wound
R008	GS1024002-0	24 ohm $\pm 10\%$ 2W Wire Wound
R009	GS1002202-0	2.2 ohm $\pm 10\%$ 2W Wire Wound
R010	GS1002202-0	2.2 ohm $\pm 10\%$ 2W Wire Wound
R011	RT1033101-0	330 ohm $\pm 10\%$ 1W Carbon Film
R012	RT1033101-0	330 ohm $\pm 10\%$ 1W Carbon Film
R013	RC1033012-0	33 ohm $\pm 10\%$ 1/2W Carbon Film
R014	RC1033012-0	33 ohm $\pm 10\%$ 1/2W Carbon Film
R015	RJ1022202-0	2.2K ohm $\pm 10\%$ 2W Carbon Film
R016	RJ1022202-0	2.2K ohm $\pm 10\%$ 2W Carbon Film
R017	RJ1022501-0	2.2M ohm $\pm 10\%$ 1W Carbon Film
R018	RC1018212-0	1.8K ohm $\pm 10\%$ 1/2W Carbon Film
R019	RC1027112-0	270 ohm $\pm 10\%$ 1/2W Carbon Film
R021	RT1056314-0	56K ohm $\pm 10\%$ 1/4W Carbon Film
C016	DK1810402-0	0.1uF +100, -0% Ceramic Cap.
C017	D00747353-0	0.047uF $\pm 20\%$ 600VDC Oil
C003	DC1810201-0	0.001uF +100, -0% Feed Through
C004	DC1103002-2	3PF ± 0.5 PF Fees Through
C005	DD1105001-0	5PF ± 0.5 P Ceramic Cap.
C006	DK1710301-0	0.01uF $\pm 20\%$ Ceramic Cap.
C007	ED3360061-0	33uF 6.5W Electroly Cap.
C008	DG0710450-0	0.1uF 150V $\pm 20\%$ MP. Cap.
C009	DG0710450-0	0.1uF 150V $\pm 20\%$ MP. Cap.
C010	EC4780502-0	4700uF 50V Electroly Cap.
C011	EC4780502-0	4700uF 50V Electroly Cap.
C012	DG0710350-0	0.01uF $\pm 20\%$ 250V MP. Cap.
C013	DG0710350-0	0.01uF $\pm 20\%$ 250V MP. Cap.
C014	CA0330001-0	AM 3 Gang Variable
C015	EA1070252-0	100uF 25V Electroly Cap.
H006	HD2000305-0	M9235 Diode
S001	SR0606006-0	For Function Rotary Switch
S002	SP0401007-0	For Ant. Tuning Push Switch
S003	SP0403001-2	S003-1 Muting S003-2 Main S003-3 Remote Push Switch
S004	SP0401006-2	For AC Supply Push Switch
S005	SS0202017-0	For FM-Ant. Attenuator Slide Switch
J001-J003	YT0304003-0	4P For AM-FM Ant. For Main SP. For Remote SP. Terminal
J004	YT0210001-0	For Phono Aux Tape Tape-out & in 10P Terminal
J005	YJ0100055-0	For Dubbing Out Jack
J006	YJ0100055-0	For Dubbing IN Jack
J007	YJ0100055-0	For Headphone Jack
J008	YJ0400032-0	For AC Supply Socket

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
J009	YJ0400032-0	For AC Supply Socket
J010	YJ0200007-0	For MPX Lamp Socket
J011	YJ0200007-0	For Ant Tuning Socket
J012	YJ0200007-0	For Meter Illumination Socket
J013	YJ0200007-0	For Meter Illumination Socket
J014	YJ0200038-0	For Dial Illumination Socket
J015	YJ0200039-0	For Dial Illumination Socket
J016	YJ0200040-0	For Dial Illumination Socket
J017	YJ0200041-0	For Dial Illumination Socket
J018	YT0101003-0	For Ground Terminal
J019	YJ0500014-0	For Power Transistor Socket
J020	YJ0500014-0	For Power Transistor Socket
J021	YJ0500014-0	For Power Transistor Socket
J022	YJ0500014-0	For Power Transistor Socket
J023	YL0107001-0	7P Terminal
J024	YL0107001-0	7P Terminal
J025	YL0107001-0	7P Terminal
J026	YL0107001-0	7P Terminal
J027	YL0105001-0	5P Terminal
J028	YL0105004-0	5P Terminal
J029	YL0103003-0	3P Terminal
J030	YL0103002-0	3P Terminal
J031	YL0103001-0	3P Terminal
J032	YL0103003-0	3P Terminal
M001	IM1103602-0	For AM-FM Tuning DC Meter
M002	IM1103603-0	For FM Tuning DC Meter
M003	IN1012004-0	MPX Lamp
M004	IN1008001-0	For Ant. Tuning Lamp
M005	IN1008001-0	For Meter Illumination Lamp
M006	IN1008001-0	For Meter Illumination Lamp
M007	IN1006003-0	For Dial Illumination Lamp
M008	IN1006003-0	For Dial Illumination Lamp
M009	IN1006003-0	For Dial Illumination Lamp
M010	IN1006003-0	For Dial Illumination Lamp
F001	FR1031001-0	3.15A Circuit Breaker
W001	YC0240006-0	For AC Supply AC Power Cord
W002	YW2578003-0	Wire Materials
L001	LF1140036-0	AM Ant Coil
L002	LB3007525-0	Balun
L003	LC1223001-0	Choke Coil
L004	LC2102001-0	2uH Ring Cord Choke Coil
L005	LC2102001-0	2uH Ring Cord Choke Coil
L006	TS6050101-0	Power Transformer
L007	LY2024003-0	24V DC Relay
R022	RT1010414-0	100K ohm $\pm 10\%$ 1/4W Carbon Film
P980	YD2578011-0	Speaker Protector PC Board
R981	RC1033212-0	3.3K ohm $\pm 10\%$ 1/2W Solid
R982	RT1056312-0	56K ohm $\pm 10\%$ 1/4W Solid
R983	RC1010412-0	100K ohm $\pm 10\%$ 1/2W Solid
R984	RC1027412-0	270K ohm $\pm 10\%$ 1/2W Solid
R985	RC1039312-0	39K ohm $\pm 10\%$ 1/2W Solid

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R986	GS1010102-0	100 ohm $\pm 10\%$ 2W Wire Wound
R987	RC1056212-0	5.6K ohm $\pm 10\%$ 1/2W Solid
R988	RC1056212-0	5.6K ohm $\pm 10\%$ 1/2W Solid
T981	257711806-0	Spacer
C981	EA1060162-0	10uF 16V Electroly Cap.
C982	EA2270104-0	220uF 10V Electroly Cap.
C983	EA1060601-0	10uF 50V Electroly Cap.
H981	HT308282A-0	Transistor
H982	HT309842A-0	Transistor
H983	HT306962A-0	Transistor
H984	HD2000110-0	IS-1665 Diode
H985	HD2000110-0	IS-1665 Diode

J981-J987 YP1000036-0 Plug

NOTE :



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