



**service
manual**

25



manhattan



model twenty five



Stereophonic Receiver Compact



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INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service data for the Marantz Model 25 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 25 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

The Model 25 consists of the following units. Each unit mounted on a printed circuit board is circumscribed by a bold dotted line on the schematic.

- 1 . AM/FM Front End Unit..... mounted on PC board P100
- 2 . AM IF Amplifier, FM IF Amplifier and FM MPX Stereo Demodulator, and FM Sub-IF Amplifier All are mounted on PC board P200
- 3 . Tone Amplifier mounted on PC board P400
- 4 . Phono Amplifier mounted on PC board P300
- 5 . Main Amplifier mounted on PC board P500
- 6 . Loudness and Low Filter Unit..... mounted on PC board P800
- 7 . Regulated Power Supply Unit..... mounted on PC board P600
- 8 . Temperature Compensation Unit for Power Amplifier. mounted on PC board P700

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 P200.

The front end mounted on a PC board P100 is comprised of RF amplifier, converter and a diode. The AM signals induced in a ferrite bar antenna are applied to base of the RF amplifier transistor H104 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 H105. While the local oscillator voltage is injected to the emitter of H105 through capacitor C130. Both the signals are then mixed at base-emitter junction of the converter transistor and converted into 455kHz intermediate frequency. The amplified IF signal at the collector of H105 are applied to the first IF transformer L109.

The diode H106, reverse-biased by resistor R115 and R116, eliminate signal overload distortion without sacrificing the receiving sensitivity.

The IF signal output is led to the IF amplifier unit on PC board P200 consisting of two stages (H203 and H204) through the pin J107 and J202, and amplified to the high level. The amplified IF output is applied to the diode H220 to detect audio signal, the detected audio signal is then led to the output pin J204 through filtering network. The DC component of the detected IF signals is used as AGC voltage to control base bias current of H203 and RF amplifier transistor H104. A part of IF signal output is also applied to diode H219 through a capacitor C224 and rectified to obtain DC current to energize the Tuning 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 tuning meter whether it deflects or not. If the meter gives a deflection at several frequency received, no failure may exist in the stages at least preceding IF transformer L206. Next connect an oscilloscope to the tuner output pin J204 and check audio signal. If the tuning 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 distributions 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 two printed circuit boards. FM front end unit, IF amplifier / MPX stereo decoding unit.

The FM signals induced by an FM antenna are led to FM antenna coil L101. These signals are then applied to FET RF amplifier and amplified, 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 third IF amplifier stage, is applied to the gate of FET H101 through the filtering network C211, R282 and C114. The converted IF signals are led to the input pin J201 of IF amplifier unit consisting of four transistor amplifier stages and one IC limiter, and amplified, then applied to the FM discriminator transformer L204 and demodulated into audible signals.

The demodulated audio signals are then applied to the base of 19KHz pilot amplifier H209, this amplifier operates as an emitter follower for the audio signals and has no voltage gain. The audio output is obtained from the emitter of H209, and applied to the center tap of 38KHz tuned transformer L211 through SCA (67KHz) suppression filter consisting of L212 and C249. The audio signals are split into left and right channel circuits by the diode-switching networks, the both channel audio signals are led to the canceller amplifiers. When the demodulated audio signals are stereo composite signals, the 19KHz pilot amplifier operates as a tuned amplifier for the 19KHz pilot signal and as an emitter follower for the composite signals except 19KHz. The pilot signal amplified by the H209 is applied to the transistor H210 and further amplified. Then it is rectified by the full wave rectifier consisting of diodes H223 and H224, thus provided 38KHz pulsating current drives 38KHz sub-carrier amplifier-transistor H212, and 38KHz sub-carrier is obtained. The 38KHz sub-carrier and stereo composite signals (less 19KHz) are superimposed at the secondary coil of L211 and the composite signals are alternatively sampled by the left and right channel switching diodes at a 38KHz rate. The sampled (separated) outputs are led to the canceller amplifier consisting of H214 and H215, then led to the corresponding channel output pin J205 and J206 after cancelling the undesirable crosstalk. The tuned circuits L213/C259 and L215/C265 are filtering circuits for 19KHz and 38KHz signals respectively.

Stereo-Auto and Stereo Beacon Circuits.

The second 19KHz pilot amplifier H210 is so designed that the emitter circuit is electrically switched on and off by controlling the bias current of the switching transistor H211. The bias current is obtained from the Sub-FM IF amplifier circuit consisting of transistor H206, 10.7MHz IF transformer L208 and diode H221 and H222.

The STEREO switch on the front panel is connected between the base and emitter of switching transistor H211. Therefore when the switch is placed in its normal "out" position, the base and emitter is short-circuited and no emitter current flows. Thus the emitter circuit of the 19KHz pilot amplifier is cut off and no 19KHz signal output appears at the collector of H210. No stereo separation is obtained. When the STEREO switch is depressed, the emitter-base short-circuit is opened and if FM signals received are stronger than pre-determined level, the DC voltage produced by the diode H221 and H222 becomes large enough to drive the switching transistor H211, thus H211 is turned on and H210 begins to operate. Then H212 is also turned on and it turns the stereo beacon switching transistor H213, turning the beacon lamp on.

Muting Control Circuit

The direct current produced between-B and the Diode H222 is also used to control the muting circuit. The direct current is first led to the muting control volume R001 then applied to the base of the DC amplifier H207, and its output controls the switching transistor H208. When the transistor H208 is turned on. The Pin 4 of the limiter amplifier H205 is connected to -B line through resistor R223 and emitter-collector junction of the switching transistor H208. When the receiving signals are weak or no signals are received, the DC current produced between-B and diode H222 is very low and can not turn the switching transistor on, the IC does not energize and no inter station noises are heard. The direct current caused between-B and the diode H221 is used to drive the FM tuning meter M001.

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 tuning meter. If the tuning meter deflects at several frequencies, the tuner circuits preceding the final IF amplifier H204 may have no failure. Tune the set to a station and check audio output by connecting an oscillo-

scope to the points, discriminator output (B) and MPX output Pin J205 or J206. When no reading is obtained in tuning meter, 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.

3.2.2. Symptom: No Stereo Separation.

First check the STEREO switches is depressed. 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 collector of H212 and observe 38KHz stereo sub-carrier 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 alignments 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.

ADJUSTMENTS: CIRCUIT DESCRIPTION AND ALIGNING METHODS

4.1.FM FRONT END

4.1.1. Local Oscillator Adjustment

1) Measuring instruments connection. Connect the FM signal generator to the FM antenna Terminals on the rear of the set. Connect a VTVM or an oscilloscope across the speaker system output terminal.

2) Set the FM signal generator to 90MHz, 400Hz 100% modulation. Tune the receiver to the same frequency and adjust oscillator coil L106 until the dial pointer coincides with the 90MHz marking on the dial.

3) Set the FM signal generator to 106MHz. Tune the receiver to the same frequency and adjust trimming capacitor C119 until the dial pointer coincides with the 106MHz marking on the dial.

4) Repeat procedure 2 and 3 until no further improvement can be made between the low end and the high end.

4.1.2. Tracking Alignment

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

2) Set the FM signal generator to 106MHz. Tune the receiver to the same frequency and adjust trimming capacitor C102, C107 and C111 for maximum output.

3) Repeat procedure 1 and 2 until no further improvement is obtained.

4.2. AM FRONT END

4.2.1. Local Oscillator and Tracking Alignment

1) Set the AM signal generator to 600KHz, 400Hz 30% modulation. Tune the receiver to the same frequency and adjust oscillator coil L108 until the dial pointer coincides with the 600KHz marking on the dial.

2) Set the AM signal generator to 1400KHz. Tune the receiver to the same frequency and adjust trimming capacitor C129 for maximum output.

3) Repeat procedure 1 and 2 until no further improvement can be made 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 L107 for maximum output.

5) Set the generator to 1400KHz. Tune the receiver to the same frequency and adjust trimming capacitors C121 and C126.

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.

4.3. AM IF AMP, FM IF AMP. AND MPX DEMODULATOR CIRCUIT AND FM SUB IF AMP. UNIT.

4.3.1. AM IF Amplifier

To align the AM IF amplifier, a sweep generator with marker generator combined is required.

1) Connect the sweep generator across trimming capacitor C129 and common ground. Connect an oscilloscope to test point C.

2) Turn each primary and secondary core of IF transformers L109, L205 and L206 for maximum and symmetrical response.

4.3.2. FM IF Amplifier

To align the FM IF Amplifier, a high frequency sweep generator with 10.7MHz marker generator combined is required.

Connect the sweep generator to the FM oscillator section of the tuning capacitor and oscilloscope to test point A.

Turn each core of IF transformers, L104, L201, L202 and L203 for maximum and symmetrical response.

4.3.3. FM Discriminator Alignment

Connect the oscilloscope to test point B and turn the primary and secondary cores of the discriminator transformer L204 for straightness and symmetrical "S" curve with 10.7MHz marker center.

More precision adjustment of the discriminator requires a distortion meter. To make this precision alignment, connect an FM signal generator having low distortion characteristics to the antenna terminals of the set. Tune the set to the FM signal and measure the distortion of audio output. Turn the primary core of the discriminator until minimum distortion is obtained.

4.4. 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 the FM signal generator to 98MHz, 2KuV output level. Tune the receiver to the same frequency. Ensure that the stereo switch is depressed for stereo operation.
- 2) Connect oscilloscope probe to the collector of transistor H212 and turn the cores of L209, L210 and L211 for maximum stereo carrier wave on the CRT.
- 3) Turn the core of L211 again so that equal stereo separation is obtained in both L and R channels.
- 4) Adjust trimming resistor R269 for maximum and equal stereo separation in both channels.

4.5. SUB-IF AMPLIFIER AND ANCILLARY CIRCUITS

The Model 25 has a sub-IF Amplifier consisting of one stage (H206) to supply current required for driving some ancillary circuits. The amplified output is first rectified by two diodes H221 and H222. A part of the current is supplied to the tuning meter M001 through resistor R238. The other part is divided, and one part applied to the DC amplifier (H207 and H208) for muting control, and the other applied to the base of transistor H211 which sets the automatic stereo threshold level.

To align the sub-IF amplifier, tune the receiver to FM signals and turn the core of L208 so that the FM tuning meter gives maximum deflection.

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 H501 through the input coupling network R501, C501 and R503. 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 C511/R521 and C509/R523, and is applied to the base of H507 and H509. H507 and H509 provide the voltage amplification necessary to drive the driver (buffer) transistors H511 and H513. H511 and H513 are operated in a complementary-symmetry configuration with their respective power transistors H002 and H004.

The output of H511 is applied to the base of H002, and the output of H513 is applied to H004. The combined operation of NPN transistors H004 and PNP transistors H002 provide a push-pull output appearing at Pin J505. This output is applied to network R609, L003, then, led to the LOUDSPEAKER output terminals.

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 R507, C503, and R505 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 1 and 5 of the op amp to nullify any undesirable dc output signal. The offset voltage is controlled by the trimming resistor R509.

5.1.2. Dynamic Bias

Dynamic bias is applied to the bases of driver transistors H511 and H513. H511 and H513, in turn, determine the class of operation for the power amplifier (PA) transistors H002 and H004. thus maintaining a constant class of operation by establishing and maintaining the proper collector-to-emitter current. This dynamic bias circuit

is comprised of adjusting resistor R551 and temperature sensitive diode H701 and H703. The circuit provides a variable base bias for driver transistors H511 and H513 that automatically maintains the proper base voltage(bias condition) with temperature change. Temperature sensitive biasing components of dynamic bias circuit are thermally coupled through a heatsink to the PA transistors.

5.1.3. Amplifier Protection

Protection for the amplifier is provided by sensing-resistors R535 and R537 operating in conjunction with H503 and H505. When the output power transistors H002 and H004 are over-driven, and the output power exceeds an approximate 40 Watts, the current increased through the power output transistors causes an increased current flow through R535 and R537. The resulting voltage drop across R535 and R537 controls the biasing of H503 and H505. resulting in the clipping of any input signal of greater amplitude than is required to cause the power output stage to deliver approximately 40 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 the VTVM to the lowest scale possible, preferably 100 or 300mV full scale deflection. First turn Bias control resistors R551 and R552 fully clockwise. Adjust DC balance control R509 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 resistor R547 or R549 and adjust bias control resistor R551 until the VTVM reads about 7mV, and so that no crossover distortion is observed on the oscilloscope. Connect the VTVM across resistor R550 or R548 and adjust bias control resistor R522 for the same voltage reading or no audio cross-over distortion for the channel.

5.3. SUGGESTION FOR TROUBLE SHOOTING OF POWER AMPLIFIER

5.3.1. Excessive line consumption

- a. Check for shorted rectifiers H001; also check C004 and C005.
- b. Check for shorted transistors H511, H513, H002 and H004, or check temperature sensitive diode H701 and H703. Check for open control R551. Check L002 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 circuits before re-energizing the amplifier.

5.3.2. No line consumption or zero bias.

- a. Check line cord, fuse, transistors H002, H004, and the diode H701, H703.
- b. Check for open rectifiers H001, or open L002.

5.3.3. No D-C Balance

- a. Check H501 (op amp) and Zener diodes H515 and H517.
- b. Check R509.

6. REGULATED POWER SOURCE ALIGNMENT

The regulated power supply unit mounted on PC board P600 supplies its regulated DC output to the tone and phono amplifiers. Adjust trimming resistor R602 so that DC voltage between pin J606 and ground is 25V.

7. PHONO AND TONE AMPLIFIERS CONSISTS OF CONVENTIONAL NEGATIVE FEED BACK AMPLIFIERS AND NO ANALYTICAL CIRCUIT DESCRIPTION MAY BE REQUIRED.

8 . 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	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 10.7MHz IF alignment.	AM and FM IF alignment
8-ohm Resistors	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.

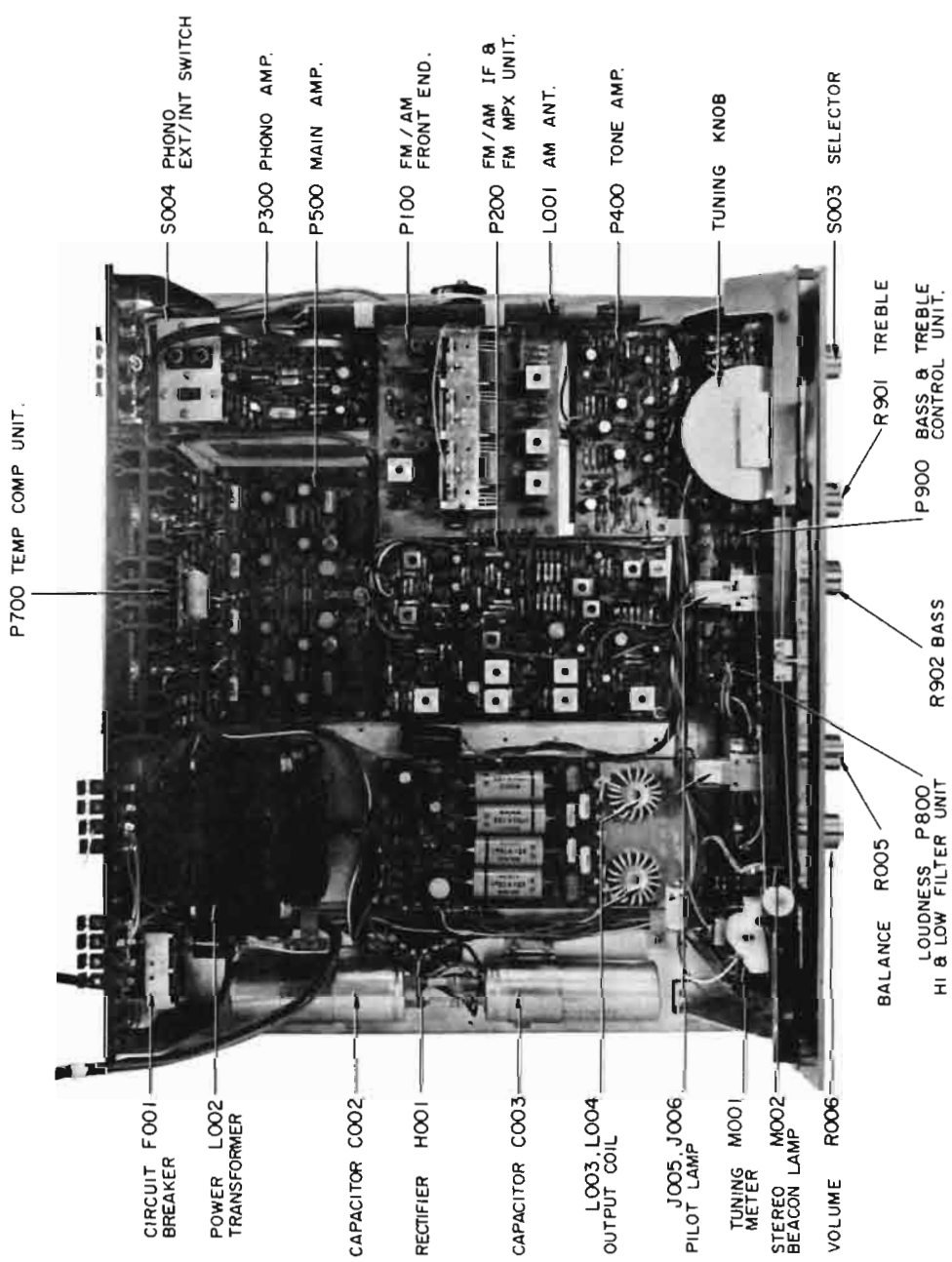


Figure 1 Main Chassis Component Locations Top View

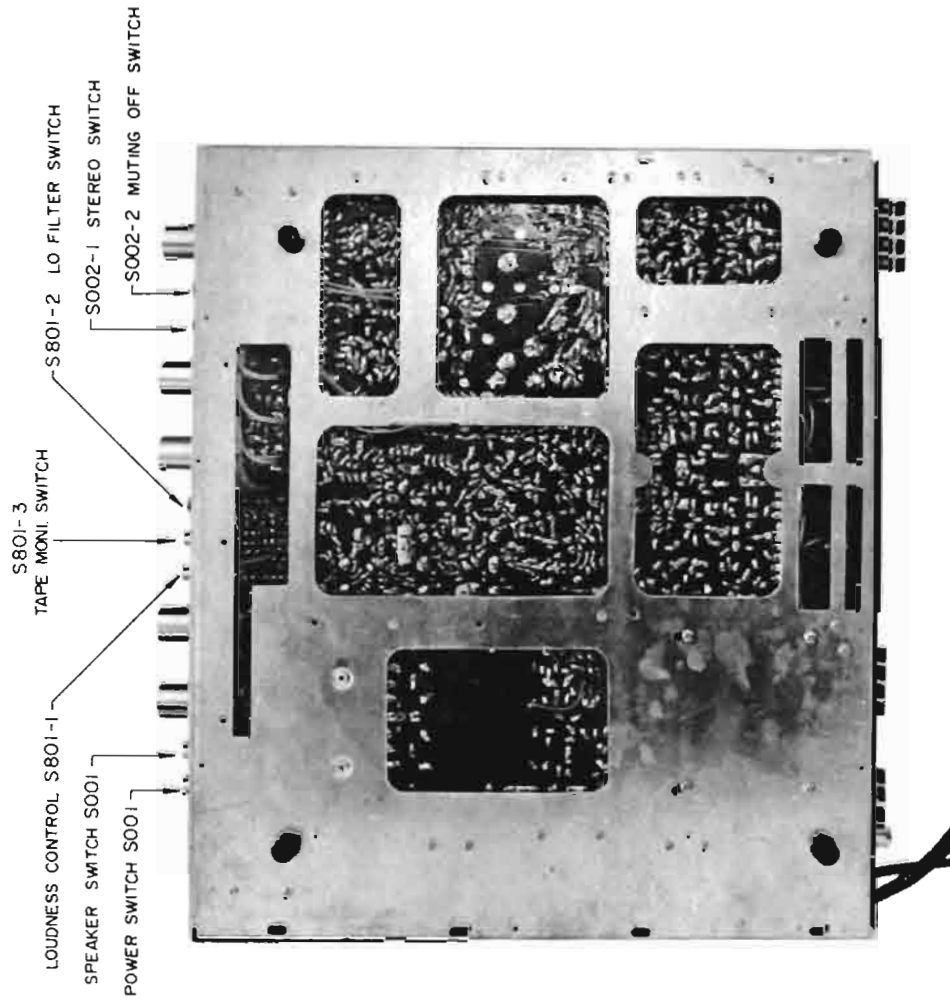


Figure 2 Main Chassis Component Locations Bottom View

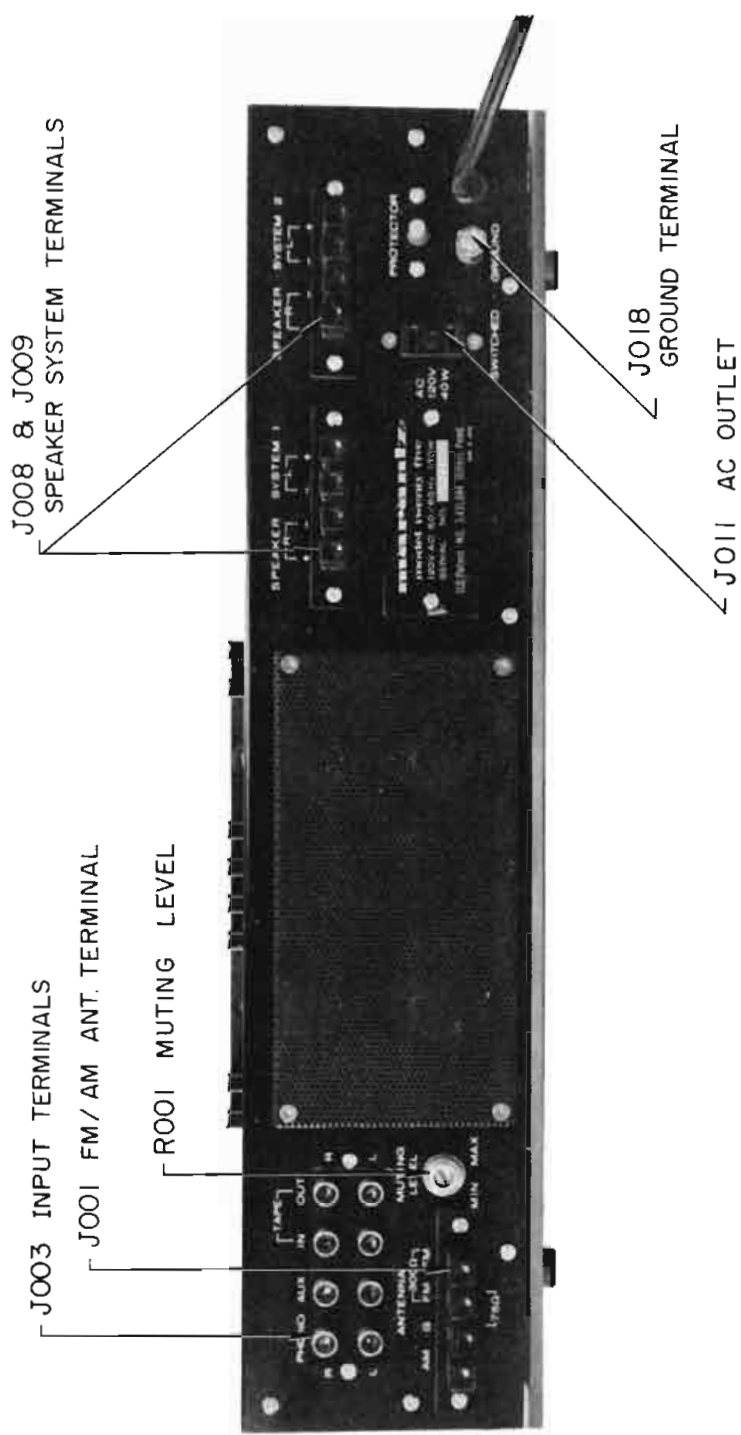


Figure 3 Rear Terminal Component Locations

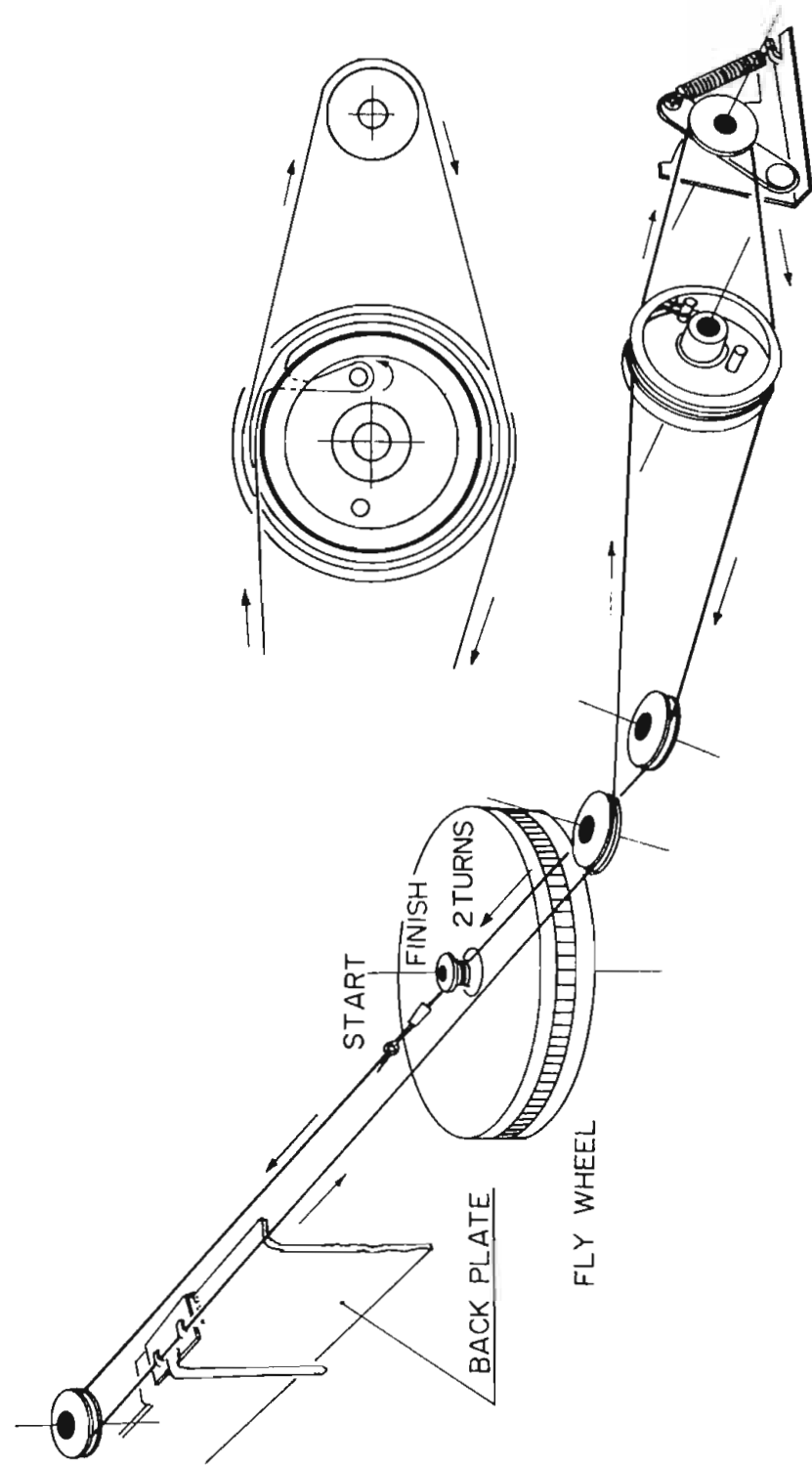


Figure 4 Dial Stringing Diagram

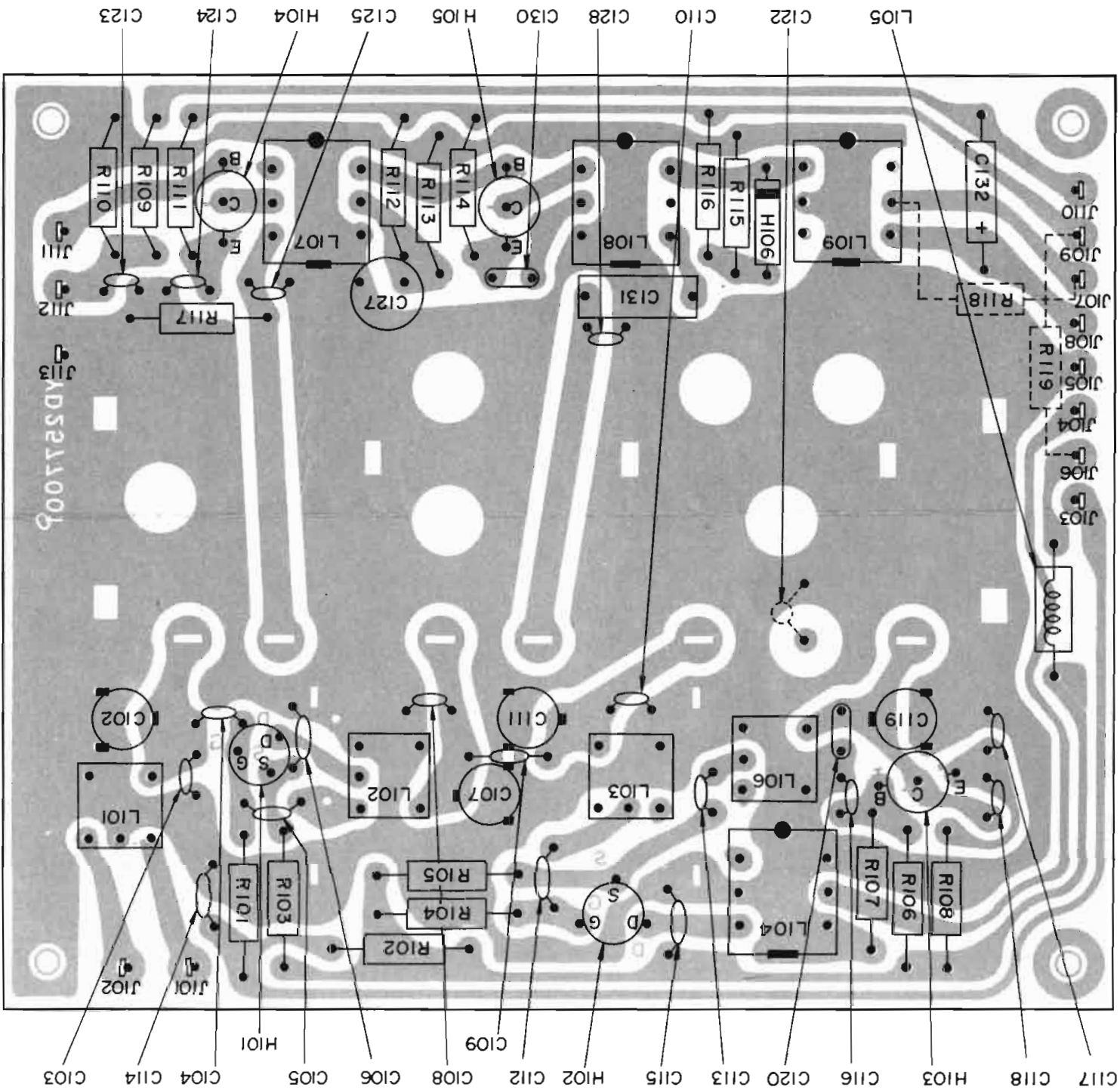
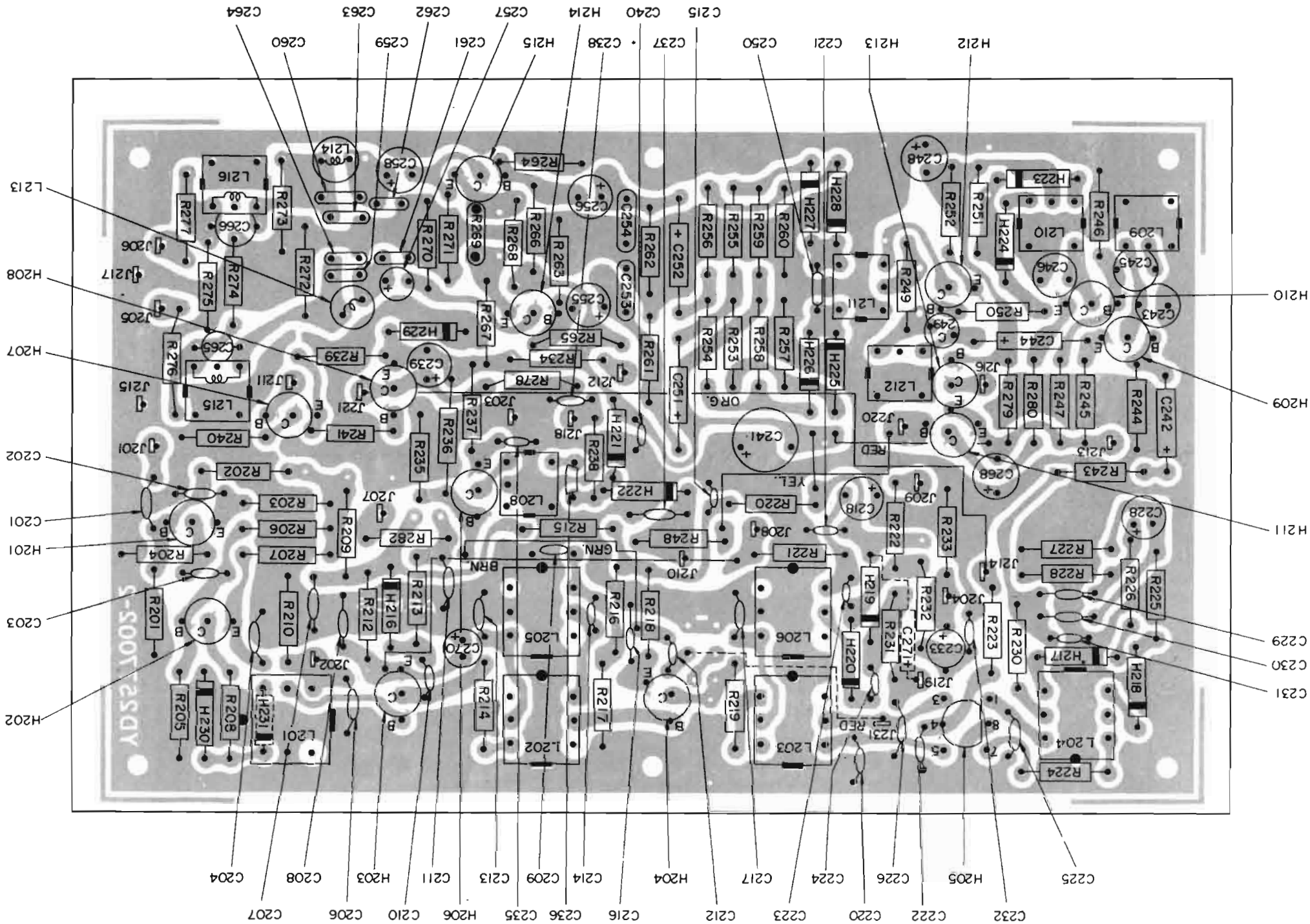


Figure 5 FM-AM Front End Assembly P100 Component Locations

Figure 6 FM-AM IF and MPX Assembly P200 Component Locations



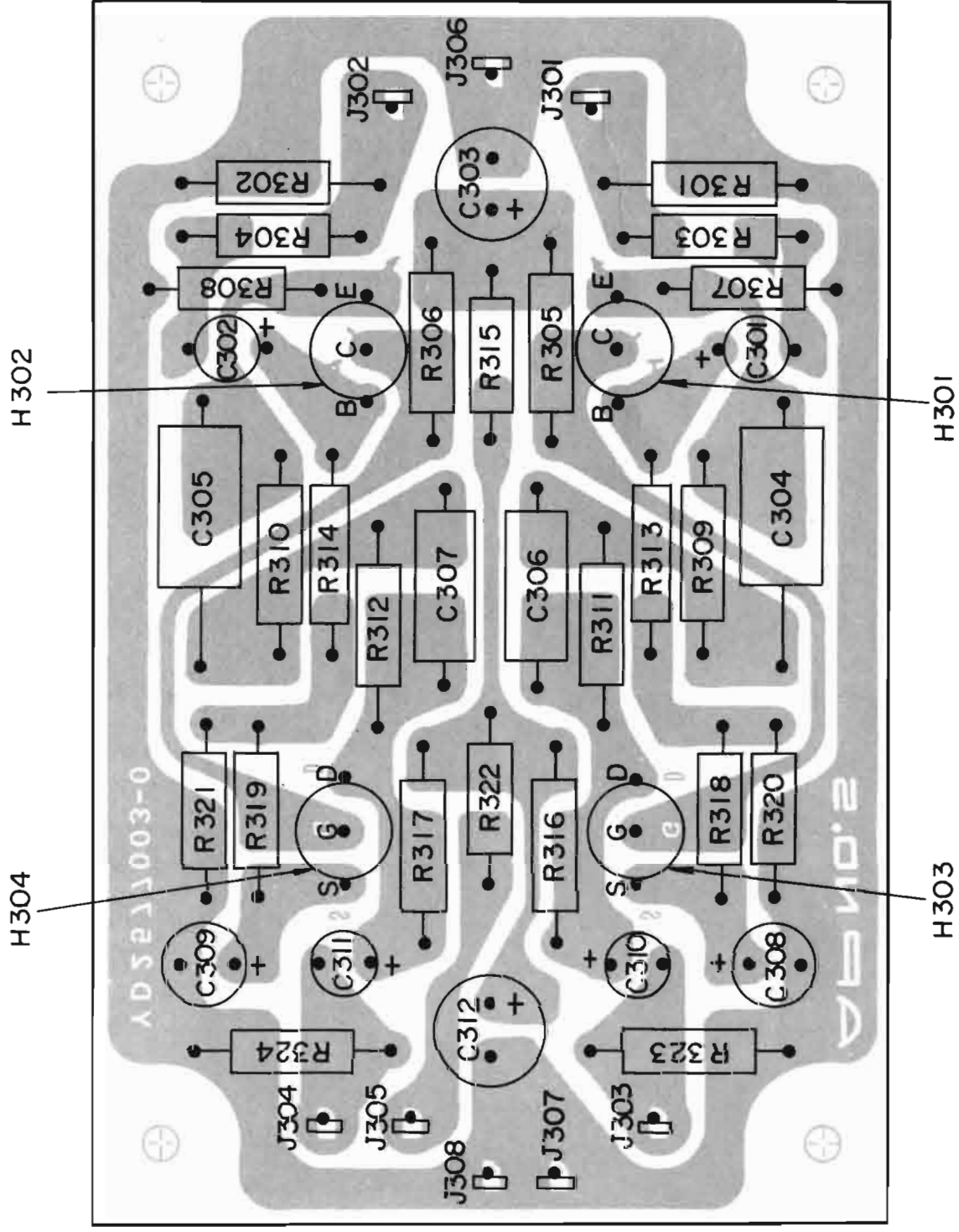


Figure 7 PHONO Amp. Assembly P300 Component Locations

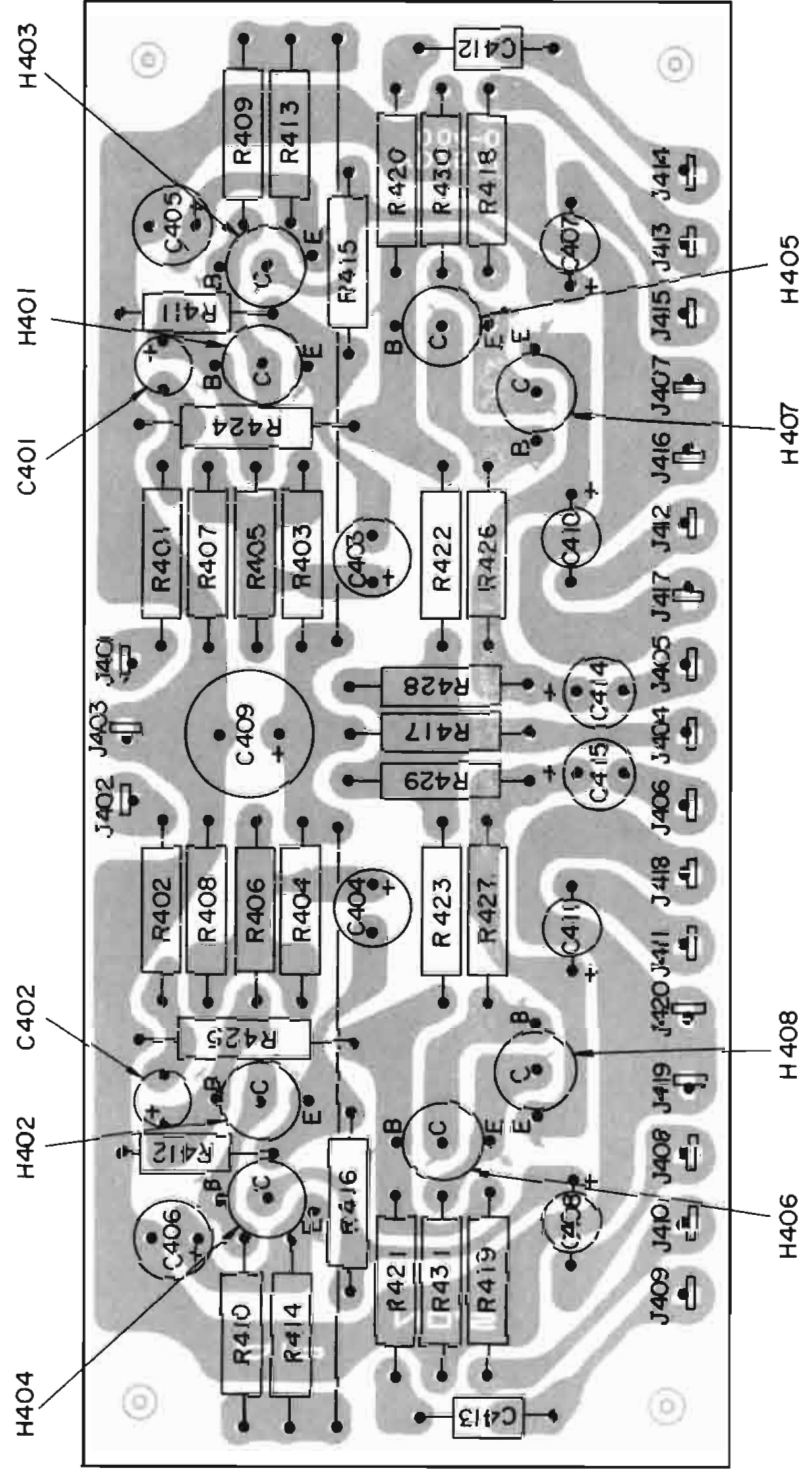


Figure 8 Tone Amp. Assembly P400 Component Locations

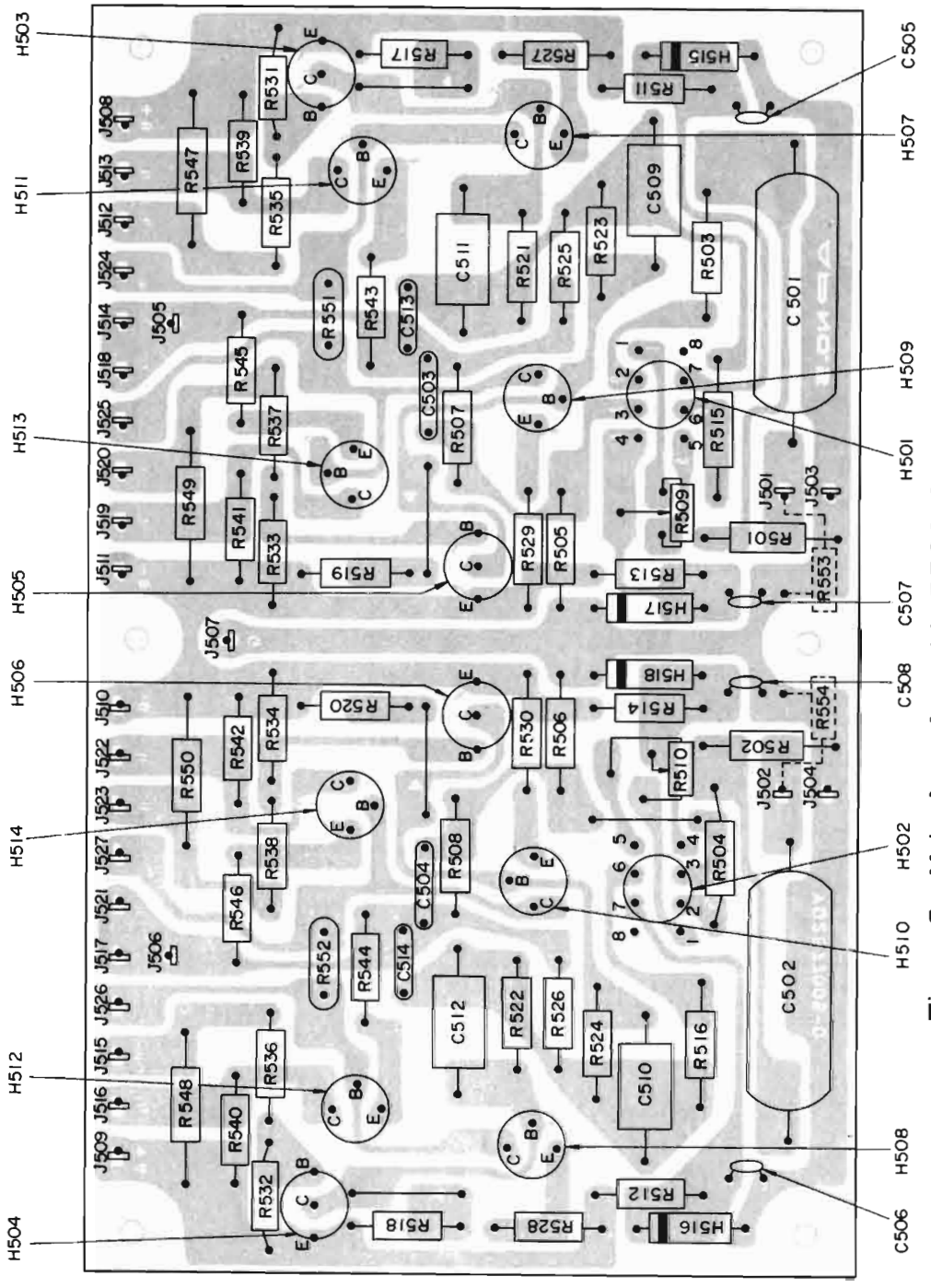


Figure 9 Main Amp. Assembly P500 Component Locations

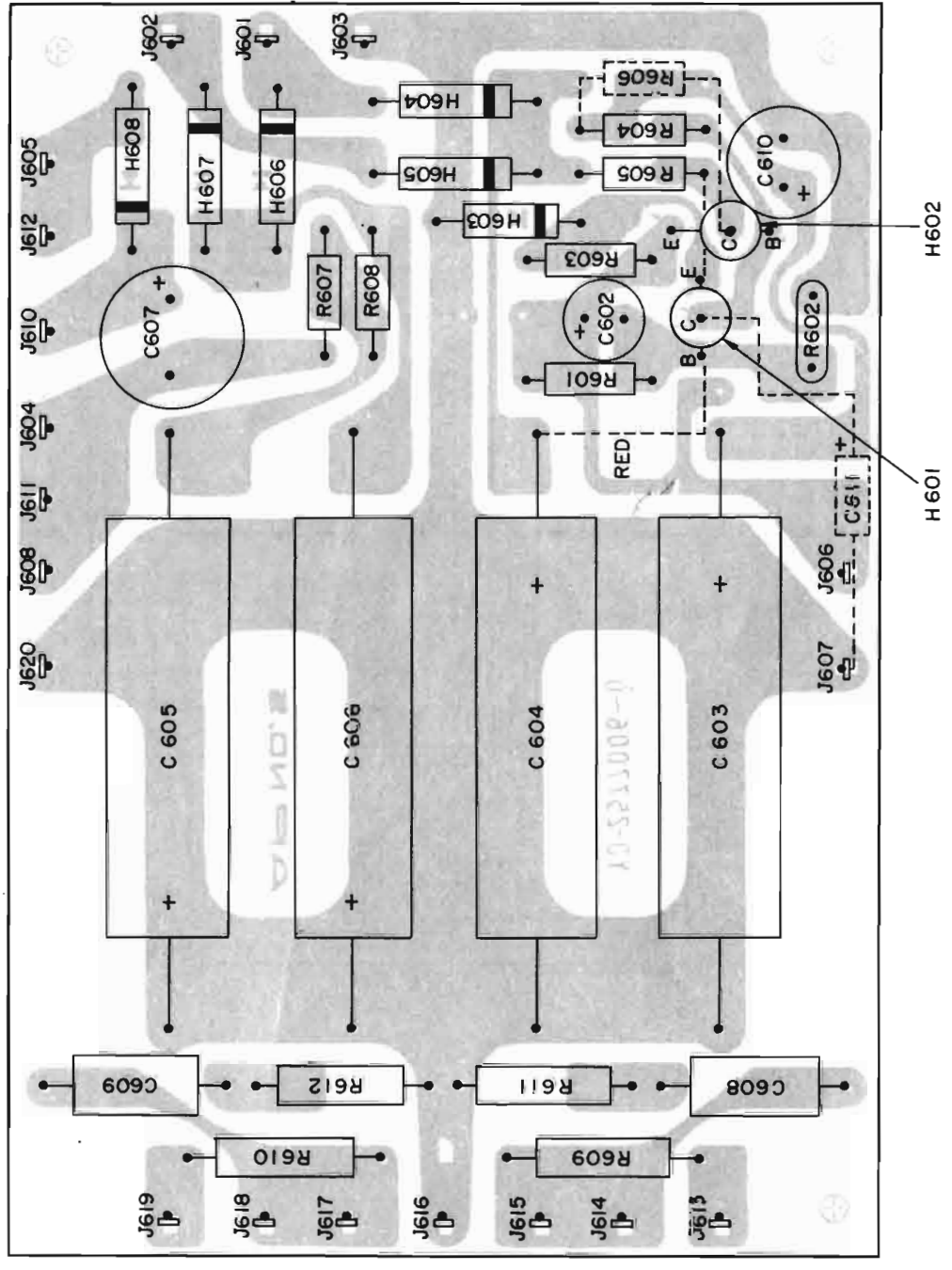


Figure 10 Power Supply Assembly P600 Component Locations

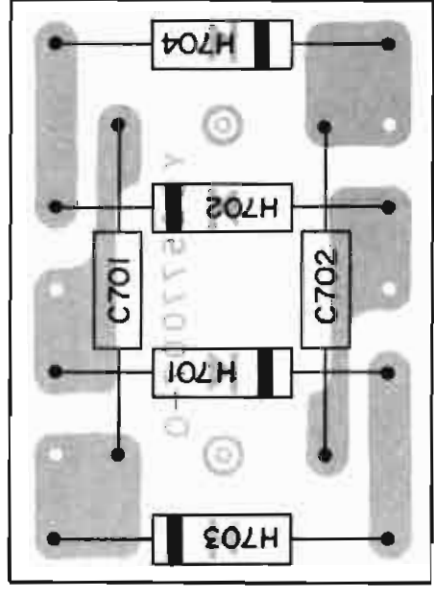


Figure 11 Temperature Compensation Diode

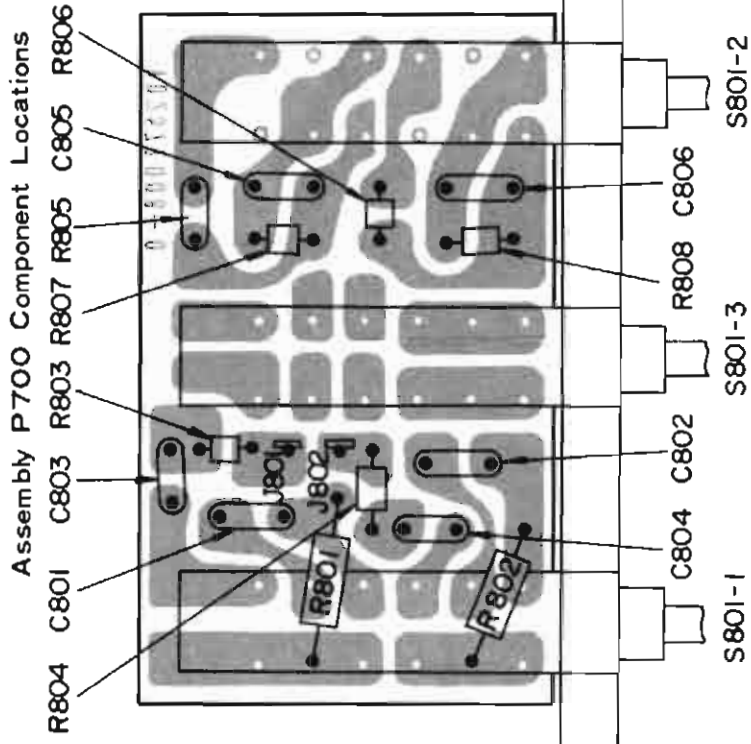


Figure 12 Loudness, Low Filter and Tape Monitor Switch Assembly

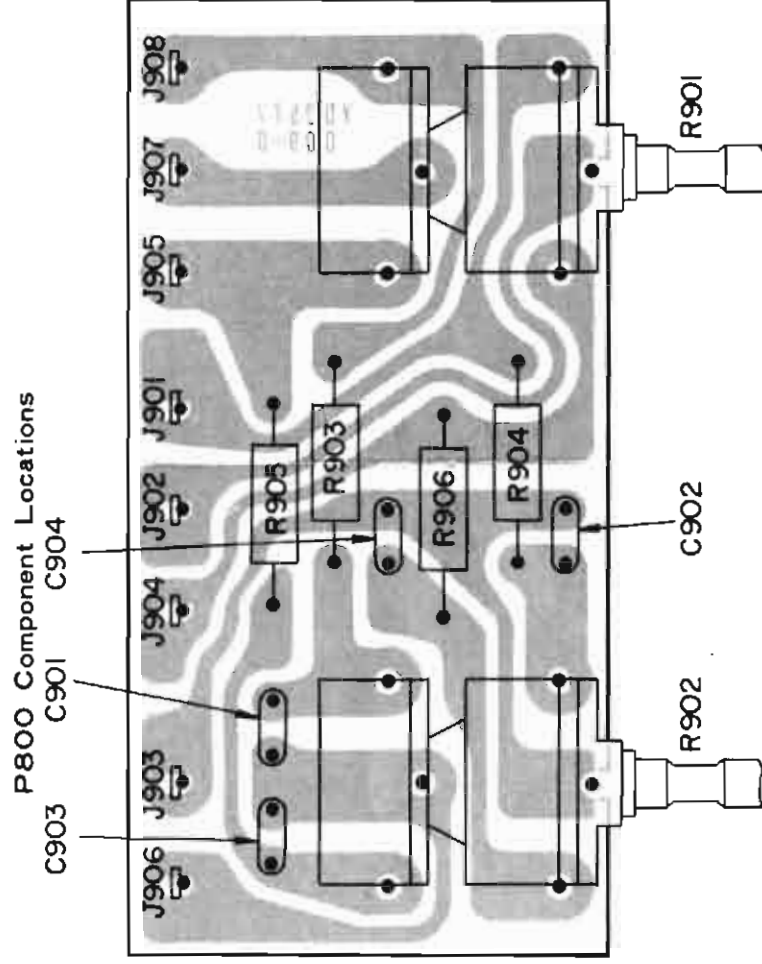


Figure 13 Tone Control Assembly P900 Component Locations

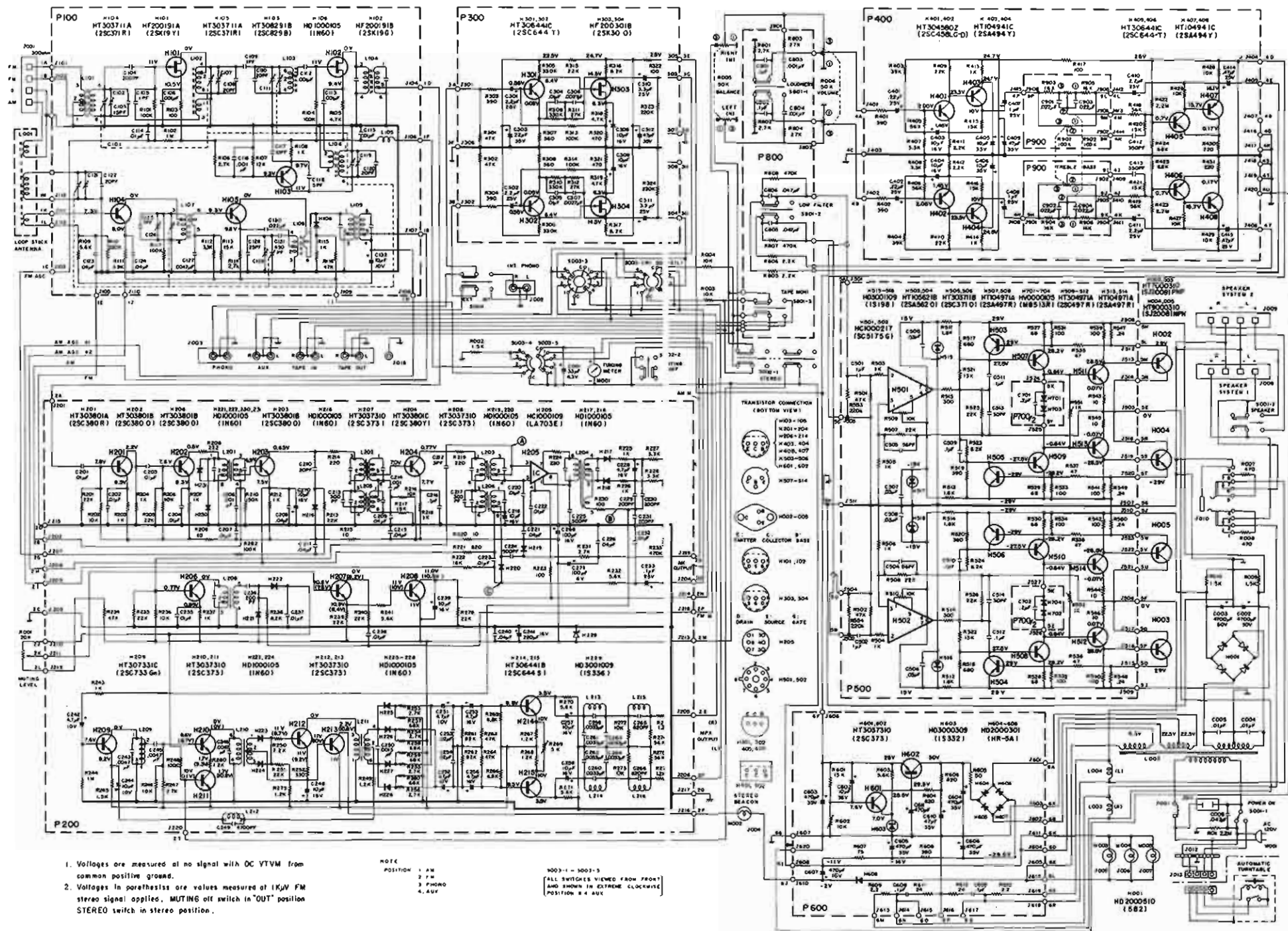


Figure 14 Schematic Diagram

PARTS LIST

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
A001	2577063010	Escutcheon	D417	51523113E0	R. H. Wood screw
A002	2577265012	Indicator	D418	51523113E0	R. H. Wood screw
*A003	2577103012	Pointer	D419	51523113E0	R. H. Wood screw
A008	2577067012	Cap.	D420	51523113E0	R. H. Wood screw
A009	2577067012	Cap.	D421	51523113E0	R. H. Wood screw
A010	2577067012	Cap.	D422	51523113E0	R. H. Wood screw
A011	2577067012	Cap.	D423	51523113E0	R. H. Wood screw
A012	2577067012	Cap.	D424	51523113E0	R. H. Wood screw
A013	2577067022	Cap.	D425	51562713E0	O. H. Wood screw
A014	2577067022	Cap.	D426	51562713E0	O. H. Wood screw
A015	2577067022	Cap.	D427	51562713E0	O. H. Wood screw
A016	2577067022	Cap.	D428	51562713E0	O. H. Wood screw
A017	2577067022	Cap.	D429	51562713E0	O. H. Wood screw
A018	2577067022	Cap.	D430	51562713E0	O. H. Wood screw
A019	2577067022	Cap.	D431	51562713E0	O. H. Wood screw
A022	2577063022	Escutcheon	D432	51562713E0	O. H. Wood screw
A023	2577273010	Fly wheel	A555	2577257010	Lid
A024	2577063032	Escutcheon	A561	2577053010	Cover
A029	1771053030	Escutcheon	B001	2577105500	Chassis K
A031	2577055010	Collar	B002	2577105010	Chassis
A032	2577055010	Collar	B003	2577101010	Support
A033	2577055010	Collar	B004	2577101010	Support
A034	2577055010	Collar	B006	2577160500	Bracket K
A501	2577302012	Dial	B007	2577100010	Bracket
A502	2577154010	Knob	B008	2577101020	Support
A503	2577154010	Knob	B009	2577101020	Support
A504	2577154010	Knob	B010	2577101030	Support
A505	2577154010	Knob	B011	2577101030	Support
A506	2577154010	Knob	B012	2577112020	Shaft
A507	2577154020	Knob	B015	2577160024	Bracket
A508	2577154020	Knob	B016	2577160030	Bracket
A509	2577154020	Knob	B017	2577160040	Bracket
A510	2577154020	Knob	B018	2577160050	Bracket
A511	2577154020	Knob	B019	2577160060	Bracket
A512	2577154020	Knob	B020	2577160070	Bracket
A513	2577154020	Knob	B022	2577160510	Bracket K
A515	2577064502	Case K	B023	2577160080	Bracket
A516	2577064010	Case	B024	2577112020	Shaft
B402	2577160090	Bracket	B025	2577112020	Shaft
B403	2577160100	Bracket	B027	2577160140	Bracket
B404	2577160110	Bracket	B028	2577160150	Bracket
B405	2577160120	Bracket	B029	2577160160	Bracket
B406	2577160120	Bracket	B030	2577160170	Bracket
D403	53020400R9	Claw nut	B031	2577106500	Bearing K
D404	53020400R9	Claw nut	B034	2577104010	Retainer
D405	51523113E0	R. H. Wood screw	B035	2577106010	Bearing
D406	51523113E0	R. H. Wood screw	B041	2577257020	Lid
D407	51523113E0	R. H. Wood screw	B042	2577267010	Heat sink
D408	51523113E0	R. H. Wood screw	B043	2577109010	Shield
D409	51523113E0	R. H. Wood screw	B044	2577109020	Shield
D410	51523113E0	R. H. Wood screw	B045	2577109020	Shield
D411	51523113E0	R. H. Wood screw	B046	2577104020	Retainer
D412	51523113E0	R. H. Wood screw	B047	2577104020	Retainer
D413	51523113E0	R. H. Wood screw	B048	2577159020	Drum
D414	51523113E0	R. H. Wood screw	B050	71400239Q2	Spring
D415	51523113E0	R. H. Wood screw	B051	2577005010	Clamper
D416	51523113E0	R. H. Wood screw	B052	2577005010	Clamper

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
B053	5401215910	Washer	B551	2577118060	Spacer
B054	2577112012	Shaft	B552	2577118060	Spacer
B055	71400219Q0	Spring	B553	2577118060	Spacer
B056	2597160500	Bracket K	B554	2577118060	Spacer
B057	2597160030	Bracket	B555	2577118060	Spacer
B058	2597160040	Bracket	B556	2577118060	Spacer
B059	2597112010	Shaft	B557	2577118060	Spacer
B060	1336112010	Shaft	B559	53228059E0	Nut
B061	71101239M0	Spring	B561	2577118030	Spacer
B062	2506271010	Holder	B562	2577118030	Spacer
B063	2506271010	Holder	B563	2577118030	Spacer
B064	1202258010	Hook	B568	54010400E0	Flat washer S
B065	1126005010	Clamper	B569	54010400E0	Flat washer S
B066	1126005010	Clamper	B570	54010400E0	Flat washer S
B068	2577267020	Heat sink	B571	54010400E0	Flat washer S
B069	2577267020	Heat sink	B572	54010400E0	Flat washer S
B070	2577267020	Heat sink	B573	54010400E0	Flat washer S
B071	2577267020	Heat sink	B574	54010400E0	Flat washer S
B072	2577267020	Heat sink	B575	54010400E0	Flat washer S
B073	2577267020	Heat sink	D001	51020206E0	R. H. M. Screw
B074	2577267020	Heat sink	D002	51020206E0	R. H. M. Screw
B075	2577267020	Heat sink	D004	51060305E9	P. H. M. Screw
B501	2577106020	Bearing	D005	51060305E9	P. H. M. Screw
B502	2577118010	Spacer	D006	51060305E9	P. H. M. Screw
B503	2577262010	Pulley	D007	51060305E9	P. H. M. Screw
B504	2577262010	Pulley	D008	51060305E9	P. H. M. Screw
B505	2577262010	Pulley	D009	51060305E9	P. H. M. Screw
B506	59114289C0	Washer	D010	51060305E9	P. H. M. Screw
B507	59114289C0	Washer	D011	51060305E9	P. H. M. Screw
B508	59110339H0	Washer	D012	51060305E9	P. H. M. Screw
B509	59110339H0	Washer	D013	51060305E9	P. H. M. Screw
B510	2577118020	Spacer	D014	51060305E9	P. H. M. Screw
B511	2577118020	Spacer	D015	51060305E9	P. H. M. Screw
B512	2577118020	Spacer	D016	51060305E9	P. H. M. Screw
B513	2577118020	Spacer	D017	51060305E9	P. H. M. Screw
B514	2577262010	Pulley	D018	51060305E9	P. H. M. Screw
B515	1455259010	Bush	D019	51060305E9	P. H. M. Screw
B516	72081604A0	String	D020	51060305E9	P. H. M. Screw
B517	2506057010	Leg	D021	51060305E9	P. H. M. Screw
B518	2506057010	Leg	D022	51060305E9	P. H. M. Screw
B519	2506057010	Leg	D023	51060305E9	P. H. M. Screw
B520	2506057010	Leg	D024	51060305E9	P. H. M. Screw
B521	1415118010	Spacer	D025	51060305E9	P. H. M. Screw
B522	1502271010	Holder	D026	51060305E9	P. H. M. Screw
B523	1502271010	Holder	D027	51060305E9	P. H. M. Screw
B524	1502271010	Holder	D028	51060305E9	P. H. M. Screw
B525	1502271010	Holder	D029	51060305E9	P. H. M. Screw
B076	1382005030	Clamper	D030	51060305E9	P. H. M. Screw
B077	1382005030	Clamper	D031	51060305E9	P. H. M. Screw
B078	1382005030	Clamper	D032	51060305E9	P. H. M. Screw
B079	1382005030	Clamper	D033	51060305E9	P. H. M. Screw
B080	1382005030	Clamper	D041	51060305E9	P. H. M. Screw
B081	1382005030	Clamper	D042	51060305E9	P. H. M. Screw
B082	1382005030	Clamper	D043	51060305E9	P. H. M. Screw
B541	2577053030	Cover	D044	51060305E9	P. H. M. Screw
B543	2577053040	Cover	D045	51060305E9	P. H. M. Screw
B543	2577053040	Cover	D046	51060305E9	P. H. M. Screw
B544	2577053052	Cover	D053	51060305E9	P. H. M. Screw
B546	2577118030	Spacer	D054	51060305E9	P. H. M. Screw
B547	2577118040	Spacer	D055	51060305E9	P. H. M. Screw
B548	2577118050	Spacer	D056	51060305E9	P. H. M. Screw
B550	2577118060	Spacer	D057	51060305E9	P. H. M. Screw

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D214	53110303E9	Hexagon nut	D293	54040402N0	Spring washer
D215	53110303E9	Hexagon nut	D295	54040602N0	Spring washer
D216	53110303E9	Hexagon nut	D296	53110603E0	Hexagon nut
D217	53110303E9	Hexagon nut	D297	54020601E0	Flat washer P
D218	53112603E0	Hexagon nut	D298	54020301E0	Flat washer P
D219	53112603E0	Hexagon nut	D299	54020301E0	Flat washer P
D220	53110303E9	Hexagon nut	D300	54020301E0	Flat washer P
D221	53110303E9	Hexagon nut	D301	54020301E0	Flat washer P
D222	53110303E9	Hexagon nut	D302	54052600R0	T. L. Washer OR
D223	53110303E9	Hexagon nut	D303	54052600R0	T. L. Washer OR
D224	53110303E9	Hexagon nut	D304	54050400R0	T. L. Washer OR
D225	53110303E9	Hexagon nut	D305	62041760W0	Lug
D228	53110403E9	Hexagon nut	D306	54050300R0	T. L. Washer OR
D229	53110403E9	Hexagon nut	D307	54050300R0	T. L. Washer OR
D230	53110403E9	Hexagon nut	D308	54050300R0	T. L. Washer OR
D231	53110403E9	Hexagon nut	D309	62041760W0	Lug
D232	53110403E9	Hexagon nut	D310	54050300R0	T. L. Washer OR
D233	51320308P0	R. H. Tap screw	D311	54010300E0	Flat Washer S.
D234	51320308P0	R. H. Tap screw	D312	54010300E0	Flat Washer S.
D241	64002400R0	RG Ring E.	D313	51040305E0	F. H. M. Screw
D242	64002400R0	RG Ring E.	D314	51040305E0	F. H. M. Screw
D243	64002400R0	RG Ring E.	P100	YD25770010	FM/AM Front end, PC Board
D244	64002400R0	RG Ring E.	R101	RC10104120	100Kohm ±10% 1/2W, Carbon Film
D226	54040302N0	Spring washer	R102	RC10105120	1Mohm ±10% 1/2W, Carbon Film
D228	54040302N0	Spring washer	R103	RC10101120	100ohm ±10% 1/2W, Carbon Film
D229	54040302N0	Spring washer	R104	RC10104120	100Kohm ±10% 1/2W, Carbon Film
D230	54040302N0	Spring washer	R105	RC10472120	4.7Kohm ±10% 1/2W, Carbon Film
D231	54040302N0	Spring washer	R106	RC10272120	2.7Kohm ±10% 1/2W, Carbon Film
D232	54040302N0	Spring washer	R107	RC10123120	12Kohm ±10% 1/2W, Carbon Film
D233	54040302N0	Spring washer	R108	RC10102120	1Kohm ±10% 1/2W, Carbon Film
D235	54040302N0	Spring washer	R109	RT10562140	5.6Kohm ±10% 1/4W, Carbon Film
D236	54040302N0	Spring washer	R110	RT10224140	220Kohm ±10% 1/4W, Carbon Film
D237	54040302N0	Spring washer	R111	RT10392140	3.9Kohm ±10% 1/4W, Carbon Film
D238	54040302N0	Spring washer	R112	RT10332140	3.3Kohm ±10% 1/4W, Carbon Film
D239	54040302N0	Spring washer	R113	RT10153140	15Kohm ±10% 1/4W, Carbon Film
D240	54040302N0	Spring washer	R114	RT10392140	3.9Kohm ±10% 1/4W, Carbon Film
D241	54040302N0	Spring washer	R115	RT10102140	1Kohm ±10% 1/4W, Carbon Film
D242	54040302N0	Spring washer	R116	RT10473140	47Kohm ±10% 1/4W, Carbon Film
D244	56332030G0	Eyelet	R117	RT10104140	100Kohm ±10% 1/4W, Carbon Film
D246	51060314E9	P. H. M. Screw	*C101	CA43300010	FM4G, AM3G, Variable with Trimmer, *
D247	51060314E9	P. H. M. Screw	C102	CT11000010	Trimmer
D248	51060314E9	P. H. M. Screw	C103	DD16150010	15PF ±10%, Cer.
D249	51060314E9	P. H. M. Screw	C104	DD16201010	200PF ±10%, Cer.
D250	51060314E9	P. H. M. Screw	C105	DD10010010	1PF ±0.25PF, Cer.
D251	51060314E9	P. H. M. Screw	C106	DK17102010	.001uF ±20%, Cer.
D252	51060314E9	P. H. M. Screw	C107	CT11000010	Trimmer
D253	51060314E9	P. H. M. Screw	C108	DD16200010	20PF ±10%, Cer.
D261	54040402N0	Spring washer	C109	DD10010010	1PF ±0.25PF, Cer.
D282	54040402N0	Spring washer	C110	DD16200010	20PF ±10%, Cer.
D283	54040402N0	Spring washer	C111	CT11000010	Trimmer
D284	54040402N0	Spring washer	C112	DK17102010	.001uF ±20%, Cer.
D285	54040402N0	Spring washer	C113	DK17102010	.001uF ±20%, Cer.
D286	54040402N0	Spring washer	C114	DK17103010	.01uF ±20%, Cer.
D287	54040402N0	Spring washer	C115	DK17103010	.01uF ±20%, Cer.
D288	54040402N0	Spring washer	C116	DK17102010	.001uF ±20%, Cer.
D289	54040402N0	Spring washer	C117	DD12100060	10PF, Cer.
D290	54040402N0	Spring washer	C118	DD11050020	5PF, Cer.
D291	54040402N0	Spring washer	C119	CT11000010	Trimmer
D292	54040402N0	Spring washer	C120	DD16200040	20PF N470, Cer.
			C121		With VC, Trimmer

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C122	DD16200010	20PF ±10%, Cer.	R224	RT10221140	220 ohm ±10% 1/4W, Carbon Film
C123	DK18403010	.04uF +100%, -0% Cer.	R225	RT10102140	1K ohm ±10% 1/4W, Carbon Film
C124	DK18403010	.04uF +100%, -0% Cer.	R226	RT10102140	1K ohm ±10% 1/4W, Carbon Film
C125	DD12070010	7PF ±1PF, Cer.	R227	RT10332140	3.3K ohm ±10% 1/4W, Carbon Film
C126		With V. C. Trimmer	R228	RT10332140	3.3K ohm ±10% 1/4W, Carbon Film
C127	DF17472010	.0047uF ±20%, Mylar	R230	RT10101140	100 ohm ±10% 1/4W, Carbon Film
C128	DD16250010	25PF ±10%, Cer.	R231	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
C129		With V. C. Trimmer	R232	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
C130	DF17223010	.022uF ±20%, Mylar	R233	RT10474140	470 ohm ±10% 1/4W, Carbon Film
C131	DF65451010	450PF ±5%, Mylar	R234	RT10473140	47K ohm ±10% 1/4W, Carbon Film
C132	ED10601020	10uF 10V, Elect.	R235	RT10223140	22K ohm ±10% 1/4W, Carbon Film
H101	HF200191A0	2SK19Y, Transistor	R236	RT10103140	10K ohm ±10% 1/4W, Carbon Film
H102	HF200191B0	2SK19(Gn), Transistor	R237	RT10102140	1K ohm ±10 1/4W, Carbon Film
H103	HT308291B0	2SC829B, Transistor	R238	RT10822140	8.2K ohm ±10% 1/4W, Carbon Film
H104	HT303711B0	2SC3710, Transistor	R239	RT10223140	22K ohm ±10% 1/4W, Carbon Film
H105	HT303711A0	2SC371R, Transistor	R240	RT10223140	22K ohm ±10% 1/4W, Carbon Film
H106	HD10001050	1N60, Diode	R241	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
L101	LA10046130	Ant. coil	R243	RT10102140	1K ohm ±10% 1/4W, Carbon Film
L102	LA10046140	RF coil	R244	RT10105140	1M ohm ±10% 1/4W, Carbon Film
L103	LA10046150	RF coil	R245	RT10152140	1.5K ohm ±10% 1/4W, Carbon Film
L104	LI14016140	IFT	R246	RT10103140	10K ohm ±10% 1/4W, Carbon Film
L105	LC13020010	Choke coil	R247	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
L106	LO10046020	Osc. coil	R248	RT10104140	100K ohm ±10% 1/4W, Carbon Film
L107	LA14010010	RF coil	R249	RT10122140	1.2K ohm ±10% 1/4W, Carbon Film
L108	LO14010010	Osc. coil	R250	RT10222140	2.2K ohm ±10% 1/4W, Carbon Film
L109	LI14010010	IFT	R251	RT10223140	22K ohm ±10% 1/4W, Carbon Film
J101	YP10000360	Plug	R252	RT10331140	330 ohm ±10% 1/4W, Carbon Film
J102	YP10000360	Plug	R253	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
J103	YP10000360	Plug	R254	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
J104	YP10000360	Plug	R255	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
J105	YP10000360	Plug	R256	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
J106	YP10000360	Plug	R257	RT10683140	68K ohm ±10% 1/4W, Carbon Film
J107	YP10000360	Plug	R258	RT10683140	68K ohm ±10% 1/4W, Carbon Film
J108	YP10000360	Plug	R259	RT10683140	68K ohm ±10% 1/4W, Carbon Film
J109	YP10000360	Plug	R260	RT10683140	68K ohm ±10% 1/4W, Carbon Film
J110	YP10000360	Plug	R261	RT10823140	82K ohm ±10% 1/4W, Carbon Film
J111	YP10000360	Plug	R262	RT10823140	82K ohm ±10% 1/4W, Carbon Film
J112	YP10000360	Plug	R263	RT10473140	47K ohm ±10% 1/4W, Carbon Film
J113	YP10000360	Plug	R264	RT10473140	47K ohm ±10% 1/4W, Carbon Film
P200	YD25770020	FM/AM IF-MPX PC Board,PC Board	R265	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R201	RT10223140	22K ohm ±10% 1/4W, Carbon Film	R266	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R202	RT10103140	10K ohm ±10% 1/4W, Carbon Film	R267	RT10122140	1.2K ohm ±10% 1/4W, Carbon Film
R203	RT10102140	1K ohm ±10% 1/4W, Carbon Film	R268	RT10122140	1.2K ohm ±10% 1/4W, Carbon Film
R204	RT10102140	1K ohm ±10% 1/4W, Carbon Film	R269	RA05020050	5K ohm ±30% (B) Semi Fixed
R205	RT10223140	22K ohm ±10% 1/4W, Carbon Film	R270	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R206	RT10103140	10K ohm ±10% 1/4W, Carbon Film	R271	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R207	RT10102140	1K ohm ±10% 1/4W, Carbon Film	R272	RT10563140	56K ohm ±10% 1/4W, Carbon Film
R208	RT10221140	220 ohm ±10% 1/4W, Carbon Film	R273	RT10563140	56K ohm ±10% 1/4W, Carbon Film
R209	RT10100140	10 ohm ±10% 1/4W, Carbon Film	R274	RT10563140	56K ohm ±10% 1/4W, Carbon Film
R210	RT10154140	150K ohm ±10% 1/4W, Carbon Film	R275	RT10563140	56K ohm ±10% 1/4W, Carbon Film
R212	RT10102140	1K ohm ±10% 1/4W, Carbon Film	R276	RT10103140	10K ohm ±10% 1/4W, Carbon Film
R213	RT10223140	22K ohm ±10% 1/4W, Carbon Film	R277	RT10103140	10K ohm ±10% 1/4W, Carbon Film
R214	RT10221140	220 ohm ±10% 1/4W, Carbon Film	R278	RT10223140	22K ohm ±10% 1/4W, Carbon Film
R215	RT10100140	10 ohm ±10% 1/4W, Carbon Film	R279	RT10122140	1.2K ohm ±10% 1/4W, Carbon Film
R216	RT10103140	10K ohm ±10% 1/4W, Carbon Film	R280	RT10122140	1.2K ohm ±10% 1/4W, Carbon Film
R217	RT10153140	15K ohm ±10% 1/4W, Carbon Film	R282	RT10104140	100K ohm ±10% 1/4W, Carbon Film
R218	RT10102140	1K ohm ±10% 1/4W, Carbon Film	C201	DK17103010	.01uF ±20%, Cer
R219	RT10221140	220 ohm ±10% 1/4W, Carbon Film	C202	DK17103010	.01uF ±20%, Cer
R220	RT10100140	10 ohm ±10% 1/4W, Carbon Film	C203	DK17103010	.01uF ±20%, Cer
R221	RT10821140	820 ohm ±10% 1/4W, Carbon Film	C204	DK17103010	.01uF ±20% Cer
R222	RT10183140	18K ohm ±10% 1/4W, Carbon Film	C206	DK17102010	.001uF ±20%, Cer
R223	RT10101140	100 ohm ±10% 1/4W, Carbon Film	C207	DK17103010	.01uF ±20%, Cer

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C208	DK18403010	.04uF +100% -0%, Cer	H206	HT303801B0	2SC380 O, Transistor
C209	DK18403010	.04uF +100% -0%, Cer	H207	HT30373100	2SC373, Transistor
C210	DD16200010	20PF ±10%, Cer	C259	DF16332010	.0033uF ±10%, Mylar
C211	DK18403010	.04uF +100% -0%, Cer	H208	HT30373100	2SC373, Transistor
C212	DD12030010	3PF ±1PF, Cer	H209	HT30373100	2SC733 Gn, Transistor
C213	DD15301020	300PF ±5%, Cer	H210	HT30373100	2SC373, Transistor
C214	DK17102010	.001uF ±20%, Cer.	H211	HT30373100	2SC373, Transistor
C215	DK18403010	.04uF +100% -0%, Cer.	H212	HT30373100	2SC373, Transistor
C216	DK18104020	0.1uF +80% -20%, Cer.	H213	HT30373100	2SC373, Transistor
C217	DD15301020	300PF ±5%, Cer.	H214	HT306441B0	2SC644 S, Transistor
C218	EA10601620	10uF 16V, Elect.	H215	HT306441B0	2SC644 S, Transistor
C220	DK17103010	.01uF ±20%, Cer.	H216	HD10001050	1N60, Diode
C221	DK18403010	.04uF +100% -0%, Cer.	H217	HD10001050	1N60, Diode
C222	DK17103010	.01uF ±20%, Cer.	H218	HD10001050	1N60, Diode
C223	DK17103010	.01uF ±20%, Cer.	H219	HD10001050	1N60, Diode
C224	DD16501010	500PF ±10%, Cer.	H220	HD10001050	1N60, Diode
C225	DK17103010	.01uF ±20%, Cer.	H221	HD10001050	1N60, Diode
C226	DK18403010	.04uF +100% -0%, Cer.	H222	HD10001050	1N60, Diode
C228	EA47501620	4.7uF 16V, Elect.	H224	HD10001050	1N60, Diode
C229	DD16201010	200PF ±10%, Cer.	H225	HD10001050	1N60, Diode
C230	DD16201010	200PF ±10%, Cer.	H226	HD10001050	1N60, Diode
C231	DD16201010	200PF ±10%, Cer.	H227	HD10001050	1N60, Diode
C232	DK17103010	.01uF ±20%, Cer.	H228	HD10001050	1N60, Diode
C233	EM10402510	.1uF 25V, Elect.	*H229	HD30010090	IS336, Diode
C235	DK17103010	.01uF ±20%, Cer.	H230	HD10001050	1N60, Diode
C236	DD16201010	200PF ±10%, Cer.	L201	LI14016110	FM IFT, IFT
C237	DK17103010	.01uF ±20%, Cer.	L202	LI14016120	FM IFT, IFT
C238	DK17103010	.01uF ±20%, Cer.	L203	LI14016060	FM IFT, IFT
C239	EA10601620	10uF 16V, Elect.	L204	LI14016043	FM IFT(Det.), IFT
C240	DK18403010	.04uF +100% -0%, Cer.	L205	LI14010040	AM IFT, IFT
C241	EA22701640	220uF 16V, Elect	L206	LI14010050	AM IFT, IFT
C242	ED47501020	4.7uF 10V, Elect	L208	LI10156060	FM IFT, IFT
C243	DF55472010	.0047uF ±5%, Poly	L209	LS10010010	19KC Coil, MPX Coil
C244	ED10601020	10uF 10V, Elect.	L210	LS10010020	19KC Coil, MPX Coil
C245	DF55472010	.0047uF ±5%, Poly	L211	LS10010030	38KC Coil, MPX Coil
C246	DF55472010	.0047uF ±5%, Poly	L212	LS10010050	67KC Coil (Trap), MPX Coil
C248	EA10601620	10uF 16V, Elect.	L213	LC22260010	19KC Coil (Trap), Choke Coil
C249	DF55472010	4700PF ±5%, Poly	L214	LC22260010	19KC Coil (Trap), Choke Coil
C250	DF16152010	.0015uF ±10%, Mylar	L215	LS10010060	38KC Coil (Trap), MPX Coil
C251	ED47501020	4.7uF 10V, Elect.	L216	LS10010060	38KC Coil (Trap), MPX Coil
C252	ED47501020	4.7uF 10V, Elect.	J201	YP10000360	Plug
C253	DF17223010	.02uF ±20%, Mylar	J202	YP10000360	Plug
C254	DF17223010	.02uF ±20%, Mylar	J203	YP10000360	Plug
C255	EA47501620	4.7uF 16V, Elect.	J204	YP10000360	Plug
C256	EA47501620	4.7uF 16V, Elect.	J205	YP10000360	Plug
C257	EA10601620	10uF 16V, Elect.	J206	YP10000360	Plug
C258	EA10601620	10uF 16V, Elect.	J207	YP10000360	Plug
C260	DF16332010	.0033uF ±10%, Mylar	J208	YP10000360	Plug
C261	DF16332010	.0033uF ±10%, Mylar	J209	YP10000360	Plug
C262	DF16332010	.0033uF ±10%, Mylar	J210	YP10000360	Plug
C263	DF16332010	.0033uF ±10%, Mylar	J211	YP10000360	Plug
C264	DF16332010	.0033uF ±10%, Mylar	J212	YP10000360	Plug
C265	DF65821010	820PF ±5%, Mylar	J213	YP10000360	Plug
C266	DF65821010	820PF ±5%, Mylar	J214	YP10000360	Plug
C268	EA10701630	100uF 16V, Elect.	J215	YP10000360	Plug
C270	EA10601620	10uF 16V, Elect.	J216	YP10000360	Plug
C271	ED10700620	100uF 6V, Elect.	J217	YP10000360	Plug
H201	HT303801A0	2SC380 R, Transistor	J218	YP10000360	Plug
H202	HT303801B0	2SC380 O, Transistor	J219	YP10000360	Plug
H203	HT303801B0	2SC380 O, Transistor	J220	YP10000360	Plug
H204	HT303801C0	2SC380 Y, Transistor	J221	YP10000360	Plug
H205	HC10001090	LA703E JRC, IC	J231	YP10000010	Plug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
YW25770020		Wire Material	R412	RT10222140	2.2Kohm ±10% 1/4W, Carbon Film
P300	YD25770030	Phono amp. P. C. Board	R413	RT10102140	1K ohm ±10% 1/4W, Carbon Film
R301	RN10473140	47Kohm ±10% 1/4W Carbon Film	R414	RT10102140	1K ohm ±10% 1/4W, Carbon Film
R302	RN10473140	47Kohm ±10% 1/4W Carbon Film	R415	RN10153140	15Kohm ±10% 1/4W, Carbon Film
R303	RT10391140	390ohm ±10% 1/4W, Carbon Film	R416	RN10153140	15Kohm ±10% 1/4W, Carbon Film
R304	RT10391140	390ohm ±10% 1/4W, Carbon Film	R417	RT10101140	100ohm ±10% 1/4W, Carbon Film
R305	RN10334140	330Kohm ±10% 1/4W, Carbon Film	R418	RN10563140	56Kohm ±10% 1/4W, Carbon Film
R306	RN10334140	330Kohm ±10% 1/4W, Carbon Film	R419	RN10563140	56Kohm ±10% 1/4W, Carbon Film
R307	RT10561140	560ohm ±10% 1/4W, Carbon Film	R420	RN10153140	15Kohm ±10% 1/4W, Carbon Film
R308	RT10561140	560ohm ±10% 1/4W, Carbon Film	R421	RN10153140	15Kohm ±10% 1/4W, Carbon Film
R309	GT05334120	330Kohm ±5% 1/2W, Carbon Film	R422	RN10225140	2.2Mohm ±10% 1/4W, Carbon Film
R310	GT05334120	330Kohm ±5% 1/2W, Carbon Film	R423	RN10225140	2.2Mohm ±10% 1/4W, Carbon Film
R311	GT05273120	27Kohm ±5% 1/2W, Carbon Film	R424	RN10683140	68Kohm ±10% 1/4W, Carbon Film
R312	GT05273120	27Kohm ±5% 1/2W, Carbon Film	R425	RN10683140	68Kohm ±10% 1/4W, Carbon Film
R313	RN10104140	100Kohm ±10% 1/4W, Carbon Film	R426	RT10103140	10Kohm ±10% 1/4W, Carbon Film
R314	RN10104140	100Kohm ±10% 1/4W, Carbon Film	R427	RT10103140	10Kohm ±10% 1/4W, Carbon Film
R315	RT10223140	22Kohm ±10% 1/4W, Carbon Film	R428	RT10103140	10Kohm ±10% 1/4W, Carbon Film
R316	RT10822140	8.2Kohm ±10% 1/4W, Carbon Film	R429	RT10103140	10Kohm ±10% 1/4W, Carbon Film
R317	RT10822140	8.2Kohm ±10% 1/4W, Carbon Film	R430	RT10221140	220ohm ±10% 1/4W, Carbon Film
R318	RT10472140	4.7Kohm ±10% 1/4W, Carbon Film	R431	RT10221140	220ohm ±10% 1/4W, Carbon Film
R319	RT10472140	4.7Kohm ±10% 1/4W, Carbon Film	C401	EV22402510	0.22uF 25V ±20%, Elect
R320	RT10471140	470ohm ±10% 1/4W, Carbon Film	C402	EV22402510	0.22uF 25V ±20%, Elect
R321	RT10471140	470ohm ±10% 1/4W, Carbon Film	C403	EA10601620	10uF 16V, Elect
R322	RT10101140	100ohm ±10% 1/4W, Carbon Film	C404	EA10601620	10uF 16V, Elect
R323	RN10224140	220Kohm ±10% 1/4W, Carbon Film	C405	EA10603510	10uF 35V, Elect
R324	RN10224140	220Kohm ±10% 1/4W, Carbon Film	C406	EA10603510	10uF 35V, Elect
C301	EV22502510	2.2uF 25V +40% -20% Elect.	C407	EV10502510	1uF 25V +40%, -20% Elect
C302	EV22502510	2.2uF 25V +40% -20% Elect.	C408	EV10502510	1uF 25V +40%, -20% Elect
C303	EA22603510	22uF 35V, Elect.	C409	EA47603520	47uF 35V, Elect
C304	DF64103010	0.01uF 50V ±2%, Mylar	C410	EV22502510	2.2uF 25V +40%, -20% Elect
C305	DF64103010	0.01uF 50V ±2%, Mylar	C411	EV22502510	2.2uF 25V +40%, -20% Elect
C306	DF64272010	0.0027uF 50V ±2%, Mylar	C412	DF65351010	350PF ±5%, Poly
C307	DF64272010	0.0027uF 50V ±2%, Mylar	C413	DF65351010	350PF ±5%, Poly
C308	EA10601620	10uF 16V, Elect.	C414	EM47402510	0.47uF 25V ±20%, Elect
C309	EA10601620	10uF 16V, Elect.	C415	EM47402510	0.47uF 25V ±20%, Elect
C310	EV33502510	3.3uF 25V +40% -20%, Elect.	H401	HT307321B0	2SC732-BL, Transistor
C311	EV33502510	3.3uF 25V +40% -20%, Elect.	H402	HT307321B0	2SC732-BL, Transistor
C312	EA47603520	47uF 35V, Elect.	H403	HT104941C0	2SA494-Y, Transistor
H301	HT307331B0	2SC732 (BL), Transistor	H404	HT104941C0	2SA494-Y, Transistor
H302	HT307321B0	2SC732 (BL), Transistor	H405	HT307321B0	2SC732-BL, Transistor
H303	HF200301B0	2SK30 (O), Transistor	H406	HT307321B0	2SC732-BL, Transistor
H304	HF200301B0	2SK30 (O), Transistor	H407	HT104941C0	2SA494-Y, Transistor
J301	YP10000360	Plug	J401	YP10000360	Plug
J302	YP10000360	Plug	J402	YP10000360	Plug
J303	YP10000360	Plug	J403	YP10000360	Plug
J304	YP10000360	Plug	J404	YP10000360	Plug
J305	YP10000360	Plug	J405	YP10000360	Plug
J306	YP10000360	Plug	J406	YP10000360	Plug
J307	YP10000360	Plug	J407	YP10000360	Plug
J308	YP10000360	Plug	J408	YP10000360	Plug
P400	YD25770040	Tone AMP, P. C. Board	J409	YP10000360	Plug
R401	RT10391140	390ohm ±10% 1/4W, Carbon Film	J410	YP10000360	Plug
R402	RT10391140	390ohm ±10% 1/4W, Carbon Film	J412	YP10000360	Plug
R403	RN10393140	39Kohm ±10% 1/4W, Carbon Film	J413	YP10000360	Plug
R404	RN10393140	39Kohm ±10% 1/4W, Carbon Film	J414	YP10000360	Plug
R405	RN10563140	56Kohm ±10% 1/4W, Carbon Film	J415	YP10000360	Plug
R406	RN10563140	56Kohm ±10% 1/4W, Carbon Film	J416	YP10000360	Plug
R407	RT10332140	3.3Kohm ±10% 1/4W, Carbon Film	J417	YP10000360	Plug
R408	RT10332140	3.3Kohm ±10% 1/4W, Carbon Film	J418	YP10000360	Plug
R409	RN10223140	22Kohm ±10% 1/4W, Carbon Film	J419	YP10000360	Plug
R410	RN10223140	22Kohm ±10% 1/4W, Carbon Film	J420	YP10000360	Plug
R411	RT10222140	2.2Kohm ±10% 1/4W, Carbon Film	W401	YW25770040	Wire Materials

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
P500	YD25770050	Main Amp, PC Board	C509	DG07104500	0.1MF ±20% 150V, M. P.
R501	RN10473140	47Kohm ±10% 1/4W, Carbon Film	C510	DG07104500	0.1MF ±20% 150V, M. P.
R502	RN10473140	47Kohm ±10% 1/4W, Carbon Film	C511	DG07104500	0.1MF ±20% 150V, M. P.
R503	GT05102120	1Kohm ±5% 1/2W, Carbon Film	C512	DG07104500	0.1MF ±20% 150V, M. P.
R504	GT05102120	1Kohm ±5% 1/2W, Carbon Film	C513	DF36300500	30PF ±10% 500V, Mica
R505	GT05102120	1Kohm ±5% 1/2W, Carbon Film	C514	DF36300500	30PF ±10% 500V, Mica
R506	GT05102120	1Kohm ±5% 1/2W, Carbon Film	J501	YP10000360	Plug
R507	GT05223120	22Kohm ±5% 1/2W, Carbon Film	J502	YP10000360	Plug
R508	GT05223120	22Kohm ±5% 1/2W, Carbon Film	J503	YP10000360	Plug
R509	RA01030070	10Kohm B, Semi Fix	J504	YP10000360	Plug
R510	RA01030070	10Kohm B, Semi Fix	J505	YP10000360	Plug
R511	RC10182120	1.8Kohm ±10% 1/2W, Solid	J506	YP10000360	Plug
R512	RC10182120	1.8Kohm ±10% 1/2W, Solid	J507	YP10000360	Plug
R513	RC10182120	1.8Kohm ±10% 1/2W, Solid	J508	YP10000360	Plug
R514	RC10182120	1.8Kohm ±10% 1/2W, Solid	J509	YP10000360	Plug
H408	HT104941C0	2SA494-Y, Transistor	J510	YP10000360	Plug
R515	GT05301120	300ohm ±5% 1/2W, Carbon Film	J511	YP10000360	Plug
R516	GT05301120	300ohm ±5% 1/2W, Carbon Film	J512	YP10000360	Plug
R517	GT05681120	680ohm ±5% 1/2W, Carbon Film	J513	YP10000360	Plug
R518	GT05681120	680ohm ±5% 1/2W, Carbon Film	J514	YP10000360	Plug
R519	GT05391120	390ohm ±5% 1/2W, Carbon Film	J515	YP10000360	Plug
R520	GT05391120	390ohm ±5% 1/2W, Carbon Film	J516	YP10000360	Plug
R521	GT05133120	13Kohm ±5% 1/2W, Carbon Film	J517	YP10000360	Plug
R522	GT05133120	13Kohm ±5% 1/2W, Carbon Film	J518	YP10000360	Plug
R523	GT05822120	8.2Kohm ±5% 1/2W, Carbon Film	J519	YP10000360	Plug
R524	GT05822120	8.2Kohm ±5% 1/2W, Carbon Film	J520	YP10000360	Plug
R525	GT05223120	22Kohm ±5% 1/2W, Carbon Film	J521	YP10000360	Plug
R526	GT05223120	22Kohm ±5% 1/2W, Carbon Film	J522	YP10000360	Plug
R527	RC10680120	680ohm ±5% 1/2W, Solid	J523	YP10000360	Plug
R528	RC10680120	680ohm ±5% 1/2W, Solid	J524	YP10000360	Plug
R529	RC10680120	680ohm ±5% 1/2W, Solid	J525	YP10000360	Plug
R530	RC10680120	680ohm ±5% 1/2W, Solid	J526	YP10000360	Plug
R531	RC10101120	100ohm ±5% 1/2W, Solid	J527	YP10000360	Plug
R532	RC10101120	100ohm ±5% 1/2W, Solid	H501	HC10002170	Motorola (SC51750), IC
R533	RC10101120	100ohm ±5% 1/2W, Solid	H502	HC10002170	Motorola (SC51750), IC
R534	RC10101120	100ohm ±5% 1/2W, Solid	H503	HT105621B0	2SA562 O, Transistor
R535	RC10470120	47ohm ±10% 1/2W, Solid	H504	HT105621B0	2SA562 O, Transistor
R536	RC10470120	47ohm ±10% 1/2W, Solid	H505	HT303711B0	2SC371 O, Transistor
R537	RC10470120	47ohm ±10% 1/2W, Solid	H506	HT303711B0	2SC371 O, Transistor
R538	RC10470120	47ohm ±10% 1/2W, Solid	H507	HT104971A0	2SA497 R, Transistor
R539	RC10101120	100ohm ±10% 1/2W, Solid	H508	HT104971A0	2SA497 R, Transistor
R540	RC10101120	100ohm ±10% 1/2W, Solid	H509	HT304971A0	2SC497 R, Transistor
R541	RC10101120	100ohm ±10% 1/2W, Solid	H510	HT304971A0	2SC497 R, Transistor
R542	RC10101120	100ohm ±10% 1/2W, Solid	H511	HT304971A0	2SC497 R, Transistor
R543	RC10100120	10ohm ±10% 1/2W, Solid	H512	HT304971A0	2SC497 R, Transistor
R544	RC10100120	10ohm ±10% 1/2W, Solid	H513	HT104971A0	2SA497R, Transistor
R545	RC10100120	10ohm ±10% 1/2W, Solid	H514	HT104971A0	2SA497R, Transistor
R546	RC10100120	10ohm ±10% 1/2W, Solid	H515	HD30011090	IS198-T14.5 400mW, Diode
R547	GW10242020	0.24ohm ±10% 2W, Carbon Film	H516	HD30011090	IS198-T14.5 400mW, Diode
R548	GW10242020	0.24ohm ±10% 2W, Carbon Film	H517	HD30011090	IS198-T14.5 400mW, Diode
R549	GW10242020	0.24ohm ±10% 2W, Carbon Film	H518	HD30011090	IS198-T14.5 400mW, Diode
R550	GW10242020	0.24ohm ±10% 2W, Carbon Film	*H002	HT70003100	Motorola PNP. SJ2009, Transistor
R551	RA01020010	1Kohm B, Semi Fix	*H003	HT70003100	Motorola PNP. SJ2009, Transistor
R552	RA01020010	1Kohm B, Semi Fix	*H004	HT90003100	Motorola NPN. SJ2008, Transistor
C501	DF27105500	1MF ±20% 100V, Mylar	*H005	HT90003100	Motorola NPN. SJ2008, Transistor
C502	DF27105500	1MF ±20% 100V, Mylar	P600	YD25770060	Power supply, PC Board
C503	DF36560500	56PF ±10% 500V, Mica	R601	RC10153120	15K Ohm ±10% 1/2W, Solid
C504	DF36560500	56PF ±10% 500V, Mica	R602	RA01030010	10K Ohm B, Semi Fix
C505	EA22603510	22uF 35V, Elect	R603	RC10562120	5.6K Ohm ±10% 1/2W, Solid
C506	EA22603510	22uF 35V, Elect	R604	RC10821120	820Ohm ±10% 1/2W, Solid
C507	EA22603510	22uF 35V, Elect	R605	RC10220120	22 Ohm ±10% 1/2W, Solid
C508	EA22603510	22uF 35V, Elect	R606	RC10821120	820 Ohm ±10% 1/2W, Solid

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R607	RC10750120	75 Ohm ±10% 1/2W, Solid	C805	DF17473010	0.047uF ±20%, Mylar
R608	RC10391010	390 Ohm ±10% 1W, Solid	C806	DF17473010	0.047uF ±20%, Mylar
R609	GS10022020	2.2 Ohm ±10% 2W, Carbon Film	S801	SP04030012	S801-1 Loudness, Push Switch
R610	GS10022020	2.2 Ohm ±10% 2W, Carbon Film			S801-2 Tape P. B, Push Switch
R611	GS10240020	24 Ohm ±10% 2W, Carbon Film			S801-3 High Filter, Push Switch
R612	GS10240020	24 Ohm ±10% 2W, Carbon Film	J801	YP10000010	Plug
C602	EA10603510	10 uF 35V, Elect	J802	YP10000010	Plug
C603	ED47703510	470 uF 35V, Elect	P900	YD25770090	Tone Cont. P. C. Board
C604	ED47703510	470 uF 35V, Elect	R901	RM01040010	100K ohm B Treble, Variable
C605	ED47703510	470 uF 35V, Elect	R902	RM01040010	100K ohm B Bass, Variable
C606	ED47703510	470 uF 35V, Elect	R903	GT05163120	16K ohm ±5% 1/2W, Carbon Film
C607	EA47701620	470 uF 16V, Elect	R904	GT05163120	16K ohm ±5% 1/2W, Carbon Film
C608	DG07104500	0.1 uF ±20% 150V, M. P.	R905	GT05163120	16K ohm ±5% 1/2W, Carbon Film
C609	DG07104500	0.1 uF ±20% 150V, M. P.	R906	GT05163120	16K ohm ±5% 1/2W, Carbon Film
C610	EA47603520	47 uF 35V, Elect	C901	DF16223010	0.022uF ±10%, Mylar
H601	HT30373100	2SC373, Transistor	C902	DF16223010	0.022uF ±10%, Mylar
H602	HT30373100	2SC373, Transistor	C903	DF16223010	0.022uF ±10%, Mylar
H603	HD30003090	1S332, Diode	C904	DF16223010	0.022uF ±10%, Mylar
H604	HD20003010	HR-5A, Diode	J901	YP10000360	Plug
H605	HD20003010	HR-5A Diode	J902	YP10000360	Plug
H606	HD20003010	HR-5A Diode	J903	YP10000360	Plug
H607	HD20003010	HR-5A Diode	J904	YP10000360	Plug
H608	HD20003010	HR-5A Diode	J905	YP10000360	Plug
J601	YP10000360	Plug	J906	YP10000360	Plug
J602	YP10000360	Plug	J907	YP10000360	Plug
J603	YP10000360	Plug	J908	YP10000360	Plug
J604	YP10000360	Plug	R001	YD25770090	Muting 20KB, Variable
J605	YP10000360	Plug	R002	RC10152120	1.5K ohm ±10% 1/2W, Solid
J606	YP10000360	Plug	R003	RT10103140	10K ohm ±10% 1/4W, Carbon Film
J607	YP10000360	Plug	R004	RT10103140	10K ohm ±10% 1/4W, Carbon Film
J608	YP10000360	Plug	R005	RM05030190	Balance 50K MN, Variable
J610	YP10000360	Plug	R006	RM05030220	Volume 50K A 40% Tap, Variable
J611	YP10000360	Plug	R007	RC10471120	470 ohm ±10% 1/2W, Solid
J612	YP10000360	Plug	R008	RC10471120	470 ohm ±10% 1/2W, Solid
J613	YP10000360	Plug	R009	RT10152010	1.5K ohm ±10% 1W, Solid
J614	YP10000360	Plug	R010	RT10152010	1.5K ohm ±10% 1W, Solid
J615	YP10000360	Plug	R011	RT10225010	2.2M ohm ±10% 1W, Solid
J616	YP10000360	Plug	C001	ED3360061	33uF 6.3V, Elect.
J617	YP10000360	Plug	C002	EC47805010	4700uF 50V, Elect.
J618	YP10000360	Plug	C003	EC47805010	4700uF 50V, Elect.
J619	YP10000360	Plug	C004	DG07103500	0.01uF 250Wv ±20%, MP
J620	YP10000360	Plug	C005	DG07103500	0.01uF 250Wv ±20%, MP
P700	YD25770070	Comp. circuit, PC Board	H001	HD20005100	5B2, Diode
C701	DG07204500	0.2uF ±20% 150V, M. P.	S001	SP04020022	S001-1 Power On-Off, Push Switch
C702	DG07204500	0.2uF ±20% 150V, M. P.	S002	SP04020012	S001-2 Speaker, Push Switch
H701	HV00001050	M8513 R, Varistor	S002-1	SP04020012	Stereo, Push Switch
H702	HV00001050	M8513 R, Varistor	S002-2	SP04020012	Muting, Push Switch
H703	HV00001050	M8513 R, Varistor			Function, Rotary Switch
H704	HV00001050	M8513 R, Varistor			Phono Int-Ext, Slide Switch
P800	YD25770080	Switch, P. C. Board	L001	LF11800340	Ant Coil (Mw)
R801	RT10272140	2.7K Ohm ±10% 1/4W, Carbon Film	S003	SR05040010	Power Transf.
R802	RT10272140	2.7K Ohm ±10% 1/4W, Carbon Film	S004	SS02020170	2μH Ring Core, Choke Coil
R803	RT10273140	2.7K Ohm ±10% 1/4W, Carbon Film			2μH Ring Core, Choke Coil
R804	RT10273140	2.7K Ohm ±10% 1/4W, Carbon Film			Tunin Indicator, D. C. Meter
R805	RT10222140	2.2K Ohm ±10% 1/4W, Carbon Film			Stereo Indicator, Lamp
R806	RT10222140	2.2K Ohm ±10% 1/4W, Carbon Film			Dial Light, Lamp
R807	RN10474140	470K ohm ±10% 1/4W, Carbon Film			Dial Light, Lamp
R808	RN10474140	470K ohm ±10% 1/4W, Carbon Film			Dial Light, Lamp
C801	DF17104020	0.1uF ±20%, Mylar			Dial Light, Lamp
C802	DF17104020	0.1uF ±20%, Mylar			Antenna (AM, FM), Terminal
C803	DF17102010	0.001uF ±20%, Mylar			Antenna (AM, FM), Terminal
C804	DF17102010	0.001uF ±20%, Mylar			Phono, Aux, Tape Rec. Terminal
					Phono, Aux, Tape P. B. Terminal

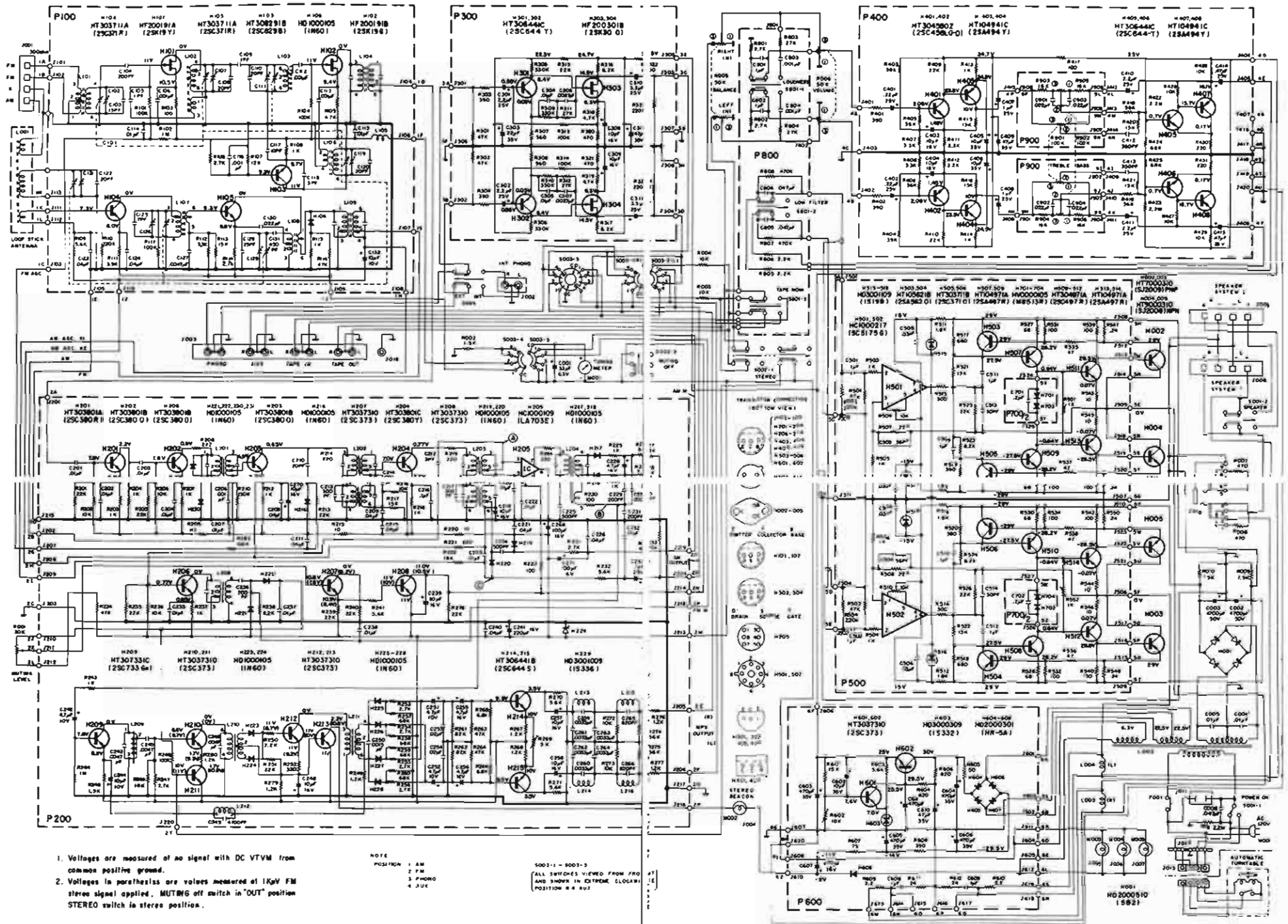
REF. DESIG.	MARANTZ PART NO.	DESCRIPTION	REF. MARANTZ DESIG. PART NO.	DESCRIPTION
J004	YJ02000070	Mpx Lamp, Socket		
J005	YJ02000350	Dial Light, Socket		
J006	YJ02000360	Dial Light, Socket		
J007	YJ02000370	Dial Light, Socket		
J008	YT03040020	Speaker 1, Terminal		
J009	YT03040020	Speaker 2, Terminal		
J010	YJ01000550	Head Phones, Jack		
J011	YJ04000320	AC Supply, Socket		
J012	YL01050010	Terminal		
J013	YP10000630	Automatic Turntable 4P, Plug		
F001	FR10160010	1.6A Circuit Breaker		
W001	YC02400010	AC Source, AC Power Cord		
	YW25770070	Wire Materials		
J014	YJ05000130	Power Transistor, Socket		
J015	YJ05000130	Power Transistor, Socket		
J016	YJ05000130	Power Transistor, Socket		
J017	YJ05000130	Power Transistor, Socket		
J018	YT01010030	Ground, Terminal		



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1. Voltages are measured at no signal with DC VTVM from common positive ground.
 2. Voltages in parentheses are values measured at 1Kv FM stereo signal applied. MUTING off switch in "OUT" position STEREO switch in stereo position.

NOTE
 POSITION 1 AM
 2 FM
 3 PHONO
 4 JUX

S003-1 - S003-3
 ALL SWITCHES VIEWED FROM 700 AND 5000 IN EXTREME CLOCKWISE POSITION # 4 503

SCHEMATIC DIAGRAM OF MODEL 25