449

service manual 28

marantz

model twenty eight

Stereophonic Receiver

marantz

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FIGURE

INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service data for the Marantz Model 28 Stereophonic Receiver with automatic turntable.

Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced technicians only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of the operation of the set. A brief functional description and associated block diagram, furnished in the Operating Instruction Manual for the Model 28 Receiver, provide functional data about the set 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 usually be obtained through local suppliers.

No description for the associated Garrard synchro-Lab 55B Automatic Turntable is included in this service manual. A service manual for Garrard 55B published by the Garrard Engineering and Manufacturing Co., should be consulted to work on the automatic turntable.

1. SERVICE NOTES

As can be seen from the circuit diagram, the chassis of the Model 28 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, FM IF Amplifier, FM MPX Demodualator, AM Front End, AM IF Amplifier ····· mounted on PC board P100
2. FM Sub-IF Amplifier ····· mounted on PC board P200
3. Phono Amplifier ····· mounted on PC board P300
4. Pre Amplifier, Tone Amplifier, and Main Amplifier ····· mounted on PC board P400
5. Rectifiers and Power Supply Unit ····· mounted on PC board P500

6. Bass and Treble Control Unit, Loudness Control Unit, High and Low Filters Unit and Tape Monitor Switch·····mounted on PC board P600

2. AM TUNER

2.1. Circuit Description

The AM tuner consists of two parts, a front end and an IF amplifier unit, both mounted on a part of PC board P100.

The front end is comprised of a converter and a diode. AM signals induced in the ferrite-rod antenna L001 are roughly selected in the antenna tuning circuit. The selected signals are applied to the base of converter transistor H114 through coupling capacitor C117. The converter forms a collector base self oscillating circuit and the local oscillation signal and the receiving signal are mixed at the base-emitter junction and converted into 455KHz intermediate frequency. The IF signal obtained from the collector of H114 is applied to the first IF transformer L113.

Diode H116, reverse-biased by resistors R113 and R114, eliminated signal overload distortion without sacrificing any receiving sensitivity.

The IF signal output is led to the IF amplifier consisting of two stages H115 and H106 which are shared with FM IF amplifier and amplified to high level. The amplified IF output is applied to diode H109 to detect audio signal. Then the detected audio signal is led to output pin J118 through filtering network. The DC component of the detected IF signal is used for AGC which affects the base bias current of H115. A part of IF signal output is also applied to diode H112 through capacitor C139 and rectified into DC current for energizing the tuning meter M001.

2.2. Suggestions for Trouble Shooting of AM Tuner

Symptom : No AM Reception

First, try to tune stations by rotating the flywheel tuning knob slowly and ovserve the tuning meter whether it deflects or not. If the tuning meter gives a deflection at

several frequencies received, no failure exists in the stages at least preceding IF transformer L115.

Next, connect an oscilloscope to tuner output pin J118 and check audio signal.

If the tuning meter does not deflect, check the local oscillator circuit. Normal oscillation voltage at the hot end of the oscillator capacitor is 2 to 3 volts, varying with tuning capacitor position. When measuring oscillation voltage use an RF VTVM, no circuit tester gives correct indication. If the local oscillation voltage is normal check all voltage distributions in the tuner circuit by using a circuit tester and compare the measured values with those shown in the schematic diagram.

3. FM TUNER

3.1. Circuit Description

The FM section consists of four parts, FM front end, IF amplifier, MPX stereo demodulator, and Sub-IF amplifier.

FM signals induced by an FM antenna are led to FM antenna coil L101 through antenna attenuator switch S001 and balun coil L002. The signals are then applied to an FET RF amplifier and the amplified output is applied to mixer transistor H102 through a tuning circuit and converted into 10.7MHz IF signals. H103 is a local oscillator transistor. The undesired drain-to-gate interelectrode capacitance of RF amplifier H101 is neutralized by the secondary take up winding on L102 and capacitor C102 for maximum gain and good stability. The gate of H101 is returned to the AGC bus through R101 and a bypass capacitor C185. The AGC voltage is obtained by rectifying a part of the second stage IF amplifier. The local oscillator is a Colpitts oscillator, oscillation being produced by capacitors C114 and C113. Oscillator injection to the base of mixer transistor H102 is accomplised by C108 and C186. The converted IF signals are led to the IF amplifier unit consisting of three transistor amplifier

stages and one IC limiter. The FM IF amplifier shares its third stage transistor H106 with the AM IF amplifier. The fully amplifid IF signal is then applied to FM discriminator transformer L109 and demodulated into audible signals.

The demodulated audio signals are then applied to the base of 19KHz pilot signal amplifier H117. 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 H117 and applied to the center tap of 38KHz tuned transformer L119 through a 67KHz SCA trapping filter consisting of L120 and C159. The audio signals are split into right and left channel circuits by the diode-switching networks, then led to the crosstalk canceling amplifiers. When the demodulated audio signal is stereo composite signal, the 19KHz pilot signal amplifier operates as a tuned amplifier for the 19KHz pilot signal and as an emitter follower for the composite signal except 19KHz. The pilot signal, amplified by H117, is applied to H118 for further amplification. Then it is rectified by the full wave rectifier consisting of diodes H112 and H123, thus provided 38KHz pulsating current to drive 38KHz sub-carrier amplifier transistor H120, and 38KHz sub-carrier is obtained. The 38KHz sub-carrier and stereo composite signal, except 19KHz, are superimposed at the secondary coil of L119 and the composite signal is alternatively sampled by the right and left channel switching diodes at the rate of 38KHz. The sampled or separated outputs are led to the crosstalk canceling amplifier consisting of H128 and H129. Then led to tuner output pins J112 and J114 after canceling undesirable crosstalk. A tuned circuit, L121, and C172 is filtering circuit against 38KHz.

The model 28 is equipped with sub-FM IF amplifier consisting of a transistor amplifier stage and rectifiers for stereo-monophonic automatic switching over and driving of the tuning meter. The sub-FM IF amplifier obtains its input signal from the third FM IF amplifier stage through a small coupling capacitor C136 and amplifies

it. The amplified output is applied to diodes H202 and H203 for rectification into DC. The voltage developping across H203 is supplied to tuning meter M001 through resistors R204 and R205 and rotary switch S002-3. H202 provides its DC output to the base of H119 through R143 for stereo-monophonic automatic switching over operation.

The second 19KHz pilot signal amplifier H118 is so designed that the emitter circuit is electrically switched on and off by controling the bias current of switching transistor H119. The bias current is obtained from the sub-IF amplifier circuit consisting of transistor H201, 10.7MHz IF transformer L201 and two diodes H202 and H203. The stereo switch on the front panel is connected across the base and emitter of switching transistor H119. Therefore, when the switch is in its normal "off" position, the base and emitter is short-circuited and no emitter current flows. Thus the emitter of the second 19KHz pilot signal amplifier is cut off and no 19KHz signal appears at the collector of H118. No stereo separation is obtained. When the stereo switch is depressed, the emitter-base short-circuit is opened and the rectified, by H202. DC current of a part of the sub-IF amplifier output flows into the base of H119. If the level of a received FM signal is higher than the pre-determined level, the DC current turns on the switching transistor H119 and H118 begins to operate. Providing the presence of 19KHz pilot signal under this circumstances, the full wave rectified DC component of the pilot signal developping across R146 provides the base bias current to tuner on 38KHz sub-carrier amplifier H120. As H120 is turned on, stereo beacon lamp swiching transistor H121 whose base and emitter are connected across R169 in the emitter circuit of H120 turns on, too.

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 in to FM stations. Rotate flywheel

tuning knob slowly and observe the FM tuning meter. If the tuning meter deflects at several frequencies, the tuner circuit preceding the limiter circuit may have no failure. Tune the set to a station and check the following points by using a high sensitivity oscilloscope : output of the FM discriminator test point B, output of the 19KHz pilot signal amplifier test point H., and Multiplex stereo output pin J112 or J114. When no reading is observed on the tuning meter, check the local oscillator circuit by using an RF VTVM. Normal local oscillation voltage is about 1 volt at the hot end of the tank circuit. If the oscillation voltage is normal, check all voltage distributions and compare them with those shown in the schematic diagram.

3.2.2. Symptom : No Stereo Separation

First, check the stereo switch is depressed. Connect an FM RF signal modulated by a stereo signal to the FM antenna terminals and check whether the stereo beacon lamp is turned on or not. When the lamp is not turned on, connect an oscilloscope to test point G and observe 38KHz stereo sub-carrier is correctly generated or not.

4. FM AND AM TUNER ALIGNMENT

The following alignment requires many precision measuring equipments shown in P. No alignment should be performed in the field unless the service man has these 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

1) Set an AM signal generator to 600KHz, 400Hz 30% modulation. Tune the receiver to the same frequency and adjust local oscillator coil L112 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 C183-4 mounted on the tuning capacitor until the dial pointer coincides with the 1400KHz marking on the dial.

3) Repeat procedure 1 and 2 until no further adjustment is necessary between 600KHz and 1400KHz.

4) Set the generator to 600KHz. Tune the receiver to the same frequency and adjust antenna coil L001 in a plastic case for maximum output.

5) Set the generator to 1400KHz. Tune the receiver to the same frequency and adjust antenna trimming capacitor C183-3 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

To align the AM IF amplifier, a sweep generator with 455KHz marker generator combined is necessary.

1) Connect the sweep generator across the AM local oscillator section of the tuning capacitor and common ground, connect an oscilloscope to test point C.

2) Turn each primary and secondary core of IF transformers L113, L114, and L115 for maximum and symmetrical response with the marker pip at the top.

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 rear panel. Connect a VTVM or an oscilloscope across the speaker system terminals.

2) Set the FM signal generator to 90MHz, 400Hz 100% modulation. Tune the receiver to the same frequency and adjust local oscillator coil L104 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 C182 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 90MHz and 106MHz.

4.3.2.FM Tracking Alignment

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

2) Set the FM signal generator to 106MHz. Tune the receiver to the same frequency and adjust trimming capacitors C183-1 and C183-2 for maximum output.

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

4.4.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 test point D and an oscilloscope to test point A. Turn eace primary and secondary core of IF transformers L105, L106, L107 and L108 for maximum and symmetrical response with the marker pip at the top.

4.5.FM Discriminator

Connect an oscilloscope to test point B and turn the primary and the secondary cores of discriminator transformer L109 for straight and symmetrical "S" curve with 10.7MHz marker pip at the center.

More precision adjustment of discriminator requires a distortion meter. To make this precision adjustment, 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 transformer so as to obtain minimum distortion.

4.6.FM Sub-IF Amplifier

To align the sub-IF amplifier, tune the receiver to an FM signal and turn the core of L201 so that the FM tuning meter reads maximum deflection.

4.7.FM Stereo Demoduator

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

Perform the following adjustment in sequence.

1) Set the FM signal generator to 98MHz, 2mV output level. Tune the receiver to the same frequency. Ensure that the stereo switch is depressed for stereo operation

2) Connect an oscilloscope probe to test point G and turn each core of L117, L118 and L119 for maximum 38KHz sub-carrier wave on the scope.

3) Turn the core of L119 again to obtain equal stereo separation in both of the right and left channels.

4) Adjust trimming resistor R175 for maximum and equal stereo separation in both channels.

5 . PHONO AMPLIFIER

A phono signal from the pickup is led to the phono amplifier for the RIAA equalization and pre-amplification. The phono amplifier makes use of two transistors H301 and H303. The collector of H301 is direct coupled to the base of H303 and the base bias for H301 is derived from the emitter circuit of H303. This configuration assures a good thermal and electrical stability. R309, R311, R305, C305 and C307 condition the feedback characteristic from the collector of H303 to the emitter of H301 for precise RIAA equalization. The RIAA equalized and amplified phono signal is led to selector switch S002-1 and S002-2.

6. PRE-AMPLIFIER AND TONE AMPLIFIER

The audio signal selected by the selector switch S002-1 is led to the pre-amplifier through stereo switch S003, tape monitor switch S601-4 and the volume control with loudness control network. The signal is applied through coupling capacitor C401 and resistor R459 to the base of H401 which is an emitter follower to achieve low driving impedance for C-R tone control network. The signal obtained from the emitter of H401 is led to the tone control network through coupling capacitor C403. After bass and treble controlled by the tone control network, the signal is applied to the two stage tone amplifier consisting of H403 and H405. Negative feedback is utilized from the collector of H405 to the emitter of H403 through C409, R413 and R411 to maintain good stability and linearity.

7. MAIN AMPLIFIER

7.1.Circuit Description

7.1.1.Amplifier

The amplified signal obtained from the collector of H405 is applied to the base of H407 via the balance control R017 and Hi and Low filter networks. The output of H407 is applied to the base of H409. H409 provides voltage amplification necessary to drive the driver transistors H411 and H413. These two transistors are operated in a complementary-symmetry configuration with their respective power transistors H001 and H002. The output of H411 is applied to the base of H001, and that of H413 to H002. Combined operation of PNP transistor H413 and NPN transistor H411 with NPN power transistors H001 and H002 provides a single-ended push-pull output. This output is applied to loudspeaker output terminals J003 through coupling capacitor C429 and headphones jack J004. To maintain overall stability and linearity, negative feedback is utilized throughout the amplifier. This feedback is also necessary to reduce distortion to be well under the specified limits.

R437 and R429 condition the feedback loop gain.

7.1.2.Dynamic Bias

Dynamic bias is applied to the bases of driver transistors H411 and H413. H411 and H413 determine the class of operation for the power amplifier transistors H001 and H002, respectively, thus maintaining a constant class of operation by establishing and maintaining proper collector-to-emitter current. This dynamic bias circuit consists of adjusting resistor R457 and temperature sensitive diodes H415, H417, and H419.

The circuit provides a variable base bias for driver transistors H411 and H413 and automatically maintains proper base voltage, bias condition, with temperature change.

7.1.3.Amplifier Protection

Protection for the amplifier is provided by two varistor diodes H421 and H423.

When a grossly overloading input signal is applied across the bases of driver transistors H411 and H413, these varistor diodes effectively clip the excessive voltage and protect the driver and output transistors against damage due to the overloading input signal.

In the other case of output short-circuit, the currents through H001 and H411 increase and it results in an increase of the emitter potential of H411. On the other hand, the base potential has been forced to a fixed value by varistor diode H421. Then the base-emitter biasing of H411 is decreased and the current flows through H411 and H001 are limited in safe operating condition.

7.2.DC Balance and Bias Adjustment of the Main Amplifier

7.2.1.DC Balance Adjustment

Connect an oscilloscope and a dummy load (8 ohms) across the speaker system output terminals for the channel being tested and an audio oscillator (1000Hz) to the AUX jack on the rear panel.

Set the selector switch in the AUX, the bass, treble and balance controls flat or center position, the loudness, hi filter and low filter switches off and the volume control maximum. Turn the bias control resistor R457 fully clockwise. Adjust DC balance control R455 until equal clipping level is obtained for both polarities. Repeat the same procedure for the other channel.

Note : During DC balance adjustment, adjust the output level of the audio oscillator to show the clipping level on the scope precisely.

7.2.2.Bias Adjustment

Give no input signal and connect a VTVM across resistor R447 or R449. Adjust the bias control resistor R457 until the VTVM reads 5mV. Ensure no crossover distortion is observed on the scope with a faint signal input from an audio oscillator. To adjust the other channel, connect the VTVM across resistor R448 or R450 and adjust bias control resistor R458 for the same voltage reading.

Note : PC board P400 on which bias control resistor R457 and R458 are mounted is located in back of the power transistors.

7.3.Suggestions for Trouble Shooting of Power Amplifier

7.3 1.Excessive Line Consumption

1) Check for shorted rectifiers H502, H503, H504, H505, H506, H507 and H508, also check C501, C503 and C507.

2) Check for shorted transistors H411 and H413. Check for open control resistor R457 and bias diodes H415, H417 and H419.

3) Check L003 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 or open transistor, diode, or control resistor is found be sure to check the

remaining driver and output components for short or open circuits before re-energizing the amplifier.

7.3.2.No Line Consumption or Zero Bias

1) Check line cord, over current circuit breaker, and bias diodes H415, H417 and H419.

2) Check for open rectifiers H505, H506, H507 and H508, or open L003

8 . POWER SUPPLY UNIT

The power supply unit provides three different DC outputs of +38V, −11V and −2V.

+38V output is obtained by bridge connected rectifies H505, H506, H507 and H508, and filtering capacitor C503. This source energizes the audio section.

Two rectifiers H503 and H504 are engaged in the rectification for −11V output. This output is well regulated by zener diode H501 and concerns with the tuner section.

The power supply unit has another DC output of −2V for stereo beacon lamp operation.

9 . TEST EQUIPMENTS 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	Distortion 0.3% or less	Signal source for FM Alignment
Audio Oscillator	Residual distortion 0.02% or less	Sine wave source for modulating AM or FM Signal Generator, or trouble shooting
Stereo Modulator	Distortion 0.3% or less	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	AM and FM IF Alignment
8-ohm Resistors	0.5% 50W (non-inductive)	Dummy Load
Line Voltmeter	0……150V AC	To monitor the line voltage
Variable Auto Transformer	0……140V, 10A	To adjust the primary power voltage

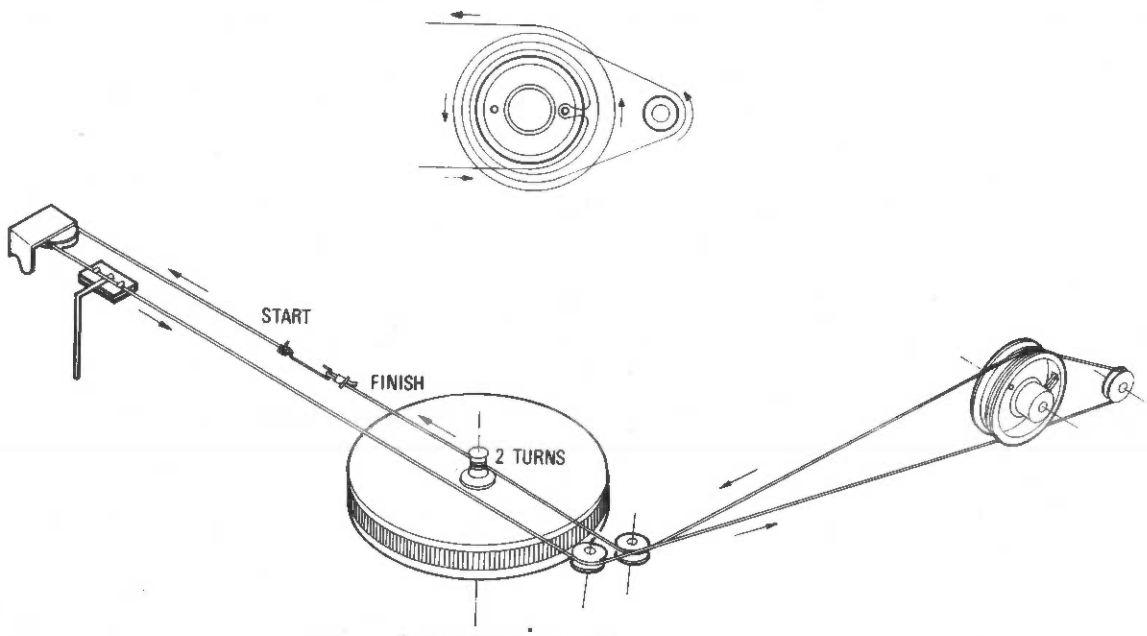


Figure 1 Dial Stringing Diagram

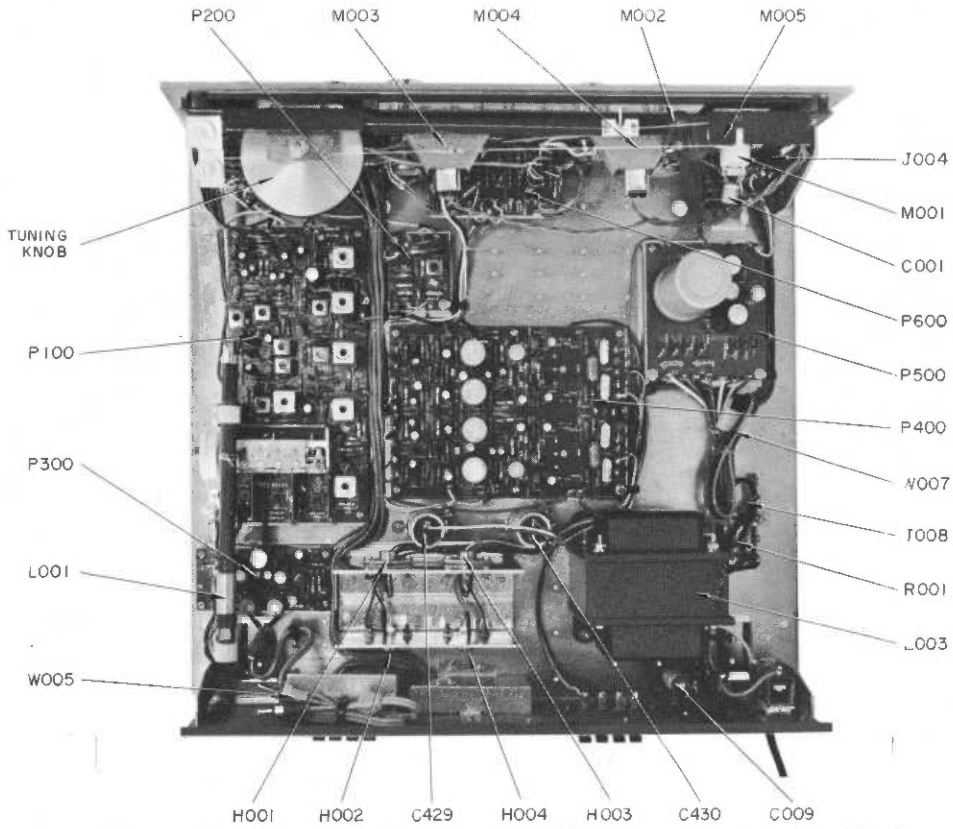


Figure 2 Main Chassis Adjustment and Component Locations (Top)

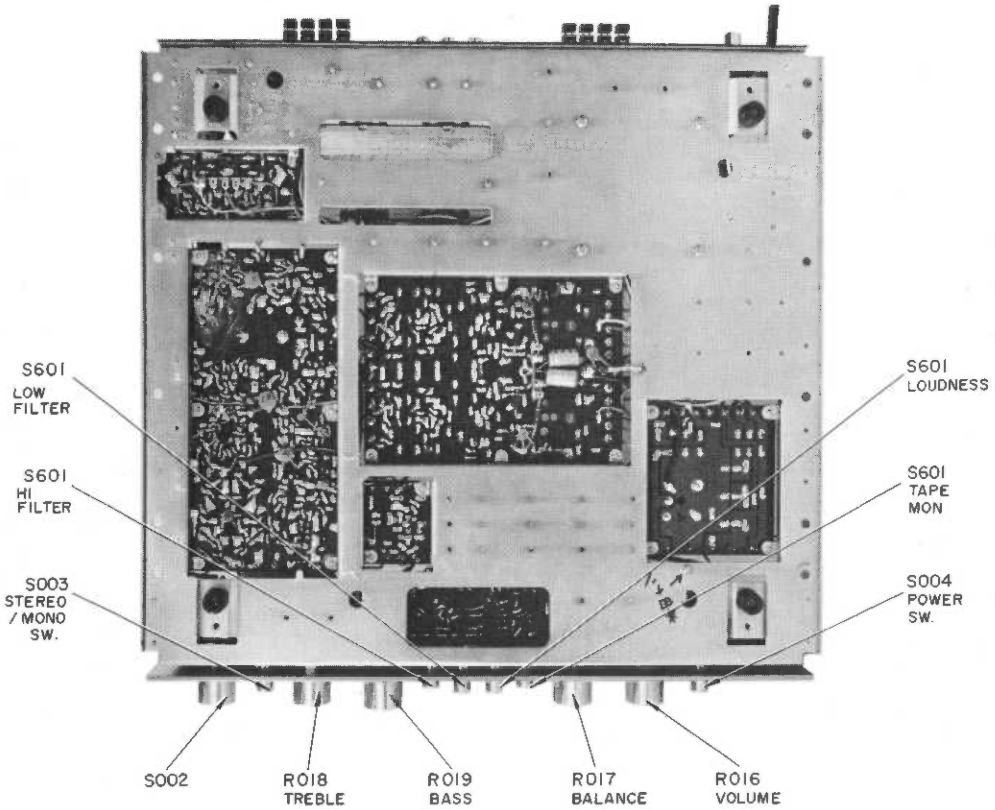


Figure 3 Main Chassis Adjustment and Component Locations (Bottom)

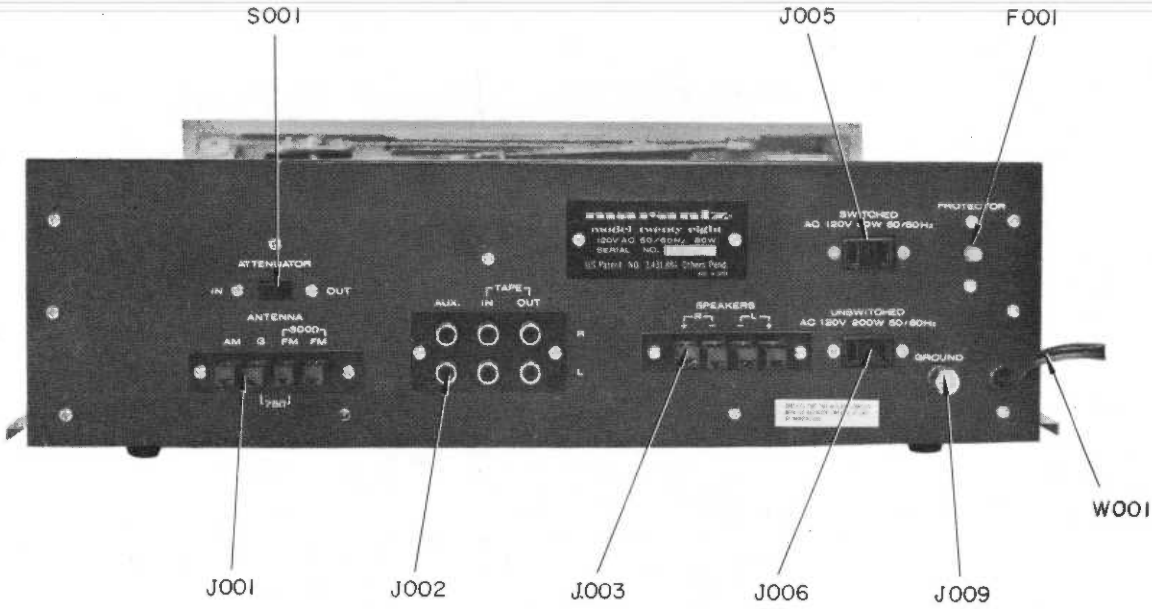


Figure 4 Rear Panel Adjustment and Component Locations

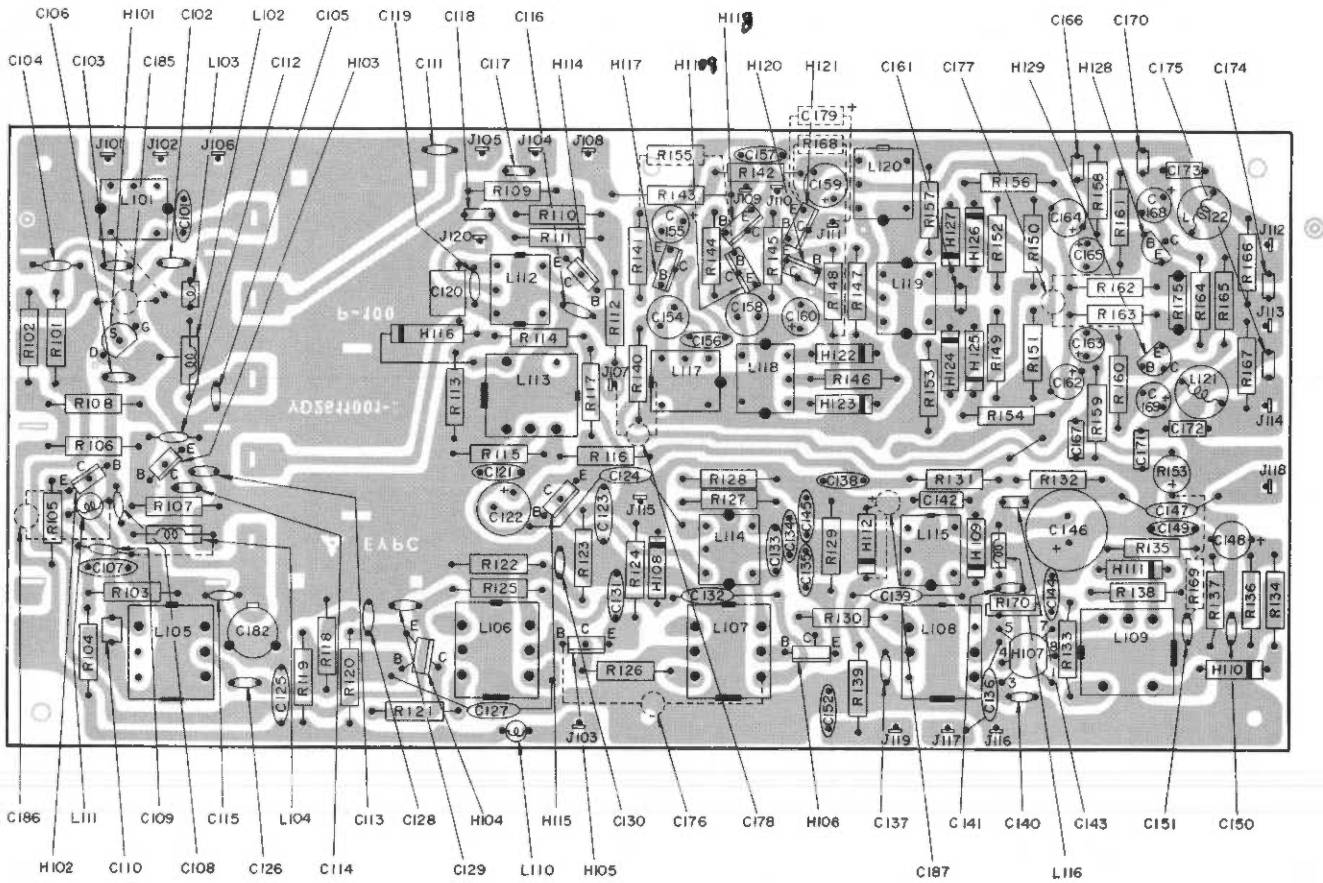


Figure 5 AM/FM/FM MPX Tuner Circuit

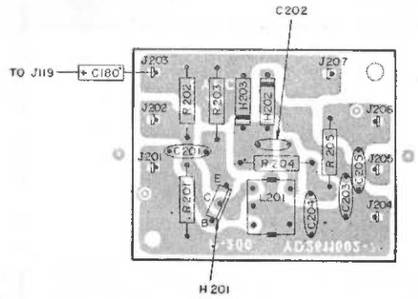


Figure 6 FM Sub IF Amplifier

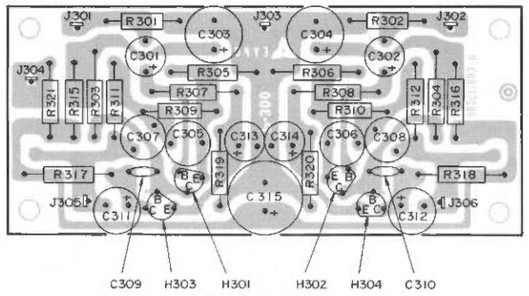


Figure 7 PONO Amplifier

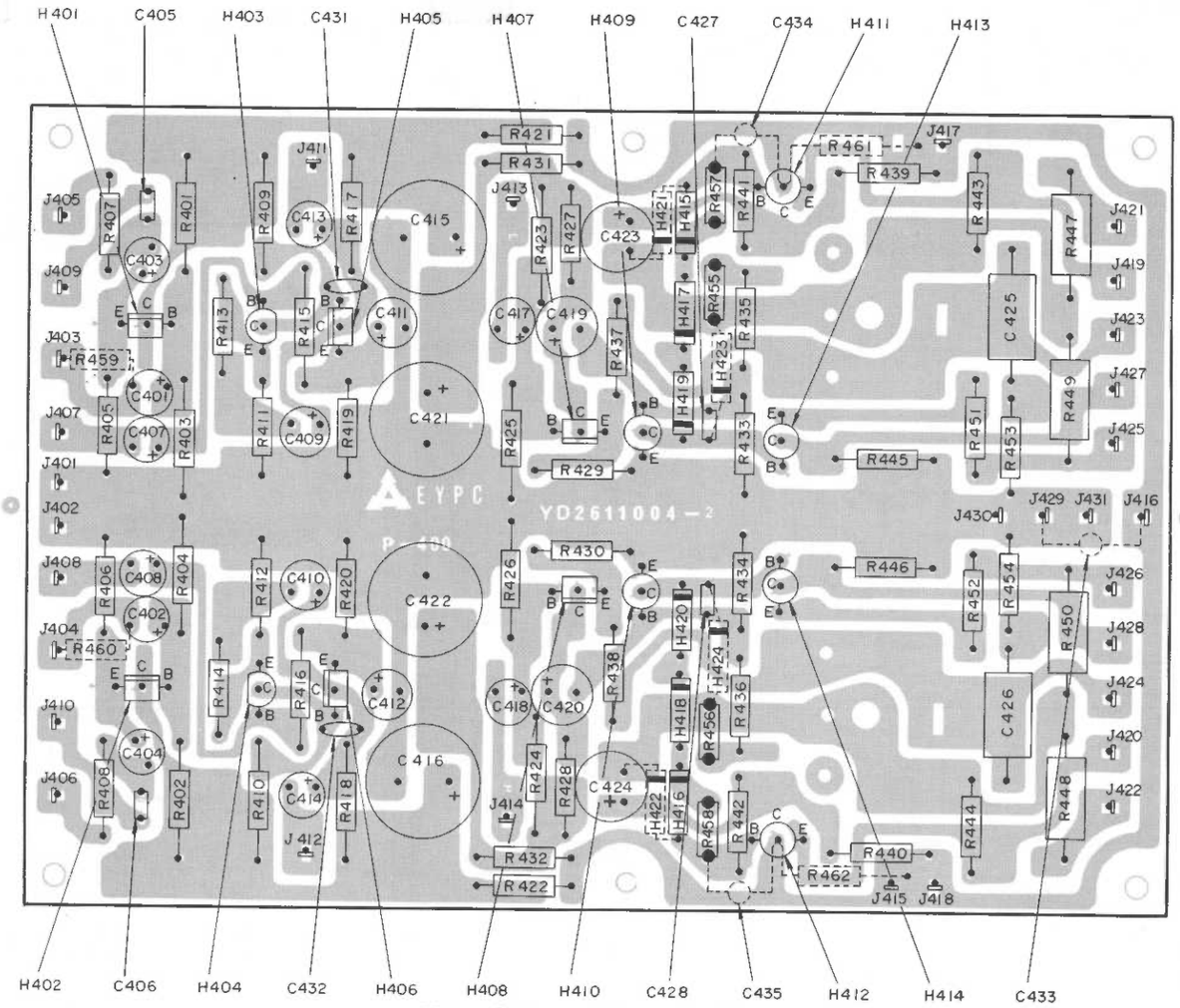


Figure 8 Pre-and Power Amplifier

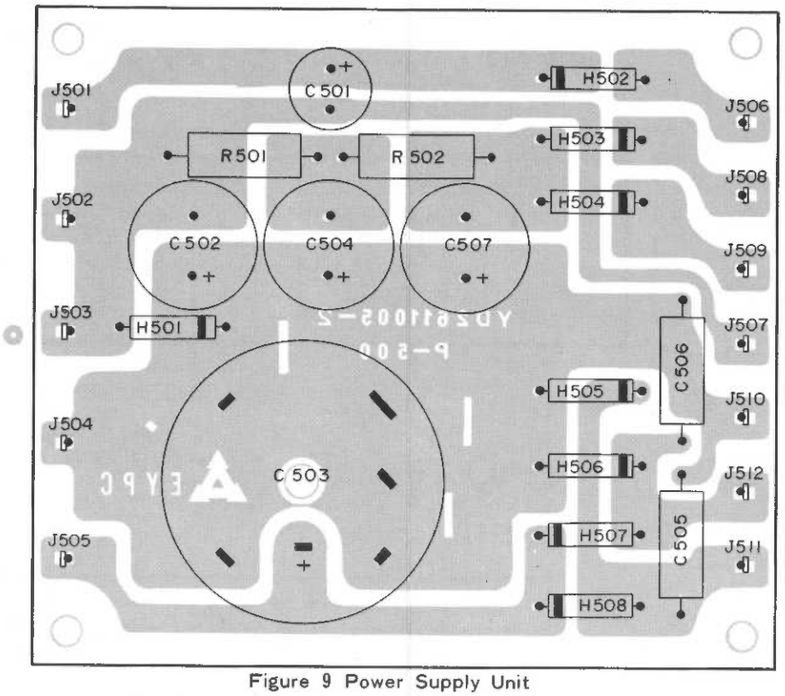


Figure 9 Power Supply Unit

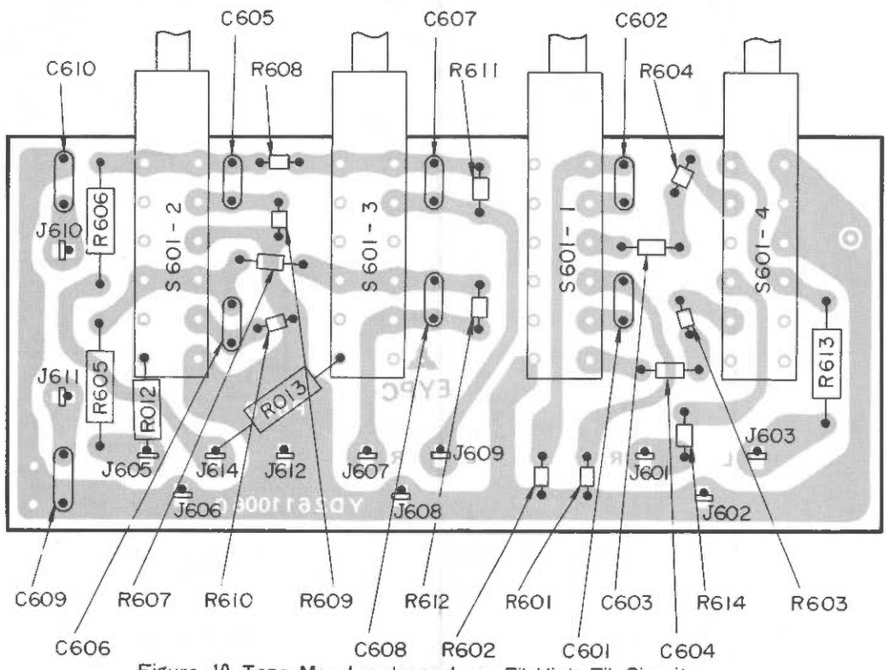
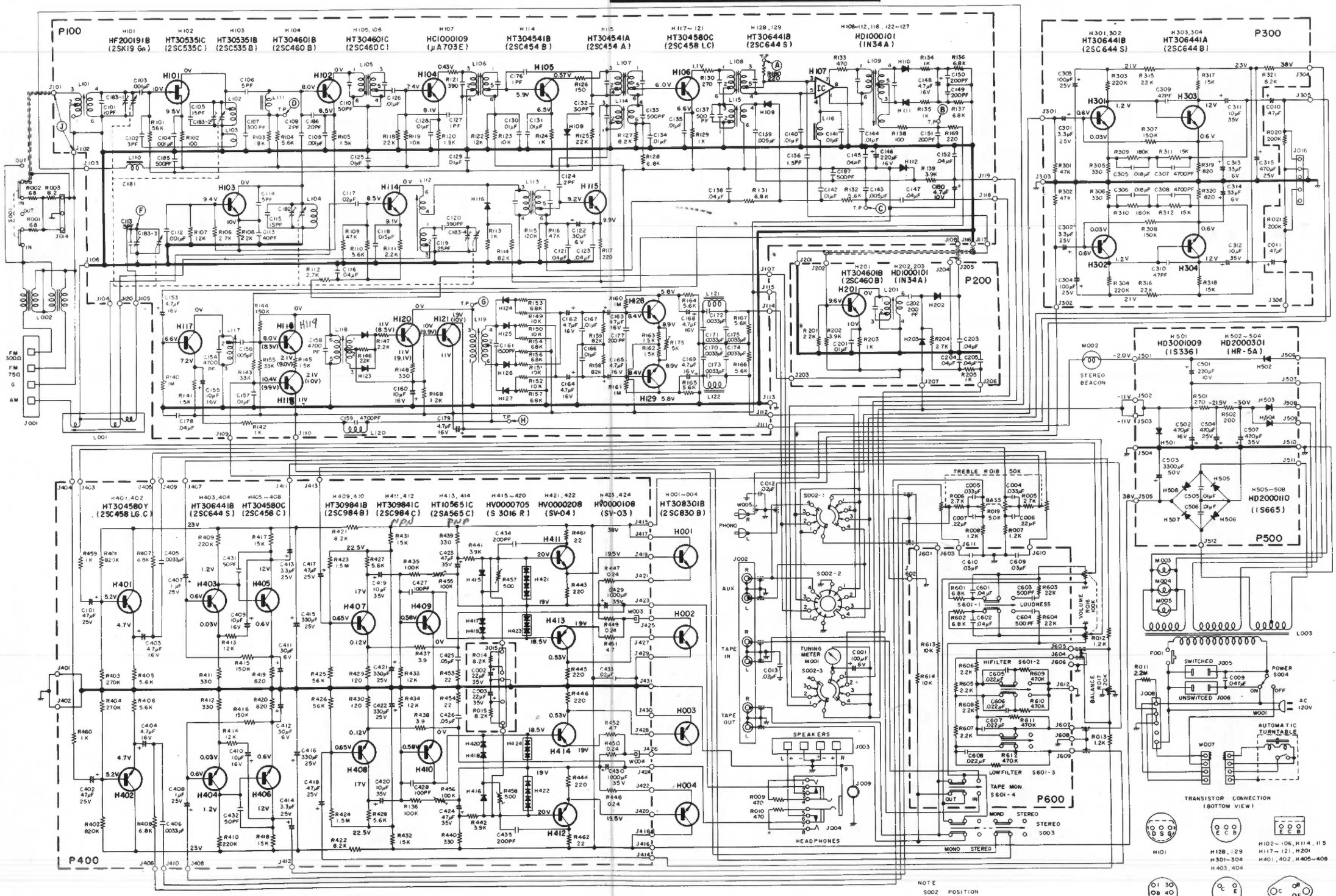


Figure 10 Tape Mon-Loudness-Low Fil-High Fil Circuit



1. Voltages are measured at no signal with DC VTVM from common positive ground.
2. Voltages in parethesiss are values measured at 1KμV FM stereo signal applied. Stereo switch in stereo position.

S002-1 ~ S002-3
ALL SWITCHES VIEWED FROM FRONT AND SHOWN IN EXTREME CLOCKWISE POSITION = 4 AUX

NOTE
S002 POSITION
1. AM
2. FM
3. PHONO
4. AUX

Figure 11 Schematic Diagram of Model 28

PARTS LIST

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
A001	2667063010	Escutcheon
A002	2667265010	Indicator (on Back Plate)
A003	2611103013	Pointer
A004	2577273010	Fly Wheel
A005	2577063022	Escutcheon (upper)
A006	2577063022	Escutcheon (bottom)
A007 -A012	2577067022	Small Knob Cap for Push Button
A013 -A017	2578067010	Large Knob Cap for Push Button
A526	2667064504	Case (K)
A527	2667064014	Case
B401	2667160020	Bracket
B402	2667160020	Bracket
B403	2667160030	Bracket
B404	2667160030	Bracket
D401 -D416	51523109A0	R. H. Wood Screw
D417 -D424	51542710A0	F. H. Wood Screw
A528	2611302012	Dial
A529	2577053012	Stereo Lamp Cover
A530	2577154020	Push Switch Knoab
A531 -A535	2577154020	Push Switch Knob
A541 -A544	2578154010	Large Knob
B003	2667105503	Chassis (K)
B004	2667105013	Chassis
B005	2667101010	Support
B006	2667101010	Support
B007	2667160502	Bracket for Front Panel
B008	2667160092	Bracket
B009	2577101020	Support
B010	2577101020	Support
B011	2577112020	Shaft
B014	2667160010	Bracket, for front Panel
B015	2667160040	Bracket, for right side
B016	2667160050	Bracket, for left side
B017	2667160060	Bracket, for right side
B018	2667160070	Bracket, for left side
B020	2667257010	Bottom Lid
B024	2611005010	Clamper, fitting for meter
B031	2611160510	Bracket kits, fitting for pulley
B032	2611160060	Bracket
B033	2577112020	Shaft
B034	2577112020	Shaft
B038	2611109010	Shield, for Audio Terminal
B039 -B041	2611109020	Shield, for Variable Condenser
B042	2611109030	Shield, for Antenna Terminal
B043	2611267010	Heat Sink
B044	2611267020	Heat Sink
B045	2611055010	Collar, for VR
B046	2611055020	Collar, for VR
B047	2611055020	Collar, for fitting with ornamental plate
B048	2611055020	Collar, for fitting with ornamental plate
B051	2577160170	Bracket, for circuit breaker
B052	2577112012	Shaft , for Flywheel
B055	2577106500	Bearing kits, flywheel bearing
B056	2577104010	Retainer
B057	2577106010	Bearing
B060	2577104020	Retainer, for Core
B061	2577104020	Retainer, for Core
B063	71400219Q0	Spring, for Stereo Lamp
B064	71101239M0	Spring, for Dial Stringing
B071	2597160500	Bracket (K), for Dial Stringing
B072	2597160030	Bracket, for Dial Stringing
B073	2597160040	Bracket, for Dial Stringing
B074	2597112010	Shaft, for Dial Stringing
B075	1336112010	Shaft, for Dial Stringing
B078	1202258010	Hook, for Dial Stringing
B081 -B090	1382005030	Clamper, for Lead
B094	2611118010	Spacer
B095	2611118010	Spacer
B501	2667053010	Cover, for damage proof
B505	2577106020	Bearing
B506	2577053030	Cover, for Knob
B507	2577053042	Cover, for Dial Lamp
B508	2577053042	Cover, for Dial Lamp
B510	2577118030	Cover
B511	2577118040	Cover, for Fly Wheel
B512	2577118050	Cover, for Meter
B513	2577159020	Drum
B514	2577262010	Pully
B515	2577262010	Pully
B516	2577262010	Pully
B517	1271262010	Pully, for Tension
B518 -B520	2577118030	Spacer
B521 -B524	2506057010	Leg
B525	2507120010	Insulator
B526	2507120010	Insulator
B528	1455259010	Bush for AC Cord
B529	1415118010	Spacer
B530	72081604A0	String
B531	1502271010	Holder, for Core
B532	1502271010	Holder, for Core
B533	1785271010	Holder, for Lead
B534	2578259020	Bush, for Stereo Lamp Cover
B535	2706118010	Spacer
D001 -D020	51570305B0	P. H. Tapt Screw
D023 -D032	51570305B0	P. H. Tapt Screw
D041 -D063	51570305B0	P. H. Tapt Screw
D066 -D069	51570308B0	P. H. Tapt Screw
D071 -D074	51042608E0	F. H. M. Screw
D081 -D111	51060305E9	P. H. M. Screw
D121	51060305E9	P. H. M. Screw, for Slide Switch
D122	51060305E9	P. H. M. Screw, for Slide Switch
D123	51060312E9	P. H. M. Serew, for Power Transistor
D131 -D146	51060406E9	P. H. M. Screw
D150 -D156	51060408E9	P. H. M. Screw
D161 -D164	51060410E9	P. H. M. Screw

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
D168 -D175	51140305E9	O. C. H. M. Screw
D176 -D177	53110303E9	Hexagon Nut
D178 -D181	53112603E0	Hexagon Nut
D183 -D187	53110403E9	Hexagon Nut
D188 -D195	53110303E9	Hexagon Nut
D201	51122608H0	T. H. M. Screw
D202	51122608H0	T. H. M. Screw
D203	54050300R0	T. L. Washer OR
D204	54040602B0	Spring Washer
D205 -D208	54052600R0	T. L. Washer OR
D209	54050300R0	T. L. Washer
D210	54050400R0	T. L. Washer OR
D211 -D213	54020301E0	Flat Washer P
D214 -D222	54040402N0	Spring Wasar
D223 -D227	62031340W0	Lug
D228 -D235	54010300E0	Flat Washer S
D241	62041760W0	Lug
D244 -D251	54040302N	Spring Washer
D252 -D255	64002400R0	RG Ring E
D256	56382040G	Eylet
D257 -D260	54020301E0	Flat Washer P
D261 -D272	54020401E0	Flat Washer P
D273	51640412D9	Set Screw CP
D274	51650304D9	Set Screw HP
P100	YD26110012	FM/AM/MPX Front End, PC Board
R101	RT10563140	56K ohm ±10% 1/4W, Carbon Film
R102	RT10101140	100 ohm ±10% 1/4W, Carbon Film
R103	RT10183140	18K ohm ±10% 1/4W, Carbon Film
R104	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R105	RT10152140	1.5K ohm ±10% 1/4W, Carbon Film
R106	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
R107	RT10123140	12K ohm ±10% 1/4W, Carbon Film
R108	RT10222140	2.2K ohm ±10% 1/4W, Carbon Film
R109	RT10473140	47K ohm ±10% 1/4W, Carbon Film
R110	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R111	RT10222140	2.2K ohm ±10% 1/4W, Carbon Film
R112	RT10272140	2.7K ohm ±10% 1/4W, Carbon Film
R113	RT10102140	1K ohm ±10% 1/4W, Carbon Film
R114	RT10823140	82K ohm ±10% 1/4W, Carbon Film
R115	RT10124140	120K ohm ±10% 1/4W, Carbon Film
R116	RT10472140	4.7K ohm ±10% 1/4W, Carbon Film
R117	RT10221140	220 ohm ±10% 1/4W, Carbon Film
R118	RT10223140	22K ohm ±10% 1/4W, Carbon Film
R119	RT10103140	10K ohm ±10% 1/4W, Carbon Film
R120	RT10152140	1.5K ohm ±10% 1/4W, Carbon Film
R121	RT10391140	390 ohm ±10% 1/4W, Carbon Film
R122	RT10123140	12K ohm ±10% 1/4W, Carbon Film
R123	RT10103140	10K ohm ±10% 1/4W, Carbon Film
R124	RT10102140	1K ohm ±10% 1/4W, Carbon Film

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R125	RT10223140	22K ohm ±10% 1/4W, Carbon Film
R126	RT10151140	150 ohm ±10% 1/4W, Carbon Film
R127	RT10822140	8.2K ohm ±10% 1/4W, Carbon Film
R128	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R129	RT10102140	1K ohm ±10% 1/4W. Carbon Film
R130	RT10271140	270 ohm ±10% 1/4W, Carbon Film
R131	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R132	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R133	RT10471140	470 ohm ±10% 1/4W, Carbon Film
R134	RT10102140	1KΩ ±10% 1/4W, Carbon Film
R135	RT10102140	1KΩ ±10% 1/4W, Carbon Film
R136	RT10682140	6.8KΩ ±10% 1/4W, Carbon Film
R137	RT10682140	6.8KΩ ±10% 1/4W, Carbon Film
R138	RT10101140	100Ω ±10% 1/4W, Carbon Film
R139	RT10392140	3.9K ohm ±10% 1/4W, Carbon Film
R140	RT10105140	1MΩ ±10% 1/4W, Carbon Film
R141	RT10152140	1.5KΩ ±10% 1/4W, Carbon Film
R142	RT10102140	1KΩ ±10% 1/4W, Carbon Eilm
R143	RT10333140	33KΩ ±10% 1/4W, Carbon Film
R144	RT10154140	150 ohm ±10% 1/4W, Carbon Film
R145	RT10152140	1.5KΩ ±10% 1/4W, Carbon Film
R146	RT10223140	22KΩ ±10% 1/4W, Carbon Film
R147	RT10222140	2.2KΩ ±10% 1/4W, Carbon Film
R148	RT10331140	330Ω ±10% 1/4W, Carbon Film
R149	RT10103140	10KΩ ±10% 1/4W, Carbon Film
R150	RT10103140	10KΩ ±10% 1/4W, Carbon Film
R151	RT10103140	10KΩ ±10% 1/4W, Carbon Film
R152	RT10103140	10KΩ ±10% 1/4W, Carbon Film
R153	RT10683140	68KΩ ±10% 1/4W, Carbon Film
R154	RT10683140	68KΩ ±10% 1/4W, Carbon Film
R155	RT10333140	33 K ohm ±10% 1/4W, Resistor
R156	RT10683140	68K ohm ±10% 1/4W, Carbon Film
R157	RT10683140	68K ohm ±10% 1/4W, Carbon Film
R158	RT10823140	82K ohm ±10% 1/4W, Carbon Film
R159	RT10823140	82K ohm ±10% 1/4W, Carbon Film
R160	RT10105140	1M ohm ±10% 1/4W, Carbon Film
R161	RT10105140	1M ohm ±10% 1/4W, Carbon Film
R162	RT10152140	1.5K ohm ±10% 1/4W, Carbon Film
R163	RT10152140	1.5K ohm ±10% 1/4W, Carbon Film
R164	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R165	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R166	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R167	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R168	RT10122240	1.2K onm ±10% 1/4W. Carbon Film
R169	RT10221140	220 ohm ±10% 1/4W, Carbon Film
R170	RC10221120	220 ohm ±10% 1/2W, Carbon Film
R171	RT10102140	1K ohm ±10% 1/4W, Corbon Film
R175	RA05020050	5K ohm (B) ±20% Trimmer
C101	DD12100010	10pF ±1pF, Ceramic
C102	DD12030010	3pF ±1pF, Ceramic
C103	DK17102010	0.001uF ±20%, Ceramic
C104	DK17102010	0.001uF ±20% Ceramic
C105	DD16150010	15pF ±10% Ceramic
C106	DD12050010	5pF ±1pF, Ceramic
C107	DD15301012	300pF ±5%, Ceramic
C108	DD11020040	2pF ±0.5pF, Ceramic
C109	DK17102010	0.001uF ±20%, Ceramic
C110	DD25500010	50pF ±5%, Ceramic
C111	DD12050010	5pF ±1PF, Ceramic
C112	DK17102010	0.001uF ±20%, Ceramic
C113	DD15400040	40pF ±5%, Ceramic
C114	DD12070030	7pF ±10%, Ceramic
C115	DD16150040	15pF ±10%, Ceramic

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C116	DK18403010	0.04uF +100% −0%, Ceramic
C117	DF17223010	0.02uF +20%, Myler
C118	DF17153010	0.05uF ±20%, Ceramic
C119	DD16250010	25pF ±10%, Ceramic
C120	DF65391010	390pF ±5%, Poly
C121	DK18403020	0.04uF +100% −0%, Ceramic
C122	EA33600610	6V 30uF +100% −20%, Elect.
C123	DK18403010	0.04uF +100% −0%, Ceramic
C124	DD11020010	2pF ±0.25pF, Ceramic
C125	DK17103010	0.01uF ±20%, Ceramic
C126	DK17103010	0.01uF ±20%, Ceramic
C127	DD10010010	1pF ±0.25%, Ceramic
C128	DK17103010	0.01uF ±20%Ceramic
C129	DK17103010	0.01uF ±20%, Ceramic
C130	DK17103010	0.01uF ±20%, Ceramic
C131	DK17103010	0.01uF ±20%, Ceramic
C132	DD16300010	30pF ±10%, Ceramic
C133	DD16501010	500pF ±10%, Ceramic
C134	DK17103010	0.01uF ±20%, Ceramic
C135	DK17103010	0.01uF ±20%, Ceramic
C136	DD10015010	1.5pF ±0.25pF, Ceramic
C137	DD15301010	300pF ±5%, Ceramic
C138	DK18403010	0.04uF +100% −0%, Ceramic
C139	DK17502010	0.005uF ±20%, Ceramic
C140	DK17103010	0.01uF ±20%, Ceramic
C141	DK17103010	0.01uF ±20%, Ceramic
C142	DF17103010	0.01uF ±20%, Myler
C143	DF17472010	0.005uF ±20%, Myler
C144	DK17103010	0.01uF ±20%, Ceramic
C145	DK18403010	0.04uF +100% −0%, Ceramic
C146	EA22701640	16V 220uF +100% −20%, Elect.
C147	DK18403010	0.04uF +100% −20%, Ceramic
C148	EA47501620	16V 4.7uF, Elect.
C149	DD16201010	200pF ±20%, Ceramic.
C150	DD16201010	200pF ±20%, Ceramic
C151	DD16201010	0.04uF +100% −20%, Ceramic
C152	DK18403010	0.04uF +100% −20%, Ceramic
C153	EA47501620	16V 4.7uF, Elect.
C154	DF55472010	4700pF ±5%, Poly
C155	EA10601620	16V 10uF, Elect.
C156	DK17502010	0.005uF ±20%, Ceramic
C157	DK17103010	0.01uF ±20%, Ceramic
C158	DF55472010	4700pF ±5%, Poly
C159	DF55472010	4700pF ±5%, Poly
C160	EA10601620	16V 10uF, Elect
C161	DF16152010	1500pF ±10%, Myler
C162	EA47501620	16V 4.7uF, Myler
C163	EA47501620	16V 4.7uF, Myler
C164	EA47501620	16V 4.7uF, Myler
C165	EA47501620	16V 4.7uF, Myler
C166	DF17103010	0.01uF ±20%, Myler
C167	DF17103010	0.01uF ±20%, Myler
C168	EA47501610	16V 4.7uF, Elect.
C169	EA47501610	16V 4.7uF, Elect.
C170	DF16332010	0.0033uF ±10%, Myler
C171	DF16332010	0.0033uF ±10%, Myler
C172	DF16332010	0.0033uF ±10%, Myler
C173	DF16332010	0.0033uF ±10%, Mzler
C174	DF16332010	0.0033uF ±10%, Myler
C175	DF16332010	0.0033uF ±10%, Myler
C176	DD10010020	1pF ±0.25pF Ceramic
C177	DD16201010	200pF ±20% Ceramic
C178	DK18403010	0.04uF +100% −0%
C179	EA47501610	4.7uF 16V Elect
C180	ED47501030	4.7uF 10V Elect
C181	CA32000100	FM3G AM2G, Variable
C182	CT11000010	Trimmer
C183	CT41300010	Trimmer
C185	DD16501010	500pF ±10% Ceramic
C186	DD16200030	20pF ±10% Ceramic
C187	DD16501010	500pF ±10% Ceramic
H101	HF200191B0	2SK19GN, FET,
H102	HT305351C0	2SC535C, Transistor
H103	HT305351B0	2SC535B, Transistor
H104	HT304601B0	2SC460B, Transistor
H105	HT304601C0	2SC460C, Transistor
H106	HT304601C0	2SC460C, Transistor
H107	HC10001090	IC 703E, 1·C
H108	HD10001010	IN34A, Diode
H109	HD10001010	IN34A, Diode
H110	HD10001010	IN34A, Diode
H111	HD10001010	IN34A, Diode
H112	HD10001010	IN34A, Diode
H114	HT304540B0	2SC454L, B, Transistor
H115	HT304540A0	2SC454L, A, Transistor
H116	HD10001010	IN34A, Diode
H117	HT304580C0	2SC458L-C, Transistor
H118	HT304580C0	2SC458L-C, Transistor
H119	HT304580C0	2SC458L-C, Transistor
H120	HT304580C0	2SC458L-C, Transistor
H121	HT304580C0	2SC458L-C, Transistor
H122	HD10001010	IN34A, Diode
H123	HD10001010	IN34A, Diode
H124	HD10001010	IN34A, Diode
H125	HD10001010	IN34A, Diode
H126	HD10001010	IN34A, Diode
H127	HD10001010	IN34A, Diode
H128	HT306441B0	2SC644S, Transistor
H129	HT306441B0	2SC644S, Transistor
L101	LA10046060	Ant. Coil, FM Ant. Coil
L102	LK10505060	Coil, FM RF Coil
L103	LL23505050	Coil, FM RF Coil
L104	LK10504040	Coil, FM OSC Coil
L105	LI14016150	IFT, FM IFT 1
L106	LI14016170	IFT, FM IFT 2
L107	LI14016170	IFT, FM IFT 3
L108	LI14016180	IFT, FM IFT 4
L109	LI14016043	IFT, FM IFT 5
L110	LC16820010	6.3uH, Choke Coil
L111	LC16810010	0.68uH, Choke Coil
L112	LO10010340	OSC Coil, AM OSC Coil
L113	LI14010020	IFT, AM IFT 1
L114	LI10010120	IFT, AM IFT 2
L115	LI10010480	IFT, AM IFT 3
L116	LC16820010	Choke Coil, 6.8uH
L117	LS10010010	19KHz, MPX Coil
L118	LS10010020	19KHz, Douable, MPX Coil
L119	LS10010030	38KHz, MPX Coil
L120	LS10010050	67KHz, MPX Coil
L121	LC22260010	22MH, Choke Coil
L122	LC22260010	22MH, Choke Coil
J101	YP10000360	Plug
J102	YP10000360	Plug
J103	YP10000360	Plug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
J104	YP10000360	Plug
J105	YP10000360	Plug
J106	YP10000360	Plug
J107	YP10000360	Plug
J108	YP10000360	Plug
J109	YP10000360	Plug
J110	YP10000360	Plug
J111	YP10000360	Plug
J112	YP10000360	Plug
J113	YP10000360	Plug
J114	YP10000360	Plug
J115	YP10000360	Plug
J116	YP10000360	Plug
J117	YP10000360	Plug
J118	YP10000360	Plug
J119	YP10000360	Plug
J120	YP10000360	Plug
P200	YD26110022	Meter Amp., PC Board
H201	HT304601B0	2SC460B, Transistor
H202	HD10001010	IN34A, Diode
H203	HD10001010	IN34A, Diode
L201	LI10156060	10.7MHz Amp., IFT
R201	RT10223140	22K ohm ±10%, Carbon Film
R202	RT10392140	3.9K ohm ±10%, Carbon Film
R203	RT10102140	1K ohm ±10%, Carbon Film
R204	RT10272140	2.7K ohm ±10%, Carbon Film
R205	RT10102140	1K ohm ±10%, Carbon Film
C201	DK17103010	0.01uF +20%, Ceramic
C202	DD16201010	200pF ±20%, Ceramic
C203	DK18403010	0.04uF +100% −0%, Ceramic
C204	DK18403010	0.04uF +100% −0%, Ceramic
C205	DK18403010	0.04uF +100% −0%, Ceramic
J201	YP10000360	Plug
J202	YP10000360	Plug
J203	YP10000360	Plug
J204	YP10000360	Plug
J205	YP10000360	Plug
J206	YP10000360	Plug
J207	YP10000360	Plug
P300	YD26110030	PC Board, Phono Amp.
R301	RT10473140	47K ohm ±10% 1/4W, Carbon Film
R302	RT10473140	47K ohm ±10%, 1/4W, Carbon Film
R303	RN10224140	220K ohm ±10% 1/4W, Carbon Film
R304	RN10224140	220K ohm ±10% 1/4W, Carbon Film
R305	RT10331140	330 ohm ±10% 1/4W, Carbon Film
R306	RT10331140	330 ohm ±10%, 1/4W, Carbon Film
R307	RN10154140	150K ohm ±10% 1/4W, Carbon Film
R308	RN10154140	150K ohm ±10% 1/4W, Carbon Film
R309	GT05184120	180K ohm ±5% 1/2W, Carbon Film
R310	GT05184120	180K ohm ±5% 1/2W, Carbon Film
R311	GT05153120	15K ohm ±5% 1/2W, Carbon Film
R312	GT05153120	15K ohm ±5% 1/2W, Carbon Eilm
R315	RT10223140	22K ohm ±10% 1/4W, Carbon Film
R316	RT10223140	22K ohm ±10% 1/4W, Carbon Film
R317	RN10153140	15K ohm ±10% 1/4W, Carbon Film
R318	RN10153140	15K ohm ±10% 1/4W, Carbon Film
R319	RT10821140	820 ohm ±10% 1/4W, Carbon Film
R320	RT10821140	820 ohm ±10% 1/4W, Carbon Film
R321	RT10822140	8.2K ohm ±10% 1/4W, Carbon Film
C301	EV33502510	3.3uF 25V, Elect.
C302	EV33502510	3.3uF 25V, Elect.
C303	EA10702520	100uF 25V, Elect.
C304	EA10702520	100uF 25V, Elect.
C305	DF75183010	0.018uF ±5% 50V, Poly
C306	DF75183010	0.018uF ±5% 50V, Poly
C307	DF55472010	4700pF ±5% 50V, Poly
C308	DF55472010	4700pF ±5% 50V, Poly
C309	DD16470010	47pF ±10%, Ceramic
C310	DD16470010	47pF ±10%, Ceramic
C311	EA10603510	10uF 35V, Elect.
C312	EA10603510	10uF 35V, Elect.
C313	EA33600610	33uF 6V, Elect.
C314	EA33600610	33uF 6V, Elect.
C315	EA47702520	470uF 25V, Elect.
J301	YP10000360	Plug
J302	YP10000360	Plug
J303	YP 10000360	Plug
J304	YP10000360	Plug
J305	YP10000360	Plug
J306	YP10000360	Plug
H301	HT306441B0	2SC644 (S), Transistor
H302	HT306441B0	2SC644 (S), Transistor
H303	HT306441A0	2SC644 (R), Transistor
H304	HT306441A0	2SC644 (R), Transistor
P400	YD26110042	PC Board
R401	RN10824140	820K ohm ±10% 1/4W, Carbon Film
R402	RN10824140	820K ohm ±10% 1/4W, Carbon Film
R403	RN10274140	270K ohm ±10% 1/4W, Carbon Film
R404	RN10274140	270K ohm ±10% 1/4W, Carbon Film
R405	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R406	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R407	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R408	RT10682140	6.8K ohm ±10% 1/4W, Carbon Film
R409	RN10224140	220K ohm ±10% 1/4W, Carbon Film
R410	RN10224140	220K ohm ±10% 1/4W, Carbon Film
R411	RT05331140	330 ohm ± 5% 1/4W, Carbon Film
R412	RT05331140	330 ohm ± 5% 1/4W, Carbon Film
R413	RT05123140	12K ohm ± 5% 1/4W, Carbon Film
R414	RT05123140	12K ohm ± 5% 1/4W, Carbon Film
R415	RN10154140	150K ohm ±10% 1/4W, Carbon Film
R416	RN10154140	150K ohm ±10% 1/4W, Carbon Film
R417	RN10153140	15K ohm ±10% 1/4W, Carbon Film
R418	RN10153140	15K ohm ±10% 1/4W, Carbon Film
R419	RT10821140	820 ohm ±10% 1/4W, Carbon Film
R420	RT10821140	820 ohm ±10% 1/4W, Carbon Film
R421	RT10822140	8.2K ohm ±10% 1/4W, Carbon Film
R422	RT10822140	8.2K ohm ±10% 1/4W, Carbon Film
R423	RN10155140	1.5M ohm ±10% 1/4W, Carbon Film
R424	RN10155140	1.5M ohm ±10% 1/4W, Carbon Film
R425	RN10563140	56K ohm ±10% 1/4W, Carbon Film
R426	RN10563140	56K ohm ±10% 1/4W, Carbon Film
R427	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R428	RT10562140	5.6K ohm ±10% 1/4W, Carbon Film
R429	RT00121140	120 ohm ± 5% 1/4W, Carbon Film
R430	RT00121140	120 ohm ± 5% 1/4W, Carbon Film
R431	RT10153140	15K ohm ±10% 1/4W, Carbon Film
R432	RT10153140	15K ohm ±10% 1/4W, Carbon Film
R433	RT10123140	12K ohm ±10% 1/4W, Carbon Film
R434	RT10123140	12K ohm ±10% 1/4W, Carbon Film
R435	RT10104140	100K ohm ±10% 1/4W, Carbon Film
R436	RT10104140	100K ohm ±10% 1/4W, Carbon Film
R437	RT10392140	3.9 ohm ±10% 1/4W, Carbon Film
R438	RT10392140	3.9 ohm ±10% 1/4W, Carbon Film
R439	RC10331120	330 ohm ±10% 1/2W, Solid

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R440	RC10331120	330 ohm ±10% 1/2W, Solid
R441	RC10392120	3.9K ohm ±10% 1/2W, Solid
R442	RC10392120	3.9K ohm ±10% 1/2W, Solid
R443	RC10221120	220 ohm ±10% 1/2W, Solid
R444	RC10221120	220 ohm ±10% 1/2W, Solid
R445	RC10221120	220 ohm ±10% 1/2W, Solid
R446	RC10221120	220 ohm ±10% 1/2W, Solid
R447	GW10242020	0.24 ohm ±10% 2W, Solid
R448	GW10242020	0.24 ohm ±10% 2W, Solid
R449	GW10242020	0.24 ohm ±10% 2W, Solid
R450	GW10242020	0.24 ohm ±10% 2W, Solid
R451	RC10047120	4.7 ohm ±10% 1/2W, Solid
R452	RC10047120	4.7 ohm ±10% 1/2W, Solid
R453	RC10220120	22 ohm ±10% 1/2W, Solid
R454	RC10220120	22 ohm ±10% 1/2W, Solid
R455	RA01040060	100K ohm, Trimmer
R456	RA01040060	100K,ohm, Trimmer
R457	RA05010010	500 ohm ±30%, Trimmer
R458	RA05010010	500 ohm ±30%, Trimmer
R459	RT10102140	1K ohm ±10% 1/4W, Resistor
R460	RT10102140	1K ohm ±10% 1/4W, Resistor
R461	RC10220120	22 ohm ±10% 1/2W, Resistor
R462	RC10220120	22 ohm ±10% 1/2W, Resistor
C401	EV47402510	.47uF 25V, Elect.
C402	EV47402510	.47uF 25V, Elect.
C403	EA47501620	4.7uF 16V, Elect.
C404	EA47501620	4.7uF 16V, Elect.
C405	DF17332010	0.0033uF ±20%, Myler
C406	DF17332010	0.0033uF ±20%, Myler
C407	EV10502510	1uF 25V, Elect.
C408	EV10502510	1uF 25V, Elect.
C409	EA10601620	10uF 16V, Elect.
C410	EA10601620	10uF 16V, Elect.
C411	EA33600610	30uF 6V, Elect.
C412	EA33600610	30uF 6V, Elect.
C413	EV33502510	3.3uF 25V, Elect.
C414	EV33502510	3.3uF 25V, Elect.
C415	EA33702510	330uF 25V, Elect.
C416	EA33702510	330uF 25V, Elect.
C417	EV47402510	.47uF 25V, Elect.
C418	EV47402510	.47uF 25V, Elect.
C419	EA10603510	10uF 35V, Elect.
C420	EA10603510	10uF 35V, Elect.
C421	EA33702510	330uF 25V, Elect.
C422	EA33702510	330uF 25V, Elect.
C423	EA47603520	47uF 35V, Elect.
C424	EA47603520	47uF 35V, Elect.
C425	DG07503500	0.5uF ±20%, MP
C426	DG07503500	0.5uF ±20%, MP
C427	DF36101010	100pF ±10%, Mica
C428	DF36101010	100pF ±10%, Mica
C429	EC10803510	1000uF 35V, Elect.
C430	EC10803510	1000uF 35V, Elect.
C431	DD16500010	50pF ±10%, Ceramic
C432	DD16500010	50pF ±10%, Ceramic
C433	DK18203010	0.02uF +100% −20% Ceremic
C434	DD16201010	200pF ±10% Ceramic
C435	DD16201010	200pF ±10% Ceramic
J401	YP10000360	Plug
J402	YP10000360	Plug
J403	YP10000360	Plug
J404	YP10000360	Plug

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
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
J417	YP10000360	Plug
J418	YP10000360	Plug
J419	YP10000360	Plug
J420	YP10000360	Plug
J421	YP10000360	Plug
J422	YP10000360	Plug
J423	YP10000360	Plug
J424	YP10000360	Plug
J425	YP10000360	Plug
J426	YP10000360	Plug
J427	YP10000360	Plug
J428	YP10000360	Plug
J429	YP 10000360	Plug
J430	YP10000360	Plug
J431	YP10000360	Plug
W003	YW26670110	Wiring material
W004	YW26670120	Wiring material
H401	HT304580Y0	2SC458LGC, Transistor
H402	HT304580Y0	2SC458LGC, Transistor
H403	HT306441B0	2SC644(S), Transistor
H404	RT306441B0	2SC644(S), Transistor
H405	HT304580C0	2SC458LC, Transistor
H406	HT304580C0	2SC458LC, Transistor
H407	HT304580C0	2SC458LC, Transistor
H408	HT304580C0	2SC458LC, Transistor
H409	HT309841B0	2SC984(B), Transistor
H410	HT309841B0	2SC984(B), Transistor
※H411	HT309841C0	2SC984(C), Transistor
※H412	HT309841C0	2SC984(C), Transistor
※H413	HT105651C0	2SA565(C), Transistor
※H414	HT105651C0	2SA565(C), Transistor
H415	HV00007050	S3016(R), Varistor
H416	HV00007050	S3016(R), Varistor
H417	HV00007050	S3016(R), Varistor
H418	HV00007050	S3016(R), Varistor
H419	HV00007050	S3016(R), Varistor
H420	HV00007050	S3016(R), Varistor
H421	HV00002080	SV-04
H422	HV00002080	SV-04
H423	HV00001080	SV-03
H424	HV00001080	SV-03
P500	YD26110052	P. C. Board
R501	RC10271010	270 ohm ±10% 1W, Solid
R502	RC10201010	200 ohm ±10% 1W, Solid
C501	EA22701050	220uF 10V, Elect.
C502	EA47701620	470uF 16V, Elect.
C503	EB33805010	3300uF 50V, Elect.
C504	EA47702520	470uF 25V, Elect.
C505	DG07103500	.01uF ±20%, M. P.
C506	DG07103500	.01uF ±20%, M. P.

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
C507	EA47703510	470uF 35V, Elect.
J501	YP10000360	Plug
J502	YP10000360	Plug
J503	YP10000360	Plug
J504	YP10000360	Plug
J505	YP10000360	Plug
J506	YP10000360	Plug
J507	YP10000360	Plug
J508	YP10000360	Plug
J509	YP10000360	Plug
J510	YP10000360	Plug
J511	YP10000360	Plug
J512	YP10000360	Plug
H501	HD30001090	1S336, Diode
H502	HD20003010	HR-5A, Diode
H503	HD20003010	HR-5A, Diode
H504	HD20003010	HR-5A, Diode
H505	HD20001100	1S665, Diode
H506	HD20001100	1S665, Diode
H507	HD20001100	1S665, Diode
H508	HD20001100	1S665, Diode
P600	YD26110060	P. C. Board
R601	RT10682140	6.8K ±10% 1/4W, Carbon Film
R602	RT10682140	6.8K ±10% 1/4W, Carbon Film
R603	RT10223140	22K ±10% 1/4W, Carbon Film
R604	RT10223140	22K ±10% 1/4W, Carbon Film
R605	RT10222140	2.2K ±10% 1/4W, Carbon Film
R606	RT10222140	2.2K ±10% 1/4W, Carbon Film
R607	RT10222140	2.2K ±10% 1/4W, Carbon Film
R608	RT10222140	2.2K ±10% 1/4W, Carbon Film
R609	RN10474140	470K ±10% 1/4W, Carbon Film
R610	RN10474140	470K ±10% 1/4W, Carbon Film
R611	RN10474140	470K ±10% 1/4W, Carbon Film
R612	RN10474140	470K ±10% 1/4W, Carbon Film
R613	RT10103140	10K ±10% 1/4W, Carbon Film
R614	RT10103140	10K ±10% 1/4W, Carbon Film
C601	DF17403010	0.04uF ±20%, Myler
C602	DF17403010	0.04uF ±20%, Myler
C603	DF65501010	500pF ±5%, Poly
C604	DF65501010	500pF ±5%, Poly
C605	DF17223010	0.022uF ±20%, Myler
C606	DF17233010	0.022uF ±20%, Myler
C607	DF17403010	0.022uF ±20%, Myler
C608	DF17403010	0.022uF ±20%, Myler
C609	DF17333010	0.03uF ±20%, Myler
C610	DF17333010	0.03uF ±20%, Myler
※S601	SP04040012	S601-1, Loudness, Push switch S601-3, Low Fil S601-2, Hi Fil S601-4, Tape Mon
J601	YP10000360	Plug
J602	YP10000360	Plug
J603	YP10000360	Plug
J604	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
R001	RC10680120	68 ohm 1/2W ±5%, Resistor Solid
R002	RC10680120	68 ohm 1/2W ±5%, Resistor Solid

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
R003	RC10082120	8.2 ohm 1/2W ±5%, Resistor Solid
R005	RT10272140	2.7K ohm 1/4W ±5%, Resistor Carbon Film
R006	RT10272140	2.7K ohm 1/4W ±5%, Resistor Carbon Film
R007	RT10122140	1.2K ohm 1/4W ±5%, Resistor Carbon Film
R008	RT10122140	1.2K ohm 1/4W ±5%, Resistor Carbon Film
R009	RC10471120	470 ohm 1/2W ±5%, Resistor Solid
R010	RC10471120	470 ohm 1/2W ±5%, Resistor Solid
R011	RT10225010	2.2M ohm 1W ±5%, Resistor Carbon
R012	RT10122140	1.2K ohm ±10% 1/4W, Resistor
R013	RT10122140	1.2K ohm ±10% 1/4W, Resistor
R014	RT10822120	8.2K ohm ±10% 1/4W, Resistor
R015	RC10822120	8.2K ohm ±10% 1/4W, Resistor
※R016	RM01040020	100K ohm (A) ±20%, Variable
※R017	RK02030010	20K ohm ±20%, Variable
※R018	RM05030110	50K ohm ±20%, Variable
※R019	RM05030110	50K ohm Variable
R020	RN10224140	200K ohm ±10% 1/4W, Resistor
R021	RN10224140	200K ohm ±10% 1/4W, Resistor
C001	EA10700650	100uF 6V +100% -0%, Elect.
C002	EA22603510	22uF 35V, Eelct.
C003	EA22603510	22uF 35V, Elect.
C004	DF17332010	0.033uF ±20%, Myler
C005	DF17332010	0.033uF ±20%, Myler
C006	DF17224020	0.22uF ±20%, Myler
C007	DF17224020	0.22uF ±20%, Myler
C009	D007473530	0.047uF ±20%,
C010	EM47402510	0.47uF 25V Elect
C011	EM47402510	0.47u F 25V Elect
C012	DK17103010	0.01uF ±20% Ceramic
C013	DK17103010	0.01u F ±20% Ceramic
J001	YT03040020	Ant. Terminal
J002	YT02060030	Audio U. S. Jack
J003	YT03040020	Output Terminal
J004	YJ01000550	Head Phone Jack
J005	YJ 04000320	AC Socket
J006	YJ04000320	AC Socket
J008	YL01035001	5P Lug
J009	YT01010030	G. Terminal
J010	YJ02000100	Lamp Socket
J011	YJ02000010	Lamp Socket
J012	YJ02000090	Lamp Socket
J013	YJ02000070	Stereo Lamp Socket
J014	YL01030010	Ant.
J015	YL01050030	Lug Audio
J016	YL01050030	Lug Audio
※M001	IM11024060	Tuning Meter
※M002	IN10080010	Stereo Beacon
※M003	IN10060030	Pilot Lamp
※M004	IN10060030	Pilot Lamp
※M005	IN10060030	Pilot Lamp
S001	SS02020170	FM ANT. ATT Switch
S002	SR05040010	Rotary Switch
※S003	SP04010072	Stereo, Mono Switch
※S004	SP04010062	Power Switch
F001	FR10160010	Circuit Breaker
※H001	HT308301B0	2SC830(B), Power Tr.
※H002	HT308301B0	2SC830(B), Power Tr.
※H003	HT308301B0	2SC830(B), Power Tr.
※H004	HT308301B0	2SC830(B), Power Tr.
※L001	LF11800353	AM ANT. Coil
L002	LB30075250	FM Balun coil
L003	TS19001022	Power Trans.
W001	YC02400010	Power Cord

REF. DESIG.	MARANTZ PART NO.	DESCRIPTION
W002	YW26670012	Wire Materials
W005	YB00400010	Wire Materials
W006	YX26670010	Wire Materials
W007	YP10000720	Wire Materials

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