

SERVICE  
MANUAL 2226

**marantz**

model 2226

*Stereophonic Receiver*

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## INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2226 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 operations in the receiver.

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

## 1. SERVICE NOTES

As can be seen from the circuit diagram, the chassis of Model 2226 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 . . . . . mounted on P.W. Board P100
2. Tuner . . . . . mounted on P.W. Board P200
3. Phono Equalizer Amp. . . . . mounted on P.W. Board P400
4. Main Amp. . . . . mounted on P.W. Board P700
5. Power Supply . . . . . mounted on P.W. Board P800
6. Pre & Tone Amp. . . . . mounted on P.W. Board PE01
7. Mono, Hi Filter, Tape 1 Monitor &  
FM 25 $\mu$ S Switches . . . . . mounted on P.W. Board PH01
8. Pops Noise Muting. . . . . mounted on P.W. Board PJ01
9. Speaker Switch . . . . . mounted on P.W. Board PT01
10. Dial Lamp . . . . . mounted on P.W. Board PZ01

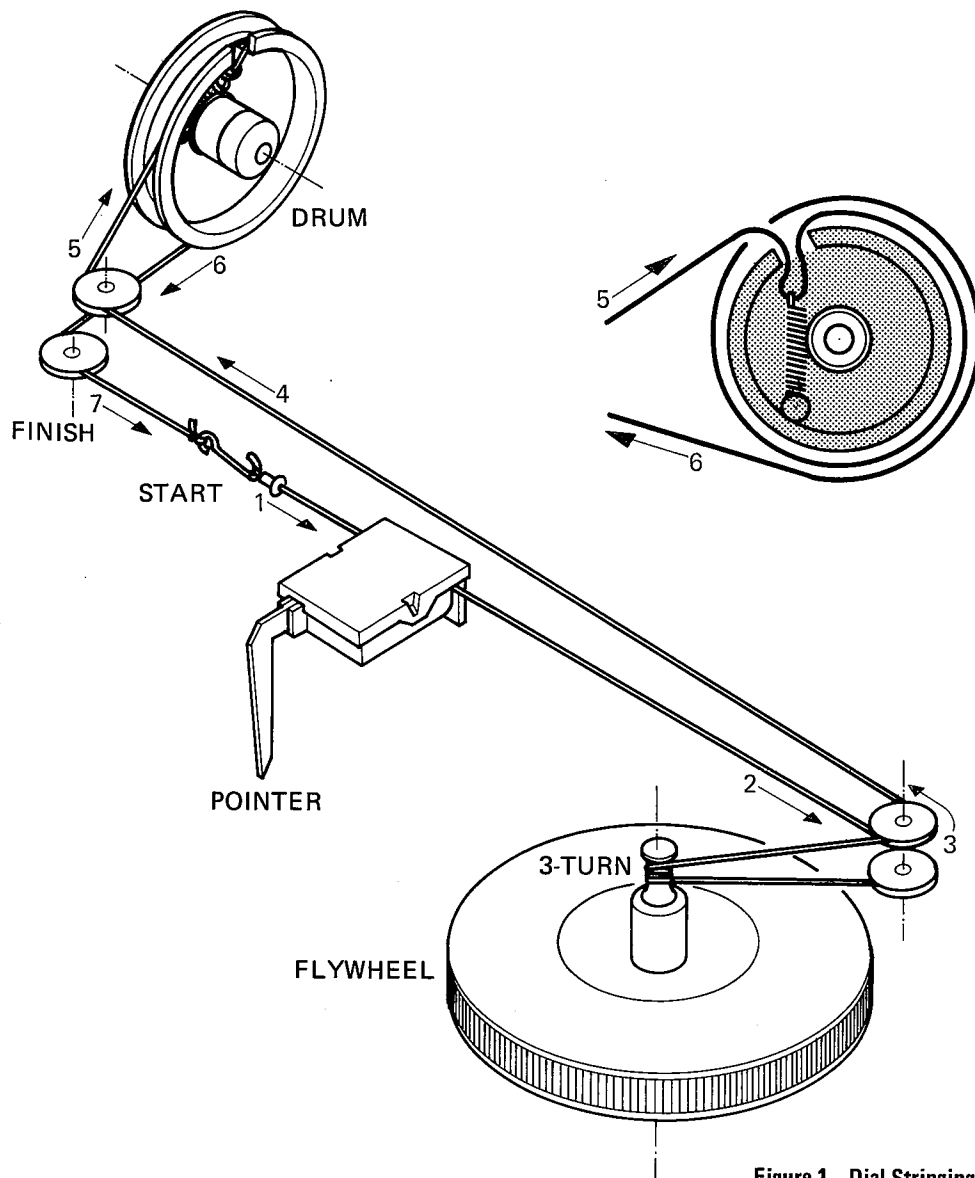


Figure 1. Dial Stringing

## 2. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2226 Receiver.

Item	Manufacturer and Model No.	Use
AM Signal Generator		Signal source for AM alignment
Test Loop		Use with AM Signal Generator
FM Signal Generator MPX Signal Generator	Sound Technology Model 1000A	Signal source for FM alignment Stereo separation alignment and trouble shooting
Distortion Analyzer Audio Oscillator AC VTVM	Sound Technology Model 1700A	Distortion measurements Sinewave and squarewave signal source Voltage measurements (AC)
Oscilloscope	Tektronix Model T932 Philips Model 3232	Waveform analysis and trouble shooting and ASO alignment
Frequency Counter	Fluke Model 1900A	MPX Oscillator adjustment (VCO)
Circuit Tester		Trouble shooting
DC VTVM	Fluke Model 8000 "Digital" Simpson Model 313, Triplet Model 801	Voltage measurements (DC)
AC Wattmeter	Simpson Model 1379	Monitors primary power to amplifier
AC Ammeter	Commercial Grade (1-10A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstat Model 116B-10A	Adjusts level of primary power to amplifier
Shorting Plug	Use phono plug with 600-ohm across center pin and shell	Shorts amplifier input to eliminate noise pickup
Output Load (8 ohms, 0.5%, 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, 0.5%, 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination

## 3. AM ALIGNMENT PROCEDURE

### 3.1 AM IF ALIGNMENT

1. Connect a sweep generator to the L153 and an alignment scope to the resistor R162 (out side).
2. Rotate each core of IF transformers L155 and L156 for the maximum height and flat top symmetrical response.

### 3.2 AM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Set AM signal generator to 515 kHz. Turn the tuning capacitor fully closed (place the tuning pointer at the low end) and adjust the oscillator coil L154 for maximum audio output.
2. Set the signal generator to 1650 kHz. Place the tuning pointer in the high frequency end and adjust the oscillator trimmer on the oscillator tuning capacitor for maximum audio output.
3. Repeat steps 1 and 2 until no further adjustment is necessary.
4. Set the generator to 600 kHz, tune the receiver to the same frequency and adjust a slug core of AM ferrite-rod antenna L001 for maximum output.

5. Set the generator to 1400 kHz and tune the receiver to the same frequency and adjust the trimming capacitor on the antenna tuning capacitor for maximum output.
6. Repeat procedures 4 and 5 until no further adjustment is necessary.

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

## 4. FM ALIGNMENT PROCEDURE

### 4.1 FM FREQUENCY RANGE AND TRACKING ALIGNMENT

1. Connect an FM signal generator to the FM antenna terminals and an oscilloscope and an audio distortion analyzer to the TAPE OUT jacks on the rear panel.
2. Set the generator to 87.4 MHz and provide about 3 to 5  $\mu$ V. Place the tuning pointer at the low frequency end by rotating the tuning knob and adjust the pitch of oscillator coil L107 to obtain maximum audio output.

3. Set the generator to 109 MHz and provide about 3 to 5  $\mu\text{V}$ . Rotate the tuning knob and place the tuning pointer at the high frequency end and adjust the trimming capacitor C121 for maximum output.
4. Repeat steps 2 and 3 until no further adjustment is necessary.
5. Set the generator to 90 MHz and tune the receiver to the same frequency. Decrease signal generator output until the audio output level decreases with the decreasing generator output. Adjust the pitch of antenna coil L102 and RF coil L104 for maximum output.
6. Set the generator to 106 MHz and tune the receiver to the same frequency. Decrease the signal generator output until the audio output level decreases with the decreasing generator output. Adjust the trimming capacitors of antenna and RF tuning circuits for maximum output.
7. Repeat steps 5 and 6 until no further adjustment is necessary.
8. Adjust the primary core (lower core) of discriminator transformer L202 so that the center tuning meter pointer indicates its center at no signal applied. Set the FM signal generator to 98 MHz and increase its output level 1  $\text{K}\mu\text{V}$  and tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Adjust the secondary core (upper core) of L202 for minimum distortion.

#### 4.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1  $\text{K}\mu\text{V}$  at 98 MHz. Tune the receiver to the same frequency so that the center tuning meter pointer indicates its center. Then turn off the modulation of the generator, connect a frequency counter to test point J229 and adjust R301 so that the frequency counter may precisely read 76 kHz.
2. Modulate the generator with stereo composite signal consisting of only L or R channel (of course a pilot signal must be included).
3. Adjust the trimming resistor R317 for maximum and same separation in both channels.

#### 4.3 MUTING THRESHOLD ADJUSTMENT

1. Set the FM signal generator output to provide 12.5  $\mu\text{V}$  (IHF) at 98 MHz and tune receiver to the same frequency. Adjust the trimming resistor R212 for the threshold level of 12.5  $\mu\text{V}$ . (During this adjustment turn the FM MUTING pushswitch "on".)

#### 4.4 FM DOLBY LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1  $\text{K}\mu\text{V}$  output. Precisely tune the receiver to 98 MHz.
2. Depress the FM 25  $\mu\text{S}$  pushswitch, and adjust R215 until the outputs of both channels are 580 mV.

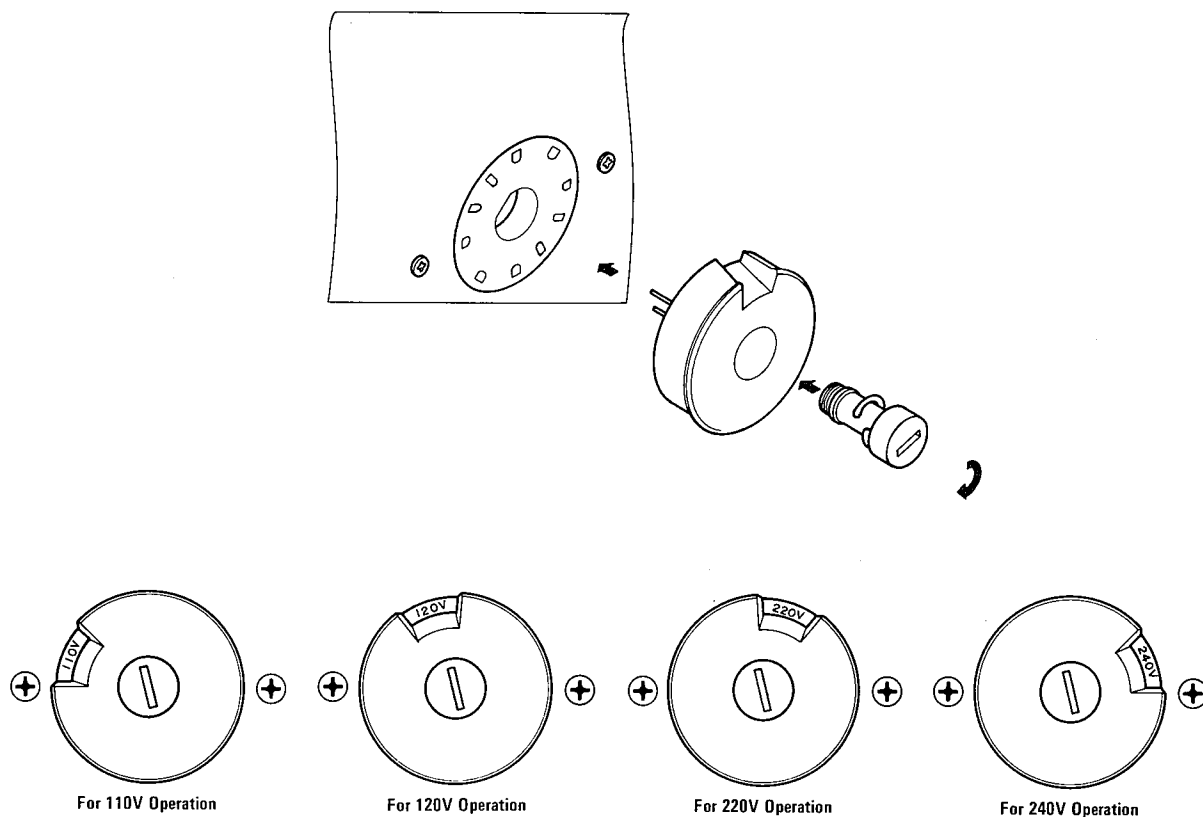


Figure 2. Voltage Conversion Chart

## 5. POWER AMPLIFIER ADJUSTMENT

Connect a VTVM between J709(+) and J711(−) and adjust the trimming resistor R763 until the VTVM reads 20 mV DC. And next, connect a VTVM between J707 and J714 (GROUND) and adjust the trimming resistor R761 until the VTVM reads 0 mV DC. Do over again. For the other channel, connect the VTVM between J720(+) and J721(−) and adjust the R764 for the same reading, and connect the VTVM between J718 and J714 and adjust the R762 for the same reading. Do over again.

## 6. POWER SUPPLY ADJUSTMENT

Connect a VTVM between J805(+) and J814(−) and adjust R808 until the VTVM reads 35.0 V under no signal condition.

## 7. VOLTAGE CONVERSION FOR EUROPEAN MODEL

The European version of the Model 2226 is equipped with a universal power transformer that may be adjusted to operate at 110V, 120V, 220V, or 240V AC at 50 to 60 Hz. To convert the unit to a different power source voltage, reposition conversion plug as shown in Figure 2.

**CAUTION: DISCONNECT POWER SUPPLY CORD FROM AC OUTLET BEFORE CONVERTING VOLTAGE.**

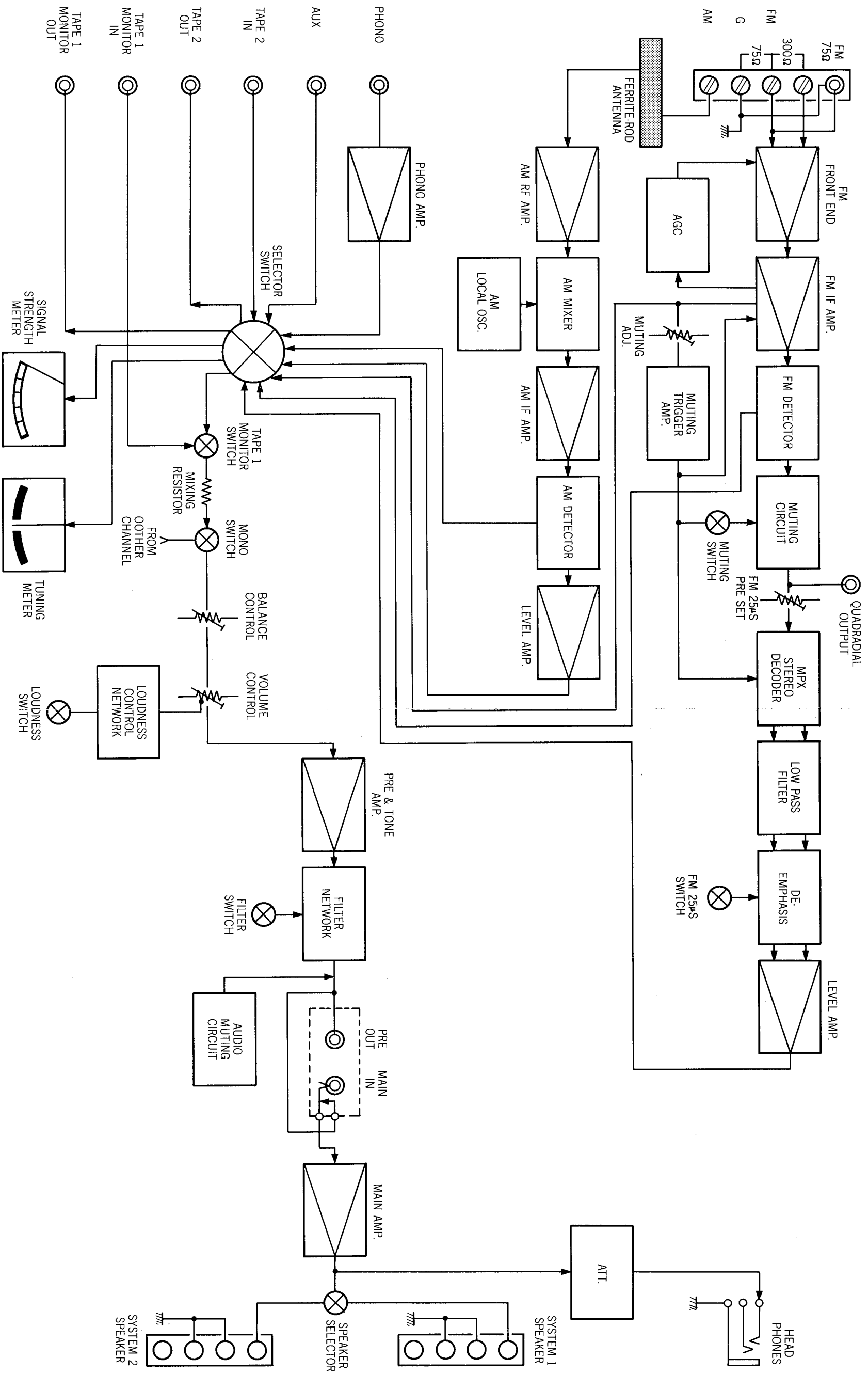
## FTZ REGULATION

Instruction for the use in the range other than specified in FTZ codes

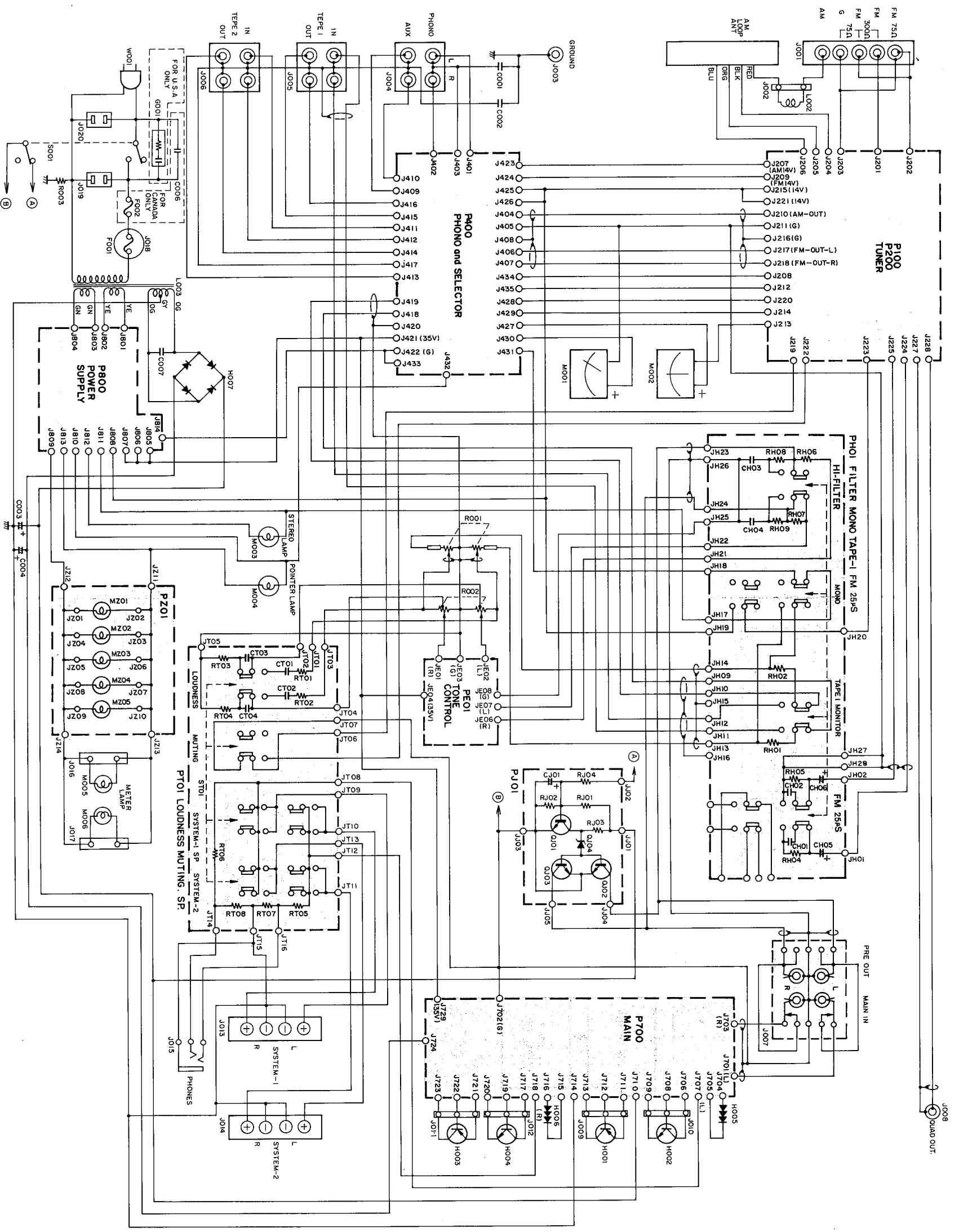
**Achtung für die Leute, die in dem Gebiet wohnen, wo die FTZ-Bestimmungen vorherrschend sind.**

Sollte das Gerät auch für Frequenzen ausserhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatortspule (in der Abbildung mit "FTZ" gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

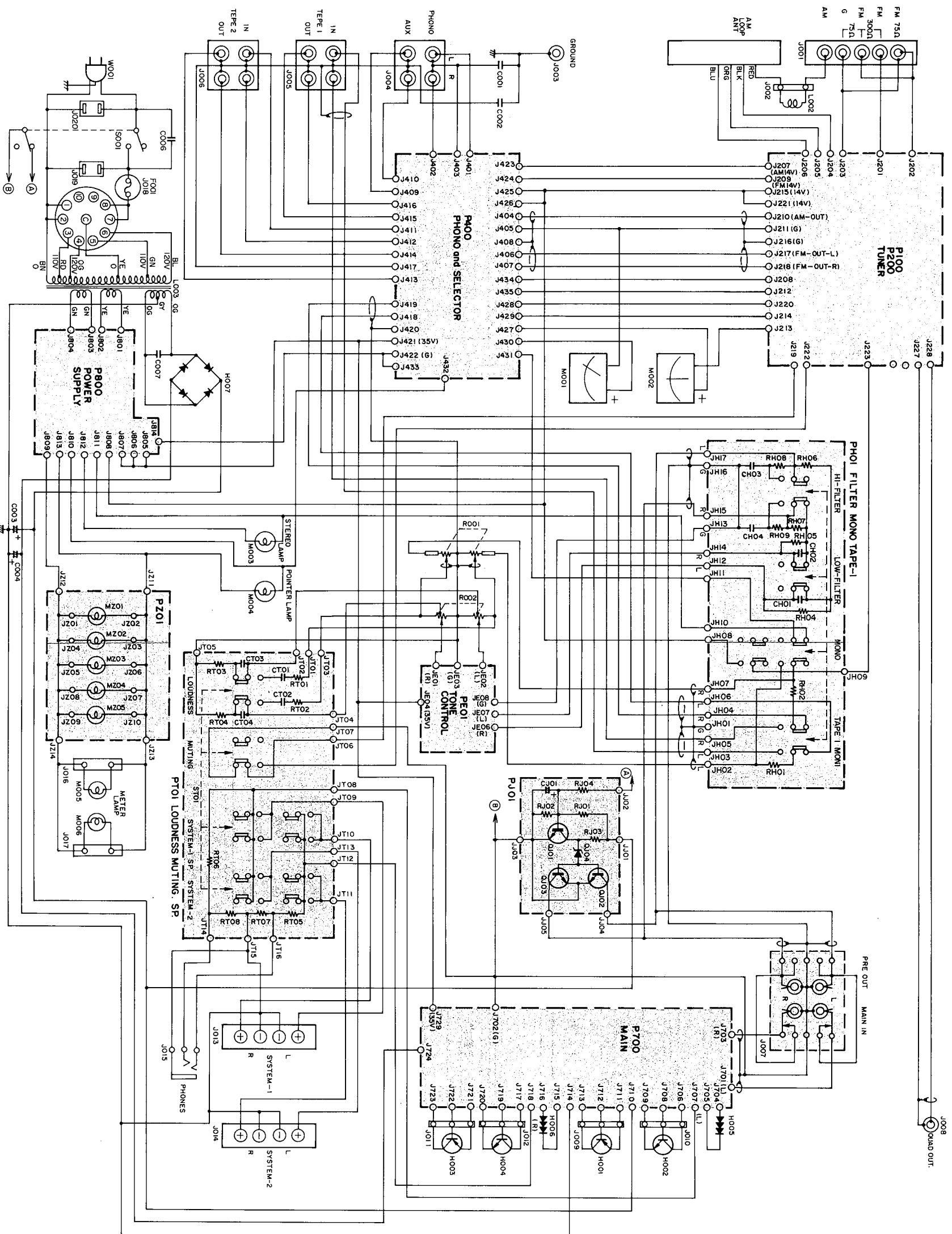
8. DIAGRAMS  
8.1 BLOCK DIAGRAM

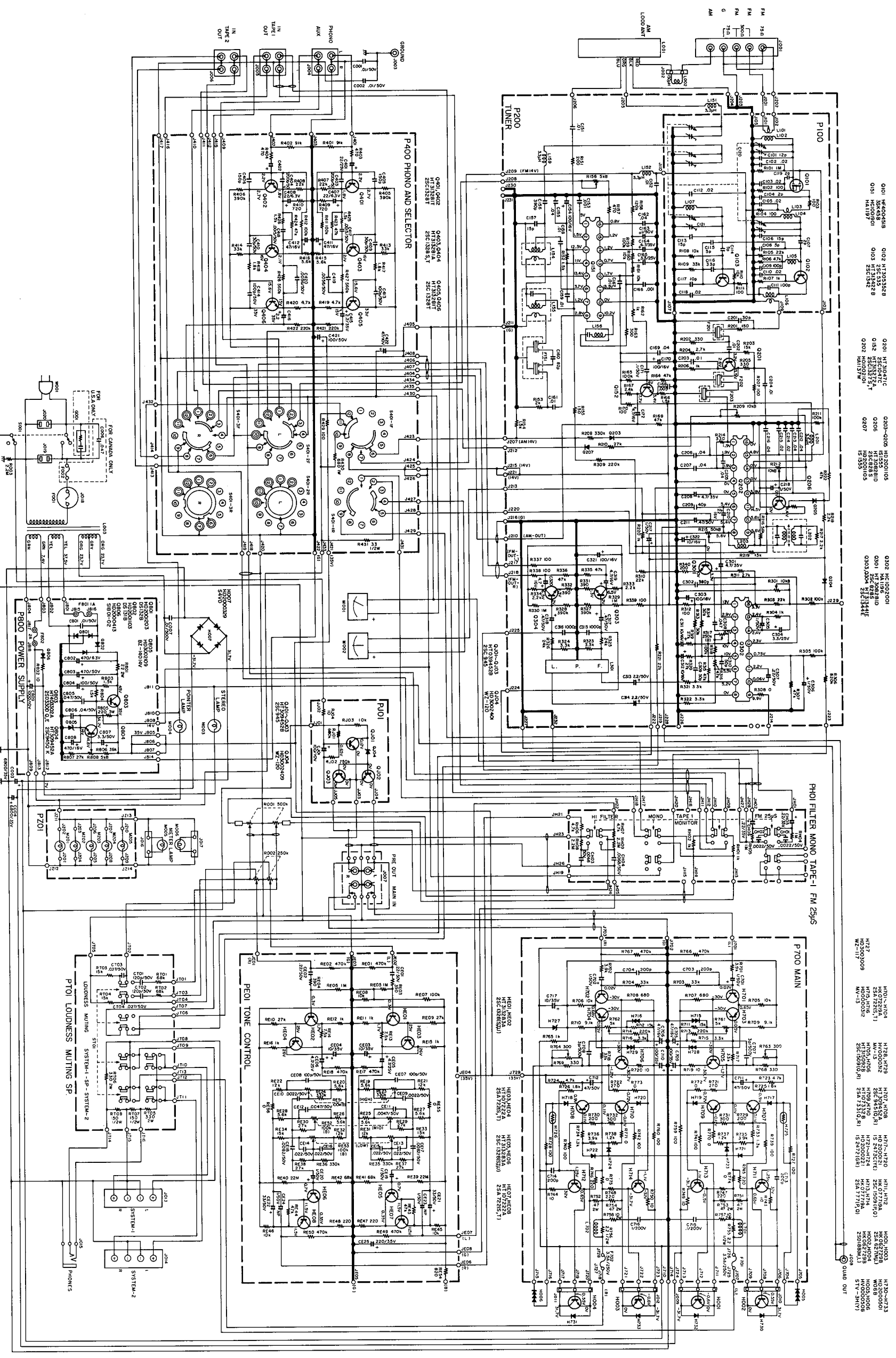


8.2 INTER CONNECTION DIAGRAM - U.S.A. & CANADA

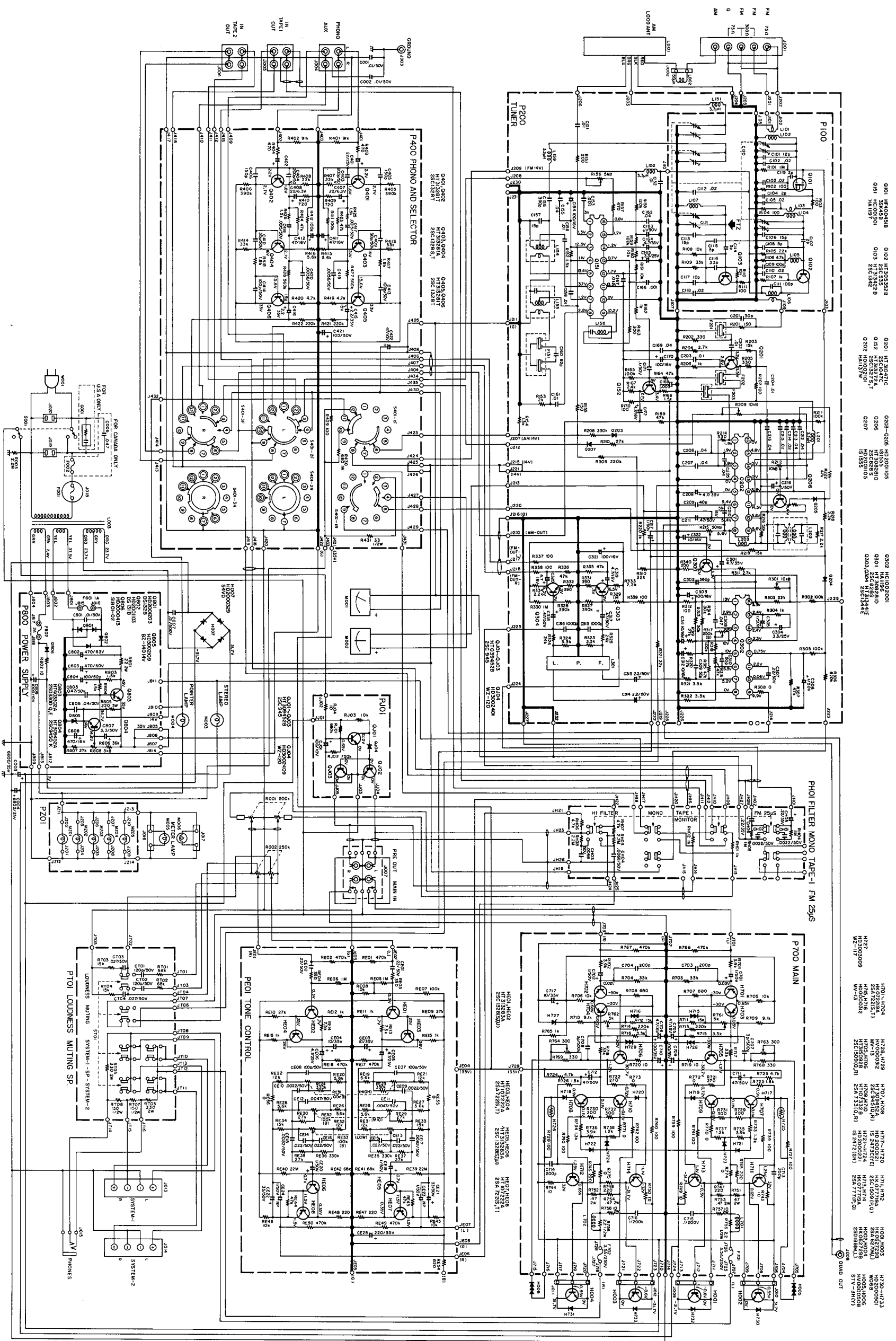






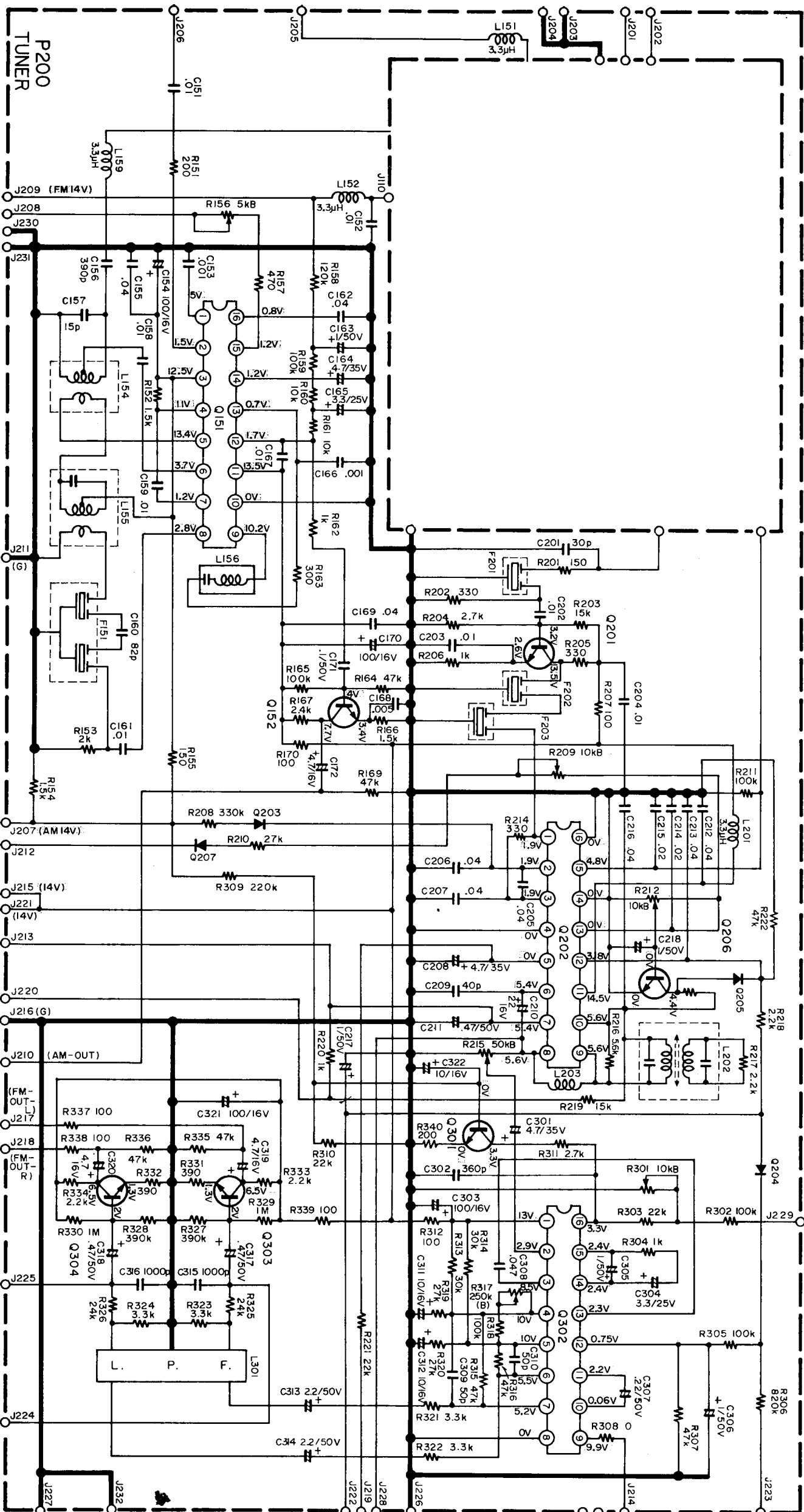


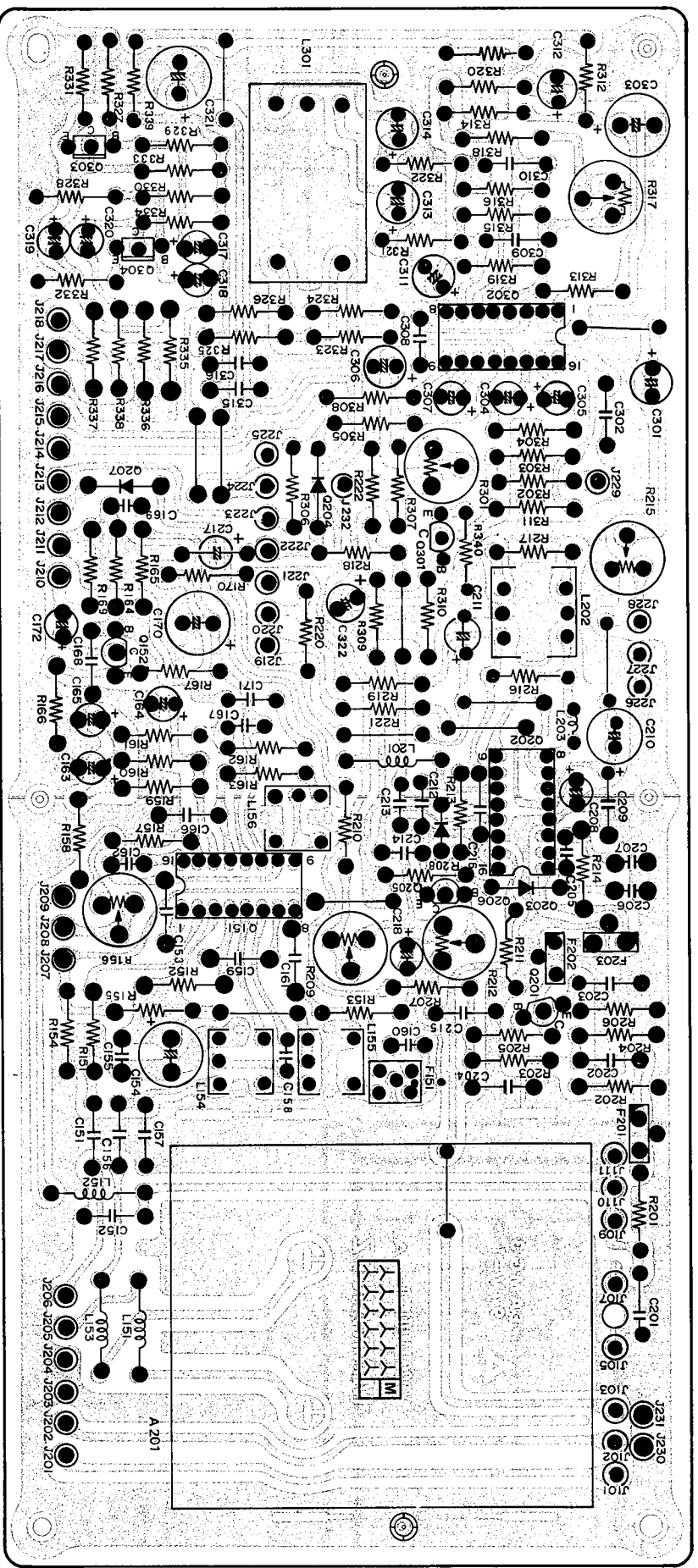
- |          |          |          |          |          |          |          |          |          |          |          |          |          |          |
|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Q101 6X4 | Q102 6X4 | Q201 6X4 | Q202 6X4 | Q301 6X4 | Q302 6X4 | Q303 6X4 | Q304 6X4 | Q305 6X4 | Q306 6X4 | Q801 6X4 | Q802 6X4 | Q901 6X4 | Q902 6X4 |
| H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     | H727     |



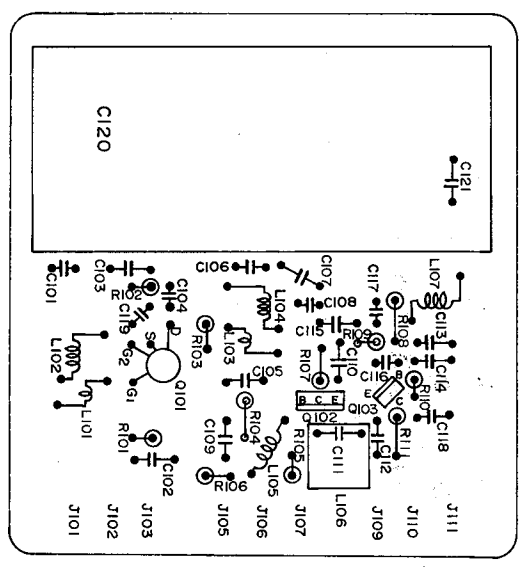
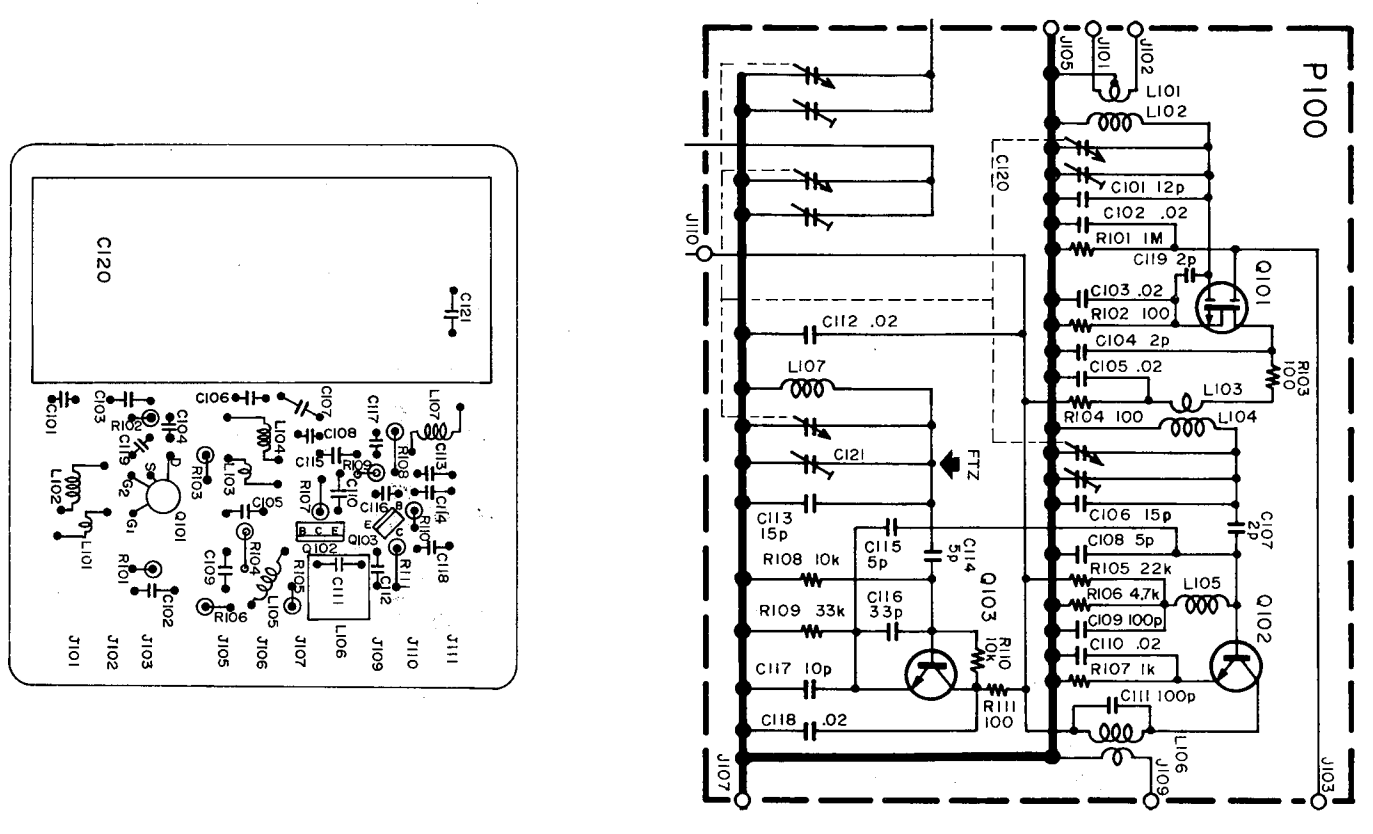
- 0101 HE4048B
- 0102 HT3021C
- 0103 2SC235
- 0104 HT3021C
- 0105 2SC235
- 0106 HT3021C
- 0107 2SC235
- 0108 HT3021C
- 0109 2SC235
- 0110 HT3021C
- 0111 2SC235
- 0112 HT3021C
- 0113 2SC235
- 0114 HT3021C
- 0115 2SC235
- 0116 HT3021C
- 0117 2SC235
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- 0164 HT3021C
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- 0166 HT3021C
- 0167 2SC235
- 0168 HT3021C
- 0169 2SC235
- 0170 HT3021C
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- 0175 2SC235
- 0176 HT3021C
- 0177 2SC235
- 0178 HT3021C
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- 0181 2SC235
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- 0183 2SC235
- 0184 HT3021C
- 0185 2SC235
- 0186 HT3021C
- 0187 2SC235
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- 0189 2SC235
- 0190 HT3021C
- 0191 2SC235
- 0192 HT3021C
- 0193 2SC235
- 0194 HT3021C
- 0195 2SC235
- 0196 HT3021C
- 0197 2SC235
- 0198 HT3021C
- 0199 2SC235
- 0200 HT3021C

8.6 TUNER BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

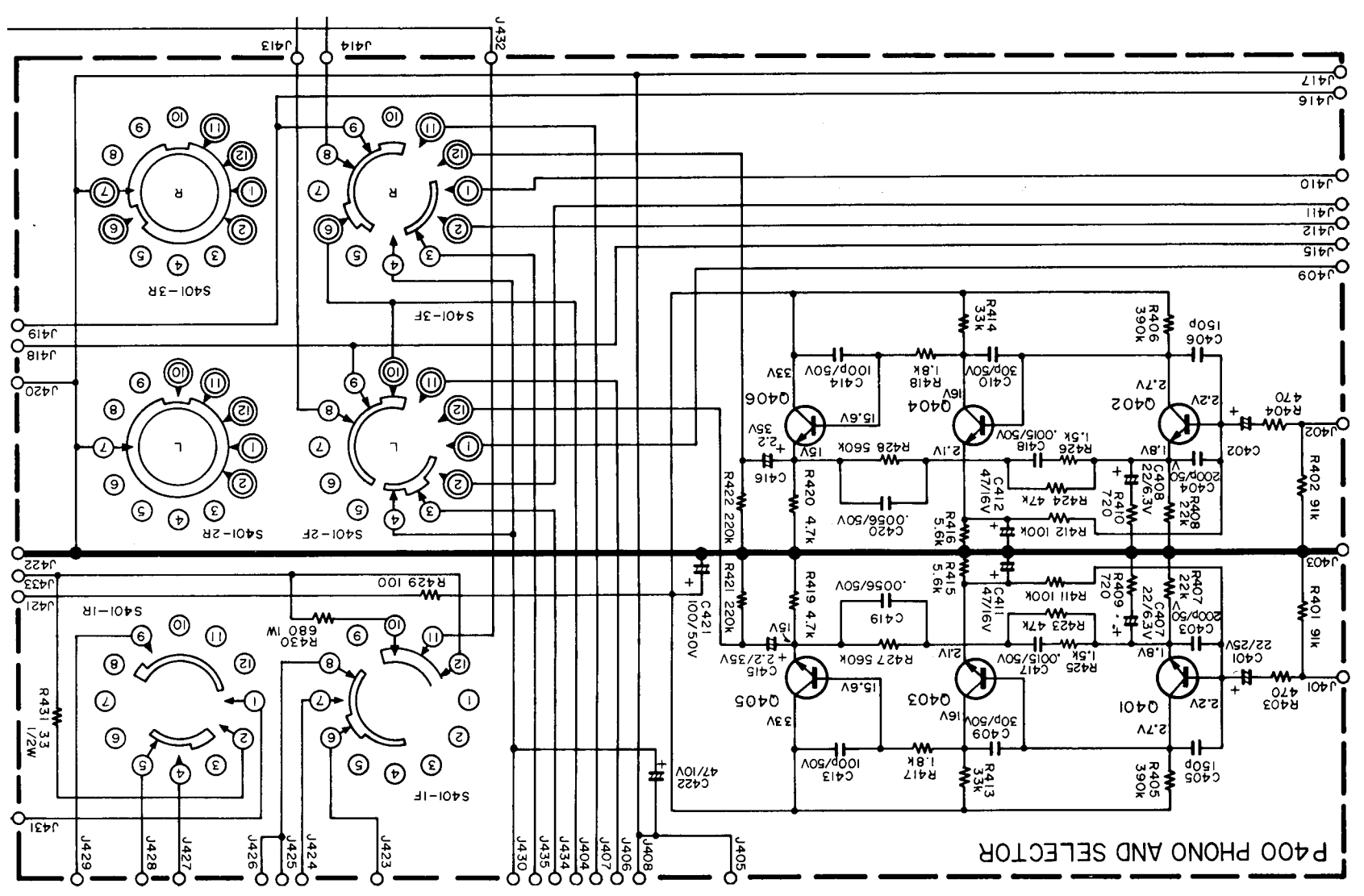


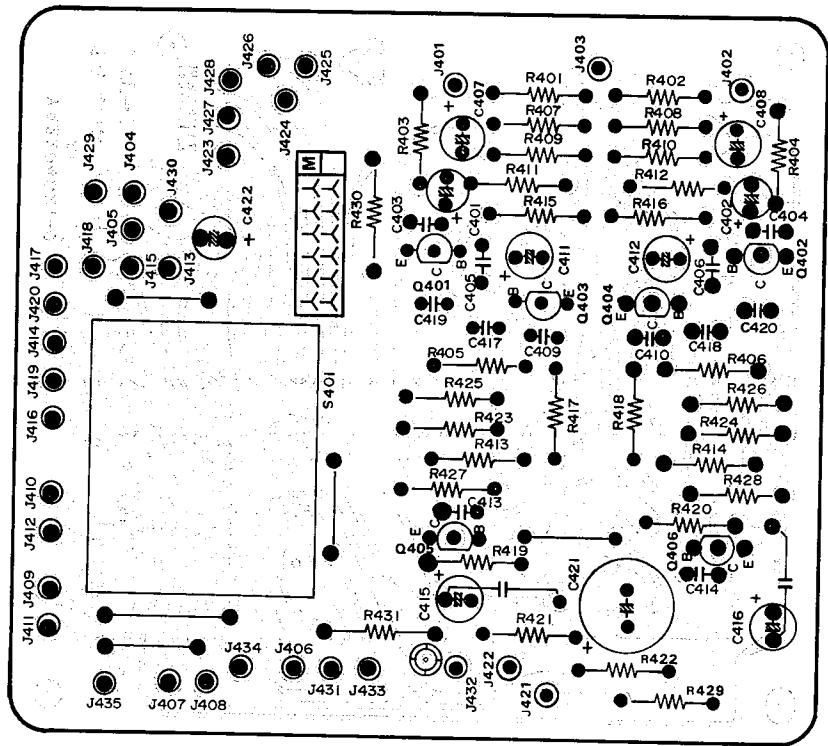


8.7 FM FRONT END BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

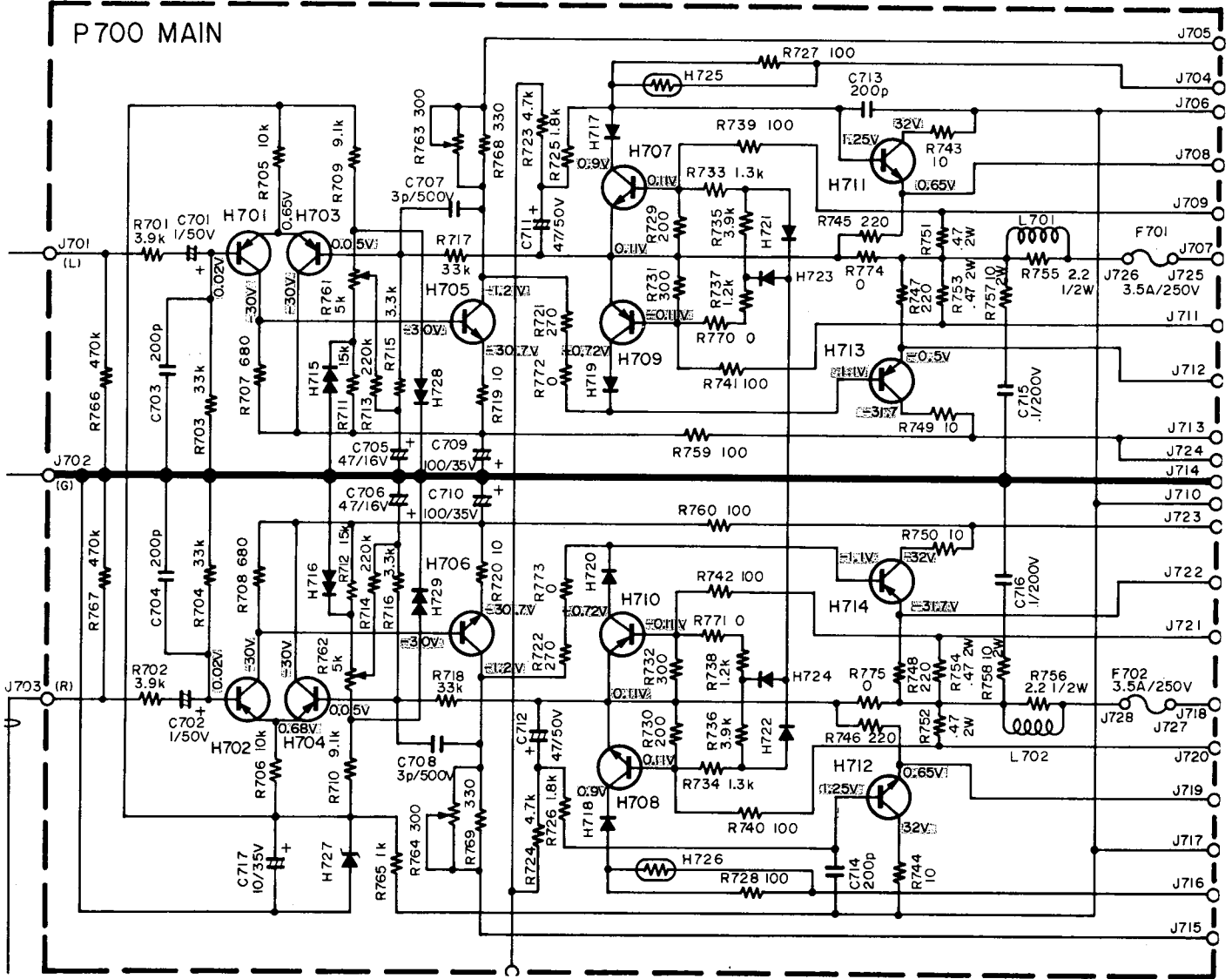


8.8 PHONO EQUALIZER AMP. BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

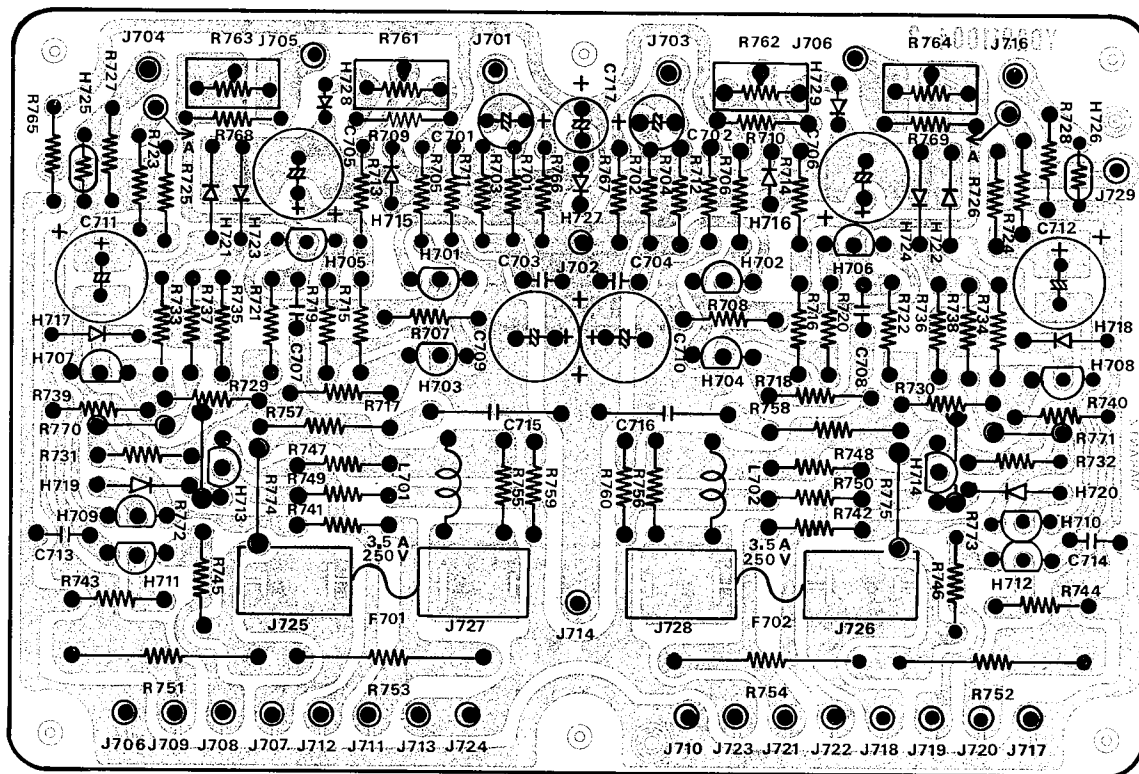




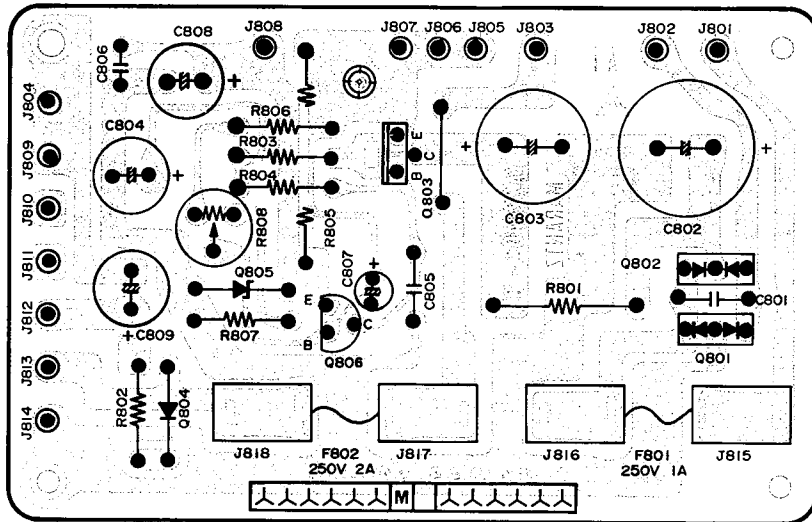
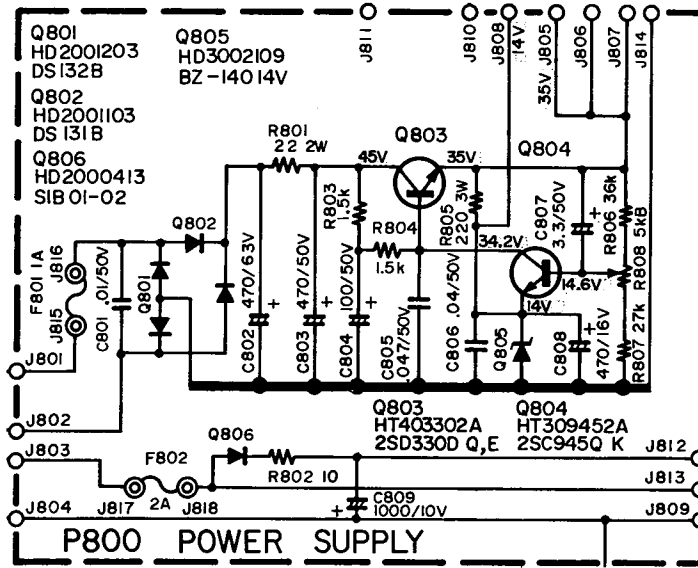
8.9 MAIN AMP. BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



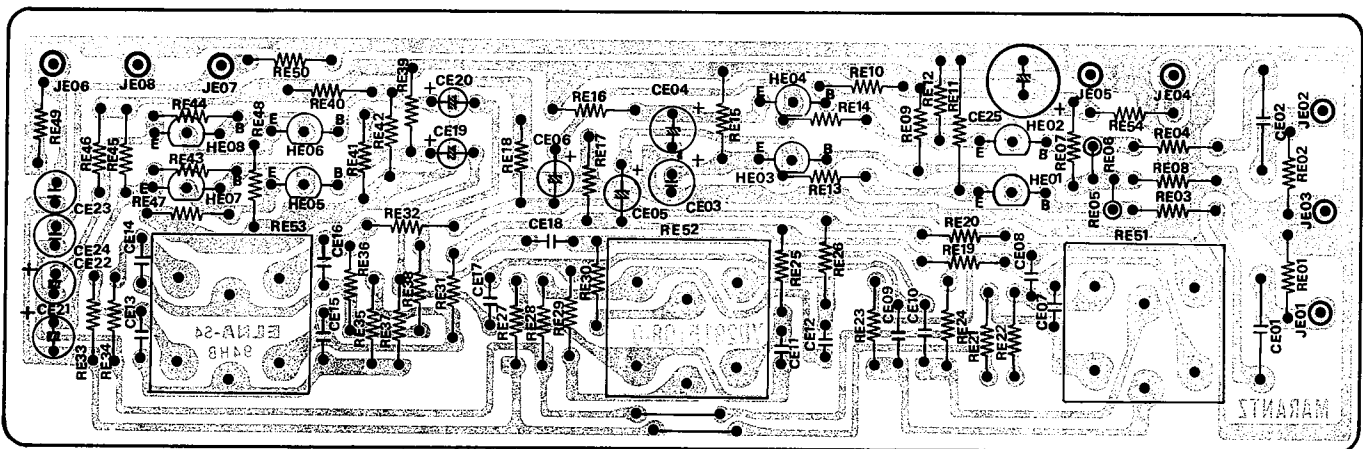
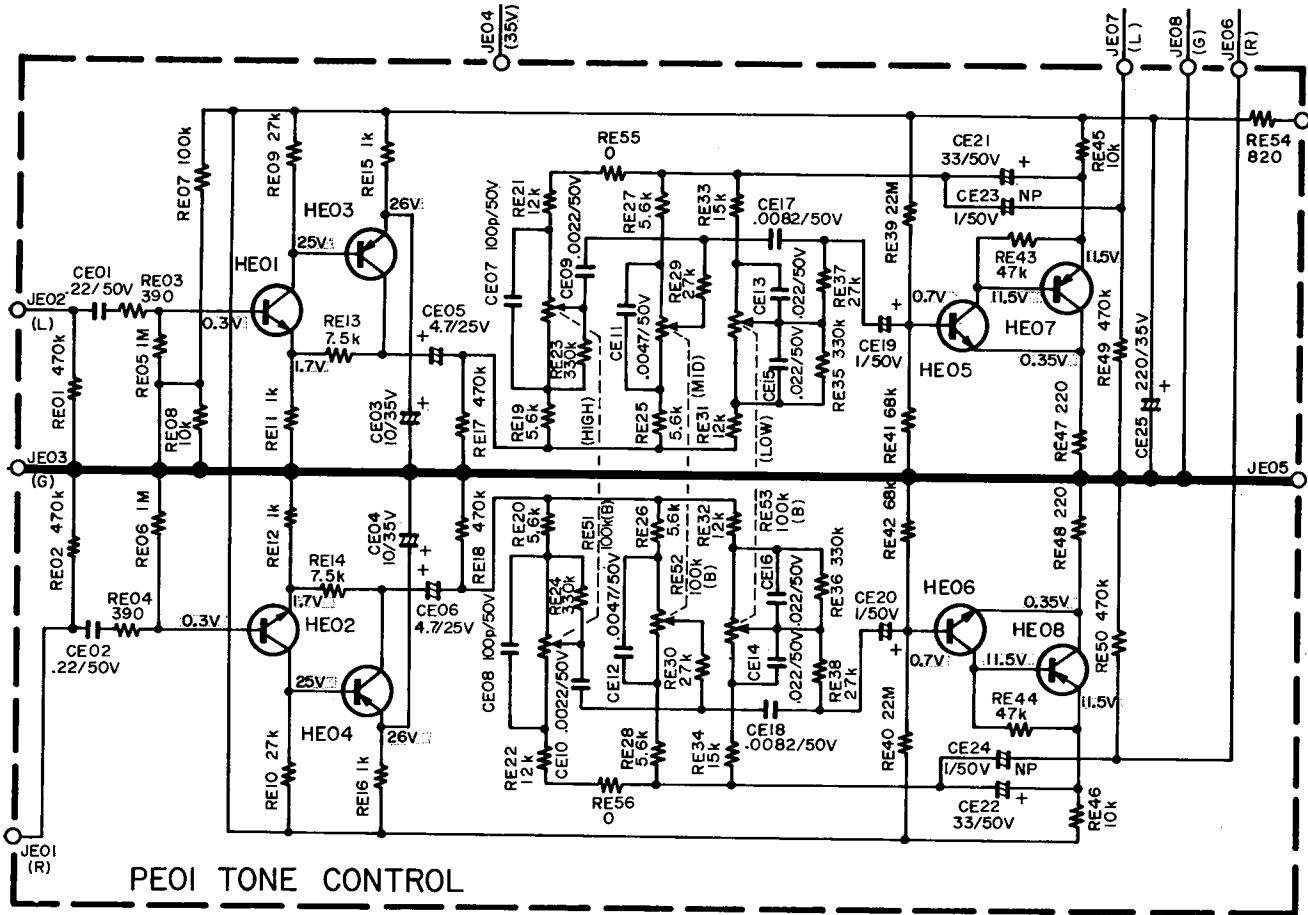




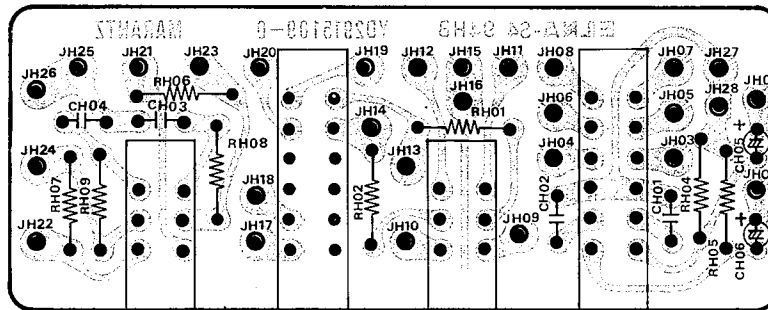
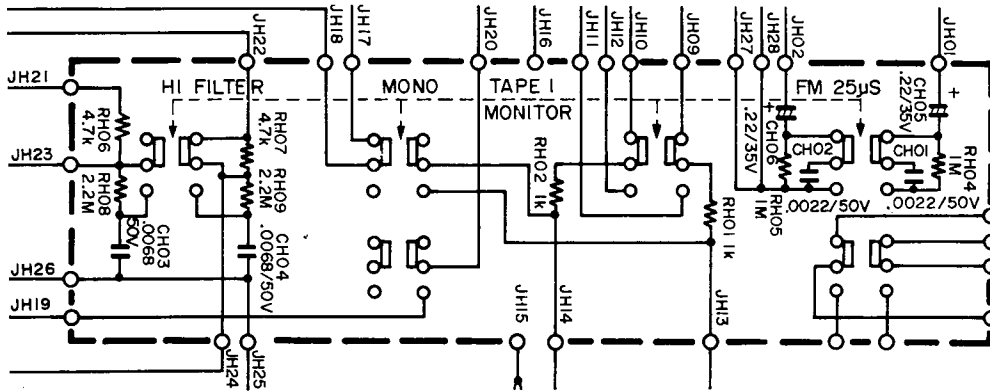
8.10 POWER SUPPLY BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



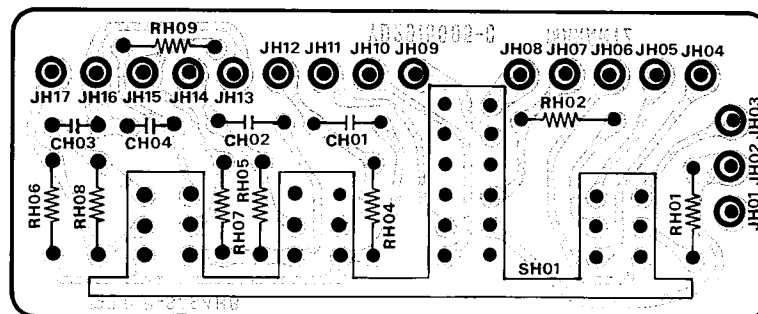
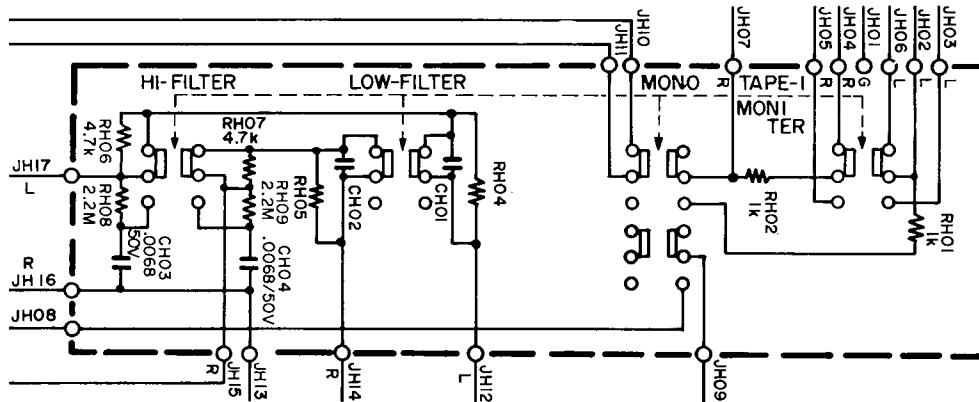
8.11 PRE, TONE AMP. BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



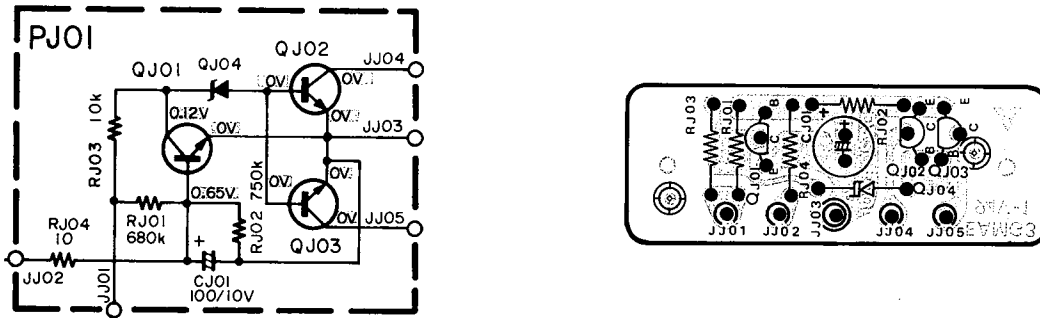
8.12 MONO, HI FILTER, TAPE 1 MON., FM 25 $\mu$ S SWITCHES BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



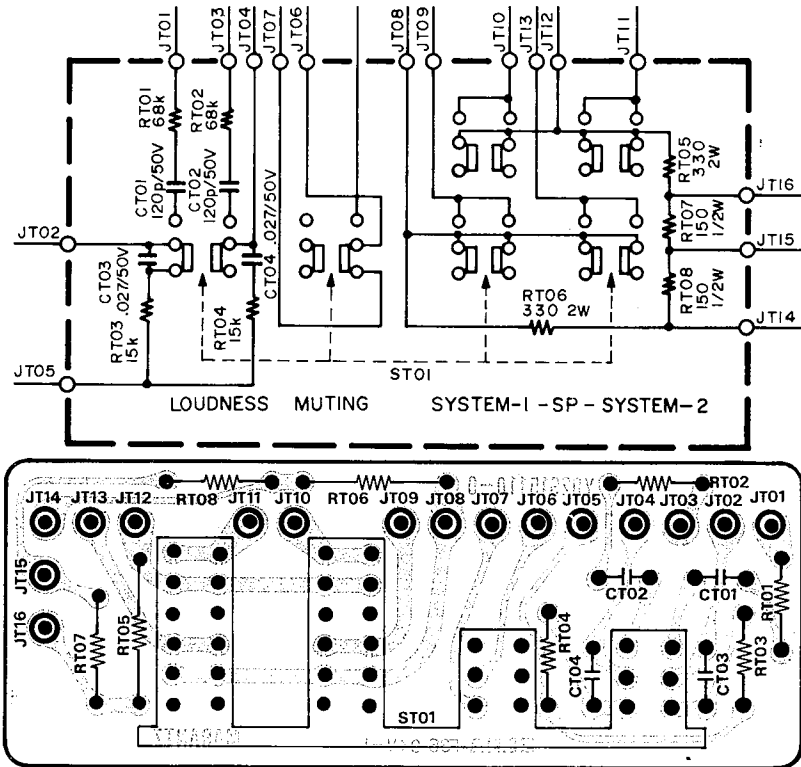
8.13 MONO, HI FILTER, TAPE 1 MON., LOW FILTER SWITCHES BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS - EUROPE



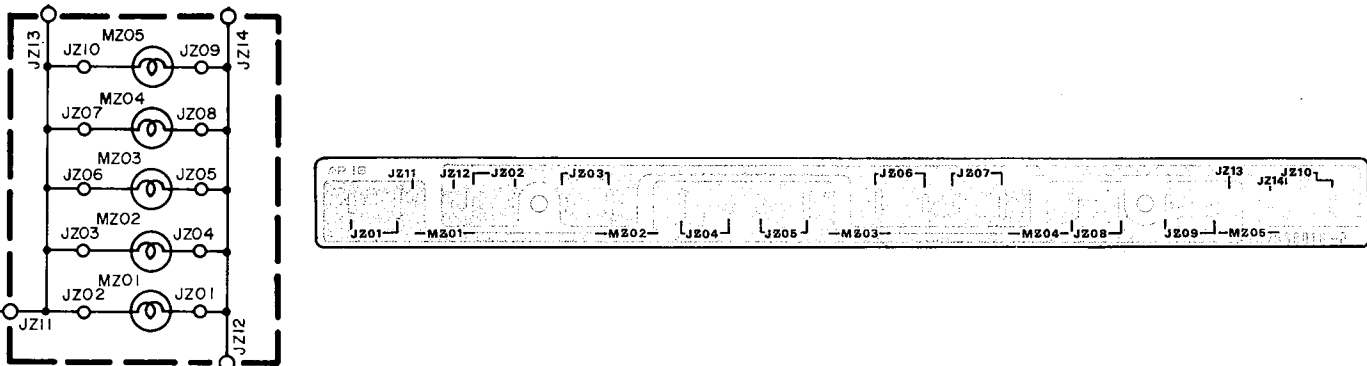
8.14 POPS NOISE MUTING BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS



8.15 SPEAKER SWITCH BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

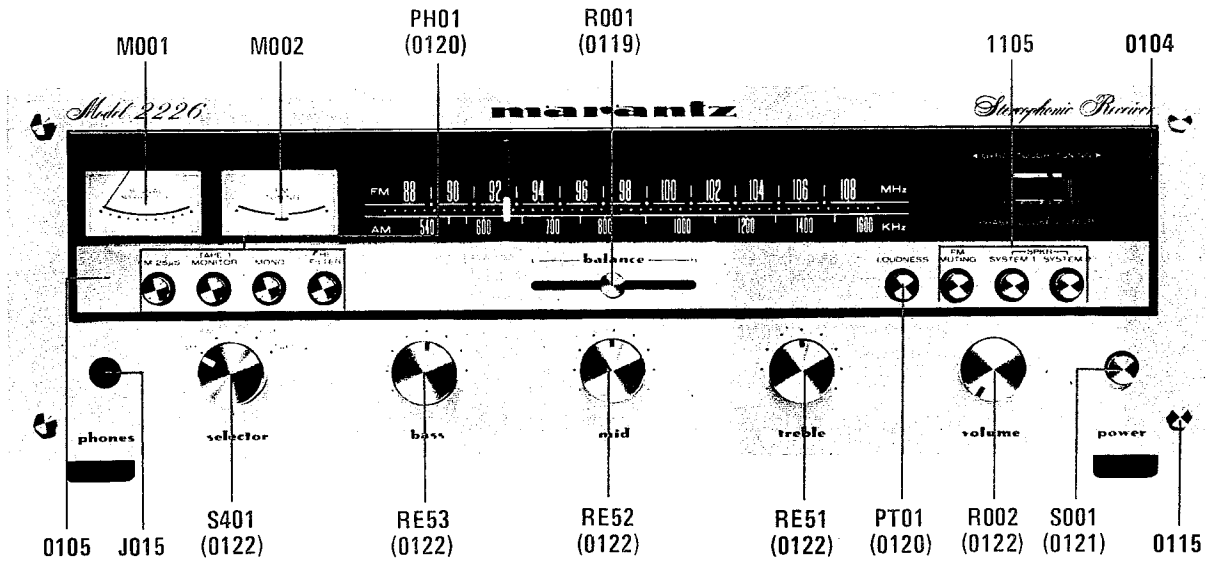


8.16 DIAL LAMP BOARD SCHEMATIC DIAGRAM AND COMPONENT LOCATIONS

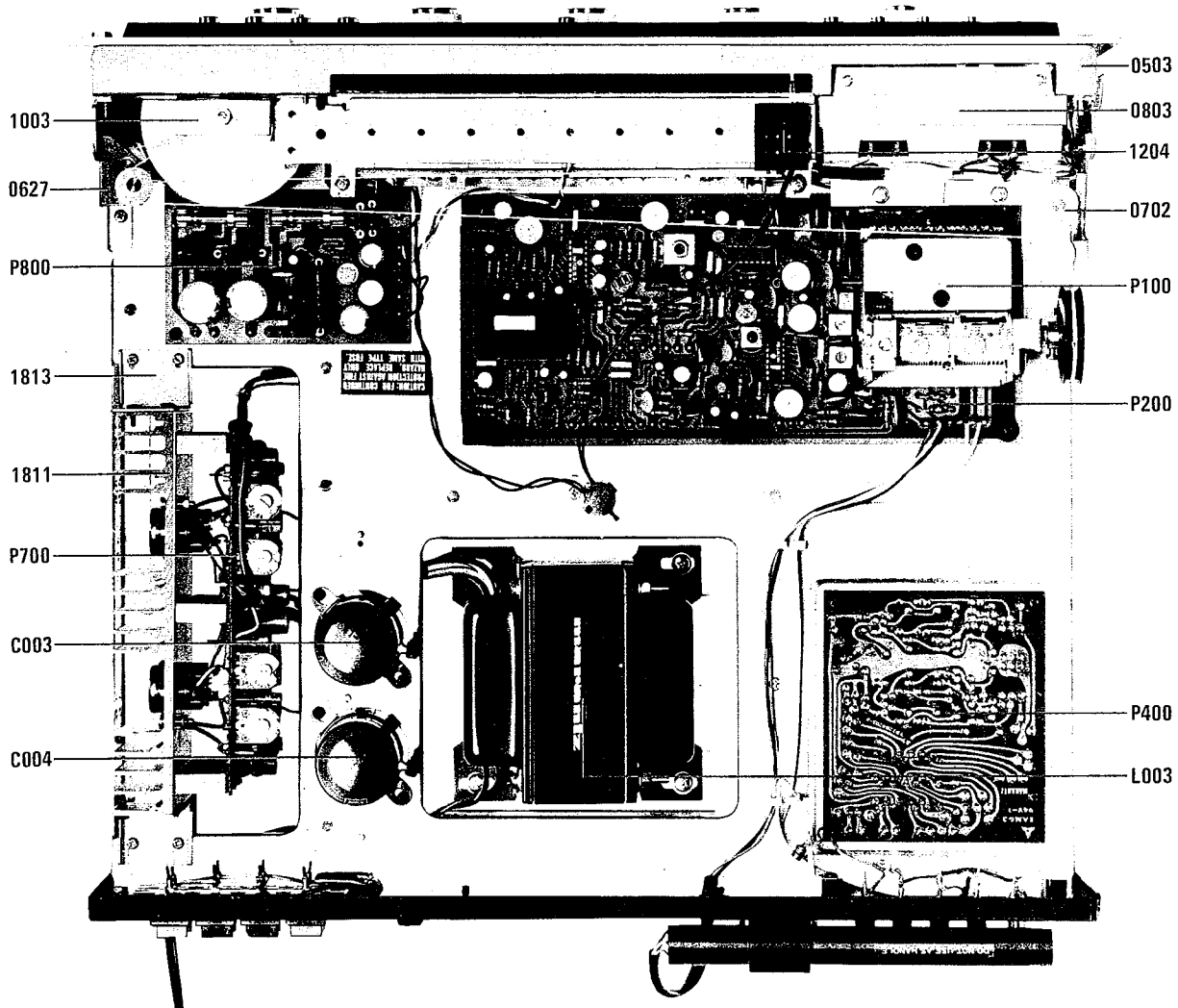


**9. MAJOR COMPONENT LOCATIONS**

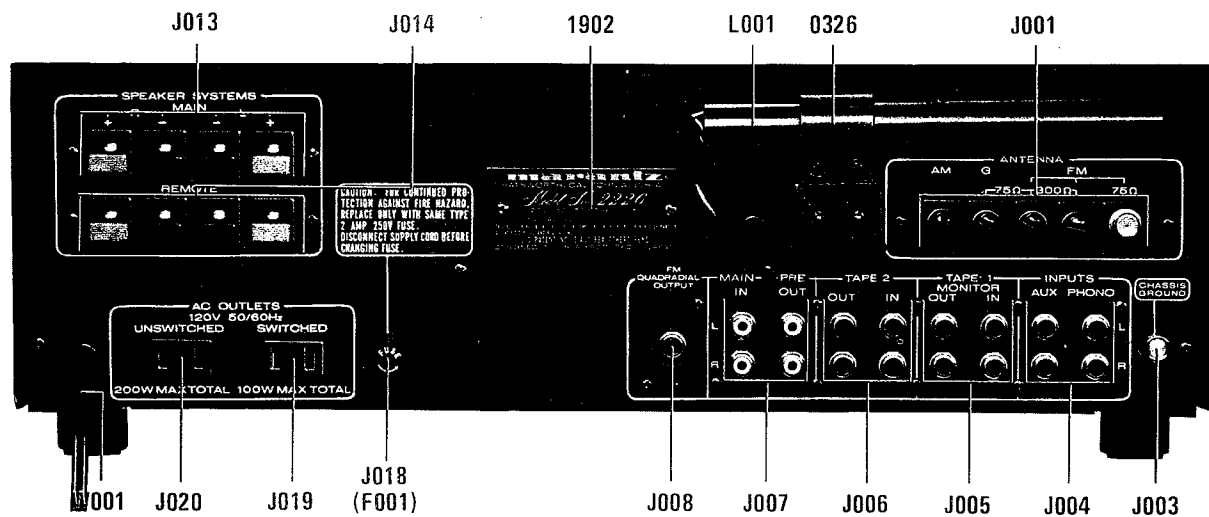
**9.1 CABINET - FRONT VIEW**



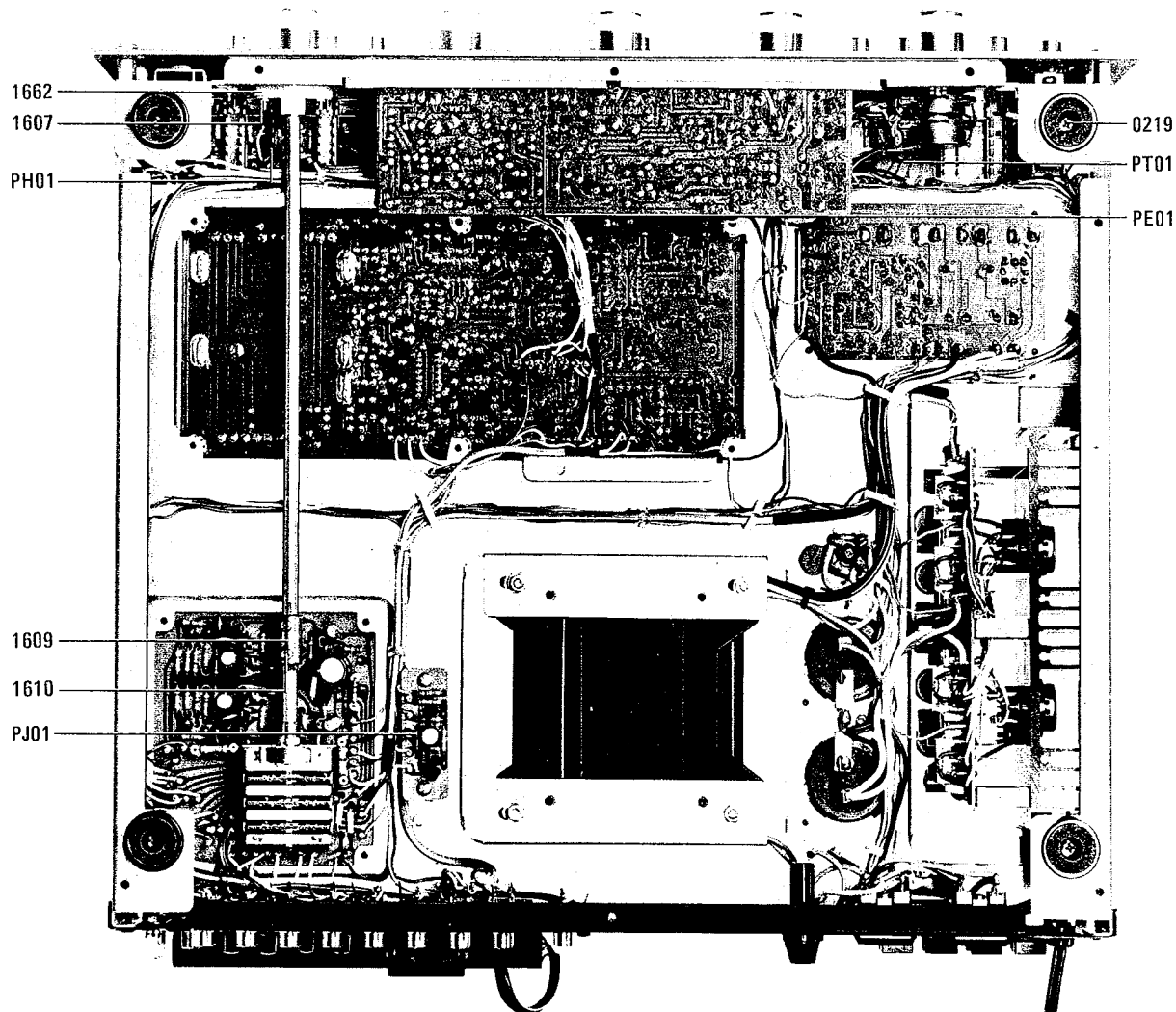
**9.2 CHASSIS - TOP VIEW**



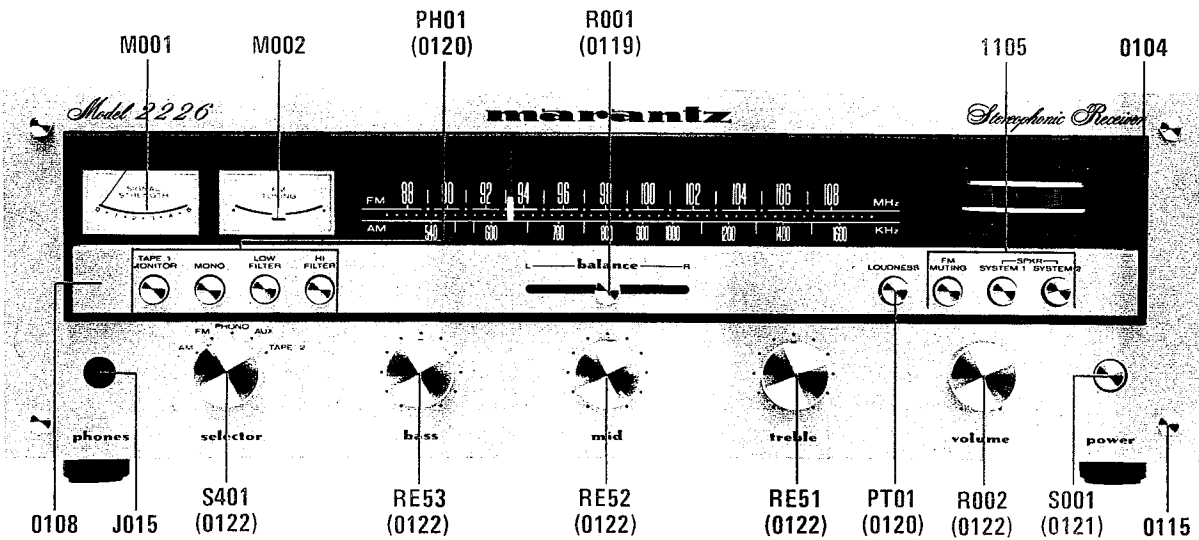
### 9.3 CABINET - REAR VIEW



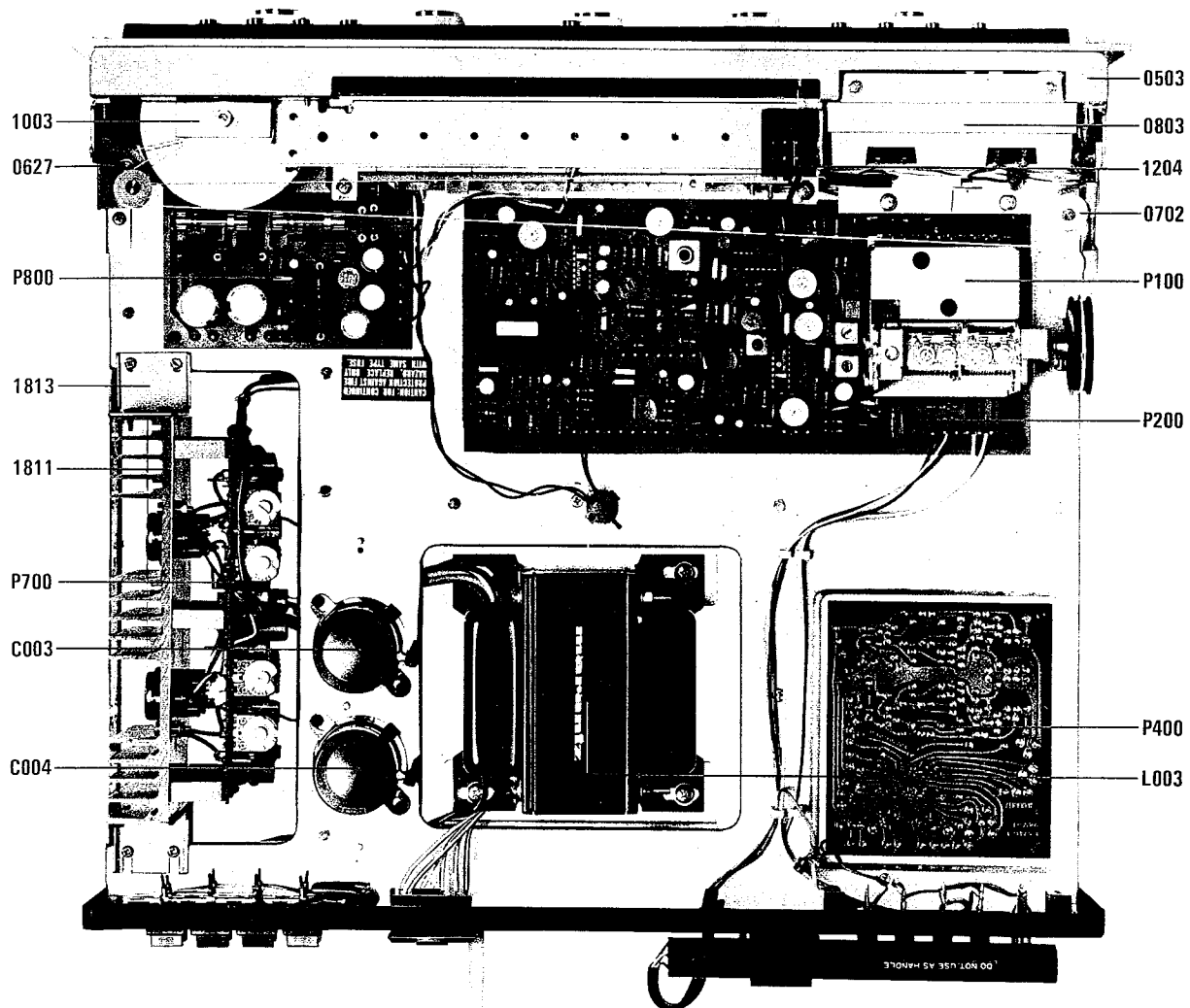
### 9.4 CHASSIS - BOTTOM VIEW



**9.5 CABINET-FRONT VIEW - EUROPE**

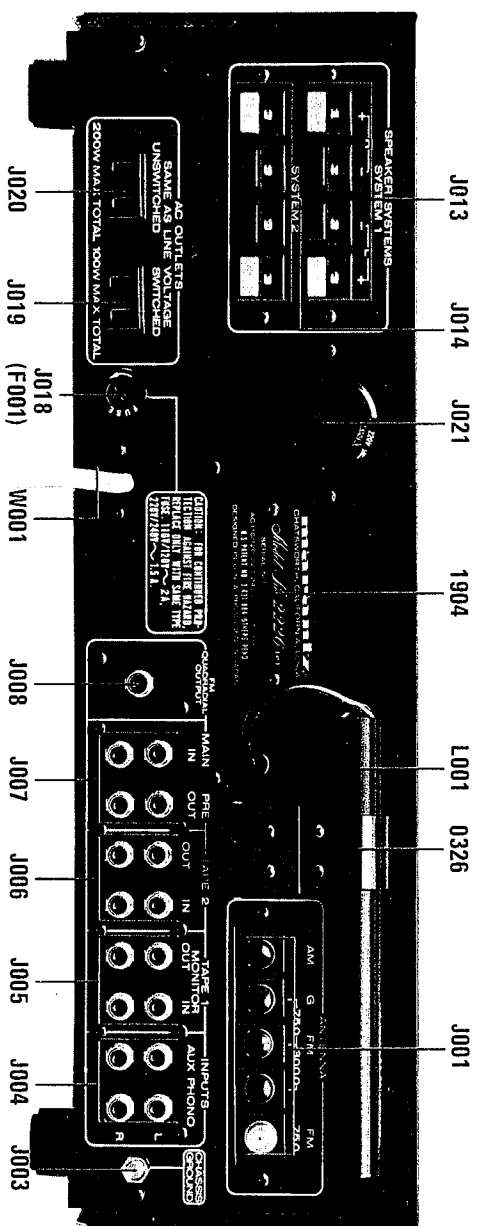


**9.6 CHASSIS - TOP VIEW - EUROPE**



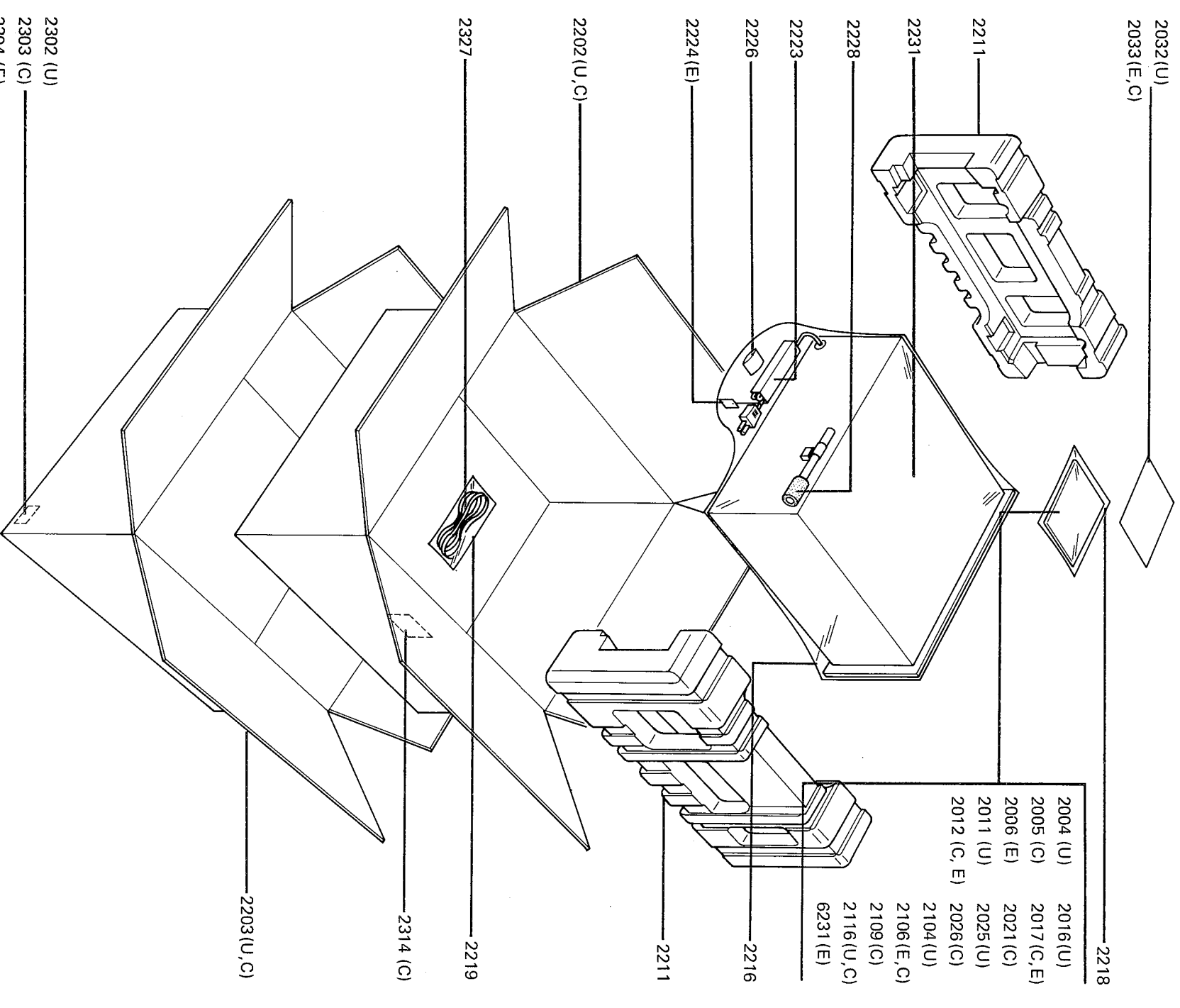


9.7 CABINET-REAR VIEW - EUROPE



10. EXPLODED VIEW

10.1 PACKING MATERIAL EXPLODED VIEW









U : For U.S.A.  
C : For Canada  
E : For Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
<b>P400-RESISTORS</b>					
R400	1	1	1	RC00000120	Fixed, 0Ω, ½W
R401	1	1	1	RT05913140	Fixed, 91kΩ ±5%, ¼W
R402	1	1	1	RT05913140	Fixed, 91kΩ ±5%, ¼W
R403	1	1	1	RT05471140	Fixed, 470Ω ±5%, ¼W
R404	1	1	1	RT05471140	Fixed, 470Ω ±5%, ¼W
R405	1	1	1	RN05394140	Fixed, 390kΩ ±5%, ¼W
R406	1	1	1	RN05394140	Fixed, 390kΩ ±5%, ¼W
R407	1	1	1	RT05223140	Fixed, 22kΩ ±5%, ¼W
R408	1	1	1	RT05223140	Fixed, 22kΩ ±5%, ¼W
R409	1	1	1	RT05681140	Fixed, 680Ω ±5%, ¼W
R410	1	1	1	RT05681140	Fixed, 680Ω ±5%, ¼W
R411	1	1	1	RN05104140	Fixed, 100kΩ ±5%, ¼W
R412	1	1	1	RN05104140	Fixed, 100kΩ ±5%, ¼W
R413	1	1	1	RT05303140	Fixed, 30kΩ ±5%, ¼W
R414	1	1	1	RT05303140	Fixed, 30kΩ ±5%, ¼W
R415	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
R416	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
R417	1	1	1	RT05182140	Fixed, 1.8kΩ ±5%, ¼W
R418	1	1	1	RT05182140	Fixed, 1.8kΩ ±5%, ¼W
R419	1	1	1	RT05472140	Fixed, 4.7kΩ ±5%, ¼W
R420	1	1	1	RT05472140	Fixed, 4.7kΩ ±5%, ¼W
R421	1	1	1	RT05224140	Fixed, 220kΩ ±5%, ¼W
R422	1	1	1	RT05224140	Fixed, 220kΩ ±5%, ¼W
R423	1	1	1	RT05473140	Fixed, 47kΩ ±5%, ¼W
R424	1	1	1	RT05473140	Fixed, 47kΩ ±5%, ¼W
R425	1	1	1	RT05152140	Fixed, 1.5kΩ ±5%, ¼W
R426	1	1	1	RT05152140	Fixed, 1.5kΩ ±5%, ¼W
R427	1	1	1	RN05564140	Fixed, 560kΩ ±5%, ¼W
R428	1	1	1	RN05564140	Fixed, 560kΩ ±5%, ¼W
R429	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R430	1	1	1	GJ05681010	Fixed, 680Ω ±5%, 1W
R431	1	1	1	GF05330120	Fixed, 33Ω ±5%, ¼W
<b>P400-CAPACITORS</b>					
C401	1	1	1	EV22502560	Electrolytic, 2.2μF ±20%, 25V
C402	1	1	1	EV22502560	Electrolytic, 2.2μF ±20%, 25V
C403	1	1	1	DD15201010	Ceramic, 200pF ±10%, 50V
C404	1	1	1	DD15201010	Ceramic, 200pF ±10%, 50V
C405	1	1	1	DD16151010	Ceramic, 150pF ±10%, 50V
C406	1	1	1	DD16151010	Ceramic, 150pF ±10%, 50V
C407	1	1	1	EV22600660	Electrolytic, 22μF ±20%, 6.3V
C408	1	1	1	EV22600660	Electrolytic, 22μF ±20%, 6.3V
C409	1	1	1	DD16300010	Ceramic, 30pF ±10%, 50V
C410	1	1	1	DD16300010	Ceramic, 30pF ±10%, 50V
C411	1	1	1	EA47601690	Electrolytic, 47μF +100%, -10%, 16V
C412	1	1	1	EA47601690	Electrolytic, 47μF +100%, -10%, 16V
C413	1	1	1	DD16101010	Ceramic, 100pF ±10%, 50V
C414	1	1	1	DD16101010	Ceramic, 100pF ±10%, 50V
C415	1	1	1	EE22503510	Electrolytic, 2.2μF ±20%, 35V
C416	1	1	1	EE22503510	Electrolytic, 2.2μF ±20%, 35V
C417	1	1	1	DF15152010	Film, 0.0015μF ±2%, 50V
C418	1	1	1	DF15152010	Film, 0.0015μF ±2%, 50V
C419	1	1	1	DF15562010	Film, 0.0056μF ±5%, 50V
C420	1	1	1	DF15562010	Film, 0.0056μF ±5%, 50V
C421	1	1	1	EA10705090	Electrolytic, 100μF +100%, -10%, 50V
C422	1	1	1	EA47601090	Electrolytic, 47μF +100%, -10%, 10V
<b>P400-MISCELLANEOUS</b>					
Q401	1	1	1	HT313281T0	Transistor, 2SC1328T

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
Q402	1	1	1	HT313281T0	Transistor, 2SC1328T
Q403	1	1	1	HT313282A0	Transistor, 2SC1328S, T
Q404	1	1	1	HT313282A0	Transistor, 2SC1328S, T
Q405	1	1	1	HT313281T0	Transistor, 2SC1328T
Q406	1	1	1	HT313281T0	Transistor, 2SC1328T
S401	1	1	1	SR10050120	Rotary Switch, Selector
P408	6	6	6	2933118020	Spacer, R429~R431
J401	?	35	35	YP10001131	Plug
J435					
<b>MAIN AMP. CIRCUIT BOARD-P700</b>					
P700	1	1	1	YD29110042	P.W. Board, Main Amp.
	1	1	1	ZZ22041043	P.W. Board Assembly
<b>P700-RESISTORS</b>					
R701	1	1	1	RT05392140	Fixed, 3.9kΩ ±5%, ¼W
R702	1	1	1	RT05392140	Fixed, 3.9kΩ ±5%, ¼W
R703	1	1	1	RT05333140	Fixed, 33kΩ ±5%, ¼W
R704	1	1	1	RT05333140	Fixed, 33kΩ ±5%, ¼W
R705	1	1	1	RT05103140	Fixed, 10kΩ ±5%, ¼W
R706	1	1	1	RT05103140	Fixed, 10kΩ ±5%, ¼W
R707	1	1	1	RT05681140	Fixed, 680Ω ±5%, ¼W
R708	1	1	1	RT05681140	Fixed, 680Ω ±5%, ¼W
R709	1	1	1	RT05912140	Fixed, 9.1kΩ ±5%, ¼W
R710	1	1	1	RT05912140	Fixed, 9.1kΩ ±5%, ¼W
R711	1	1	1	RT05153140	Fixed, 15kΩ ±5%, ¼W
R712	1	1	1	RT05153140	Fixed, 15kΩ ±5%, ¼W
R713	1	1	1	RT05224140	Fixed, 220kΩ ±5%, ¼W
R714	1	1	1	RT05224140	Fixed, 220kΩ ±5%, ¼W
R715	1	1	1	RT05332140	Fixed, 3.3kΩ ±5%, ¼W
R716	1	1	1	RT05332140	Fixed, 3.3kΩ ±5%, ¼W
R717	1	1	1	RT05333140	Fixed, 33kΩ ±5%, ¼W
R718	1	1	1	RT05333140	Fixed, 33kΩ ±5%, ¼W
R719	1	1	1	RT05100140	Fixed, 10Ω ±5%, ¼W
R720	1	1	1	RT05100140	Fixed, 10Ω ±5%, ¼W
R721	1	1	1	RT05271140	Fixed, 270Ω ±5%, ¼W
R722	1	1	1	RT05271140	Fixed, 270Ω ±5%, ¼W
R723	1	1	1	GF05472140	Fixed, 4.7kΩ ±5%, ¼W
R724	1	1	1	GF05472140	Fixed, 4.7kΩ ±5%, ¼W
R725	1	1	1	GF05182140	Fixed, 1.8kΩ ±5%, ¼W
R726	1	1	1	GF05182140	Fixed, 1.8kΩ ±5%, ¼W
R727	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R728	1	1	1	RT05101140	Fixed, 100Ω ±5%, ¼W
R729	1	1	1	GF05201140	Fixed, 200Ω ±5%, ¼W
R730	1	1	1	GF05201140	Fixed, 200Ω ±5%, ¼W
R731	1	1	1	GF05301140	Fixed, 300Ω ±5%, ¼W
R732	1	1	1	GF05301140	Fixed, 300Ω ±5%, ¼W
R733	1	1	1	GF05132140	Fixed, 1.3kΩ ±5%, ¼W
R734	1	1	1	GF05132140	Fixed, 1.3kΩ ±5%, ¼W
R735	1	1	1	GF05392140	Fixed, 3.9kΩ ±5%, ¼W
R736	1	1	1	GF05392140	Fixed, 3.9kΩ ±5%, ¼W
R737	1	1	1	GF05122140	Fixed, 1.2kΩ ±5%, ¼W
R738	1	1	1	GF05122140	Fixed, 1.2kΩ ±5%, ¼W
R739	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W
R740	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W
R741	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W

U : For U.S.A.  
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E : For Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
R742	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W
R743	1	1	1	GF05100140	Fixed, 10Ω ±5%, ¼W
R744	1	1	1	GF05100140	Fixed, 10Ω ±5%, ¼W
R745	1	1	1	GF05221140	Fixed, 220Ω ±5%, ¼W
R746	1	1	1	GF05221140	Fixed, 220Ω ±5%, ¼W
R747	1	1	1	GF05221140	Fixed, 220Ω ±5%, ¼W
R748	1	1	1	GF05221140	Fixed, 220Ω ±5%, ¼W
R749	1	1	1	GF05100140	Fixed, 10Ω ±5%, ¼W
R750	1	1	1	GF05100140	Fixed, 10Ω ±5%, ¼W
R751	1	1	1	GW10472020	Fixed, 0.47Ω ±10%, 2W
R752	1	1	1	GW10472020	Fixed, 0.47Ω ±10%, 2W
R753	1	1	1	GW10472020	Fixed, 0.47Ω ±10%, 2W
R754	1	1	1	GW10472020	Fixed, 0.47Ω ±10%, 2W
R755	1	1	1	RC10022120	Fixed, 2.2Ω ±10%, ½W
R756	1	1	1	RC10022120	Fixed, 2.2Ω ±10%, ½W
R757	1	1	1	GJ05100020	Fixed, 10Ω ±5%, 2W
R758	1	1	1	GJ05100020	Fixed, 10Ω ±5%, 2W
R759	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W
R760	1	1	1	GF05101140	Fixed, 100Ω ±5%, ¼W
R761	1	1	1	RA05020170	Trimming, 5kΩ ±20%
R762	1	1	1	RA05020170	Trimming, 5kΩ ±20%
R763	1	1	1	RA03010020	Trimming, 300Ω ±20%
R764	1	1	1	RA03010020	Trimming, 300Ω ±20%
R765	1	1	1	GF05102140	Fixed, 1kΩ ±5%, ¼W
R766	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
R767	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
R768	1	1	1	RT05331140	Fixed, 330Ω ±5%, ¼W
R769	1	1	1	RT05331140	Fixed, 330Ω ±5%, ¼W
R770	1	1	1	RC00000120	Fixed, 0Ω, ½W
R771	1	1	1	RC00000120	Fixed, 0Ω, ½W
R772	1	1	1	RC00000120	Fixed, 0Ω, ½W
R773	1	1	1	RC00000120	Fixed, 0Ω, ½W
R774	1	1	1	RC00000120	Fixed, 0Ω, ½W
R775	1	1	1	RC00000120	Fixed, 0Ω, ½W
<b>P700-CAPACITORS</b>					
C701	1	1	1	EE10505010	Electrolytic, 1μF, 50V
C702	1	1	1	EE10505010	Electrolytic, 1μF, 50V
C703	1	1	1	DD16201010	Ceramic, 200pF
C704	1	1	1	DD16201010	Ceramic, 200pF
C705	1	1	1	EE47601610	Electrolytic, 47μF, 16V
C706	1	1	1	EE47601610	Electrolytic, 47μF, 16V
C707	1	1	1	DD10030500	Ceramic, 3pF, 500V
C708	1	1	1	DD10030500	Ceramic, 3pF, 500V
C709	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C710	1	1	1	EA10703590	Electrolytic, 100μF, 35V
C711	1	1	1	EA47605090	Electrolytic, 47μF, 50V
C712	1	1	1	EA47605090	Electrolytic, 47μF, 50V
C713	1	1	1	DD16201010	Ceramic, 200pF
C714	1	1	1	DD16201010	Ceramic, 200pF
C715	1	1	1	DF17104520	Ceramic, 0.1μF, 200V
C716	1	1	1	DF17104520	Ceramic, 0.1μF, 200V
C717	1	1	1	EA10603590	Electrolytic, 10μF, 35V
<b>P700-SEMICONDUCTORS</b>					
H701	1	1	1	HT107222A0	Transistor, 2SA722S, T
H702	1	1	1	HT107222A0	Transistor, 2SA722S, T
H703	1	1	1	HT107222A0	Transistor, 2SA722S, T
H704	1	1	1	HT107222A0	Transistor, 2SA722S, T
H705	1	1	1	HT315092B0	Transistor, 2SC1509Q, R
H706	1	1	1	HT315092B0	Transistor, 2SC1509Q, R
H707	1	1	1	HT309452A0	Transistor, 2SC945Q, R
H708	1	1	1	HT309452A0	Transistor, 2SC945Q, R
H709	1	1	1	HT107332B0	Transistor, 2SA733Q, R
H710	1	1	1	HT107332B0	Transistor, 2SA733Q, R

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
H711	1	1	1	HT315092A0	Transistor, 2SC1509P, Q
H712	1	1	1	HT315092A0	Transistor, 2SC1509P, Q
H713	1	1	1	HT107772A0	Transistor, 2SA777P, Q
H714	1	1	1	HT107772A0	Transistor, 2SA777P, Q
H715	1	1	1	HV00003120	Varistor, MV-13
H716	1	1	1	HV00003120	Varistor, MV-13
H717	1	1	1	HD20001210	Diode, 1S2473C (Ye)
H718	1	1	1	HD20001210	Diode, 1S2473C (Ye)
H719	1	1	1	HD20001210	Diode, 1S2473C (Ye)
H720	1	1	1	HD20001210	Diode, 1S2473C (Ye)
H721	1	1	1	HD20002210	Diode, 1S2472 (Gr)
H722	1	1	1	HD20002210	Diode, 1S2472 (Gr)
H723	1	1	1	HD20002210	Diode, 1S2472 (Gr)
H724	1	1	1	HD20002210	Diode, 1S2472 (Gr)
H725	1	1	1	HH00008120	Thermistor, 21D28
H726	1	1	1	HH00008120	Thermistor, 21D28
H727	1	1	1	HD30030090	Diode, WZ-177
H728	1	1	1	HV00003120	Varistor, MV-13
H729	1	1	1	HV00003120	Varistor, MV-13
H730	1	1	1	HD20005010	Diode, W06B, 100V
H731	1	1	1	HD20005010	Diode, W06B, 100V
H732	1	1	1	HD20005010	Diode, W06B, 100V
H733	1	1	1	HD20005010	Diode, W06B, 100V
<b>P700-MISCELLANEOUS</b>					
L701	1	1	1	LC22720010	Choke Coil, 2.7μH
L702	1	1	1	LC22720010	Choke Coil, 2.7μH
F701	1	1	1	FS10350010	Fuse, 3.5A 250V (UL)
F702	1	1	1	FS10350010	Fuse, 3.5A 250V (UL)
P707	24	24	24	3444118050	Spacer, R729~R732, R741~R744, R749, R750, R759, R760
P708	8	8	8	2933118020	Spacer
J701	?	?	?	?	?
J724	24	24	24	YP10001140	Plug
J725	?	?	?	?	?
J728	4	4	4	YJ08000210	Socket
J729	1	1	1	YP10001140	Plug
<b>POWER SUPPLY CIRCUIT BOARD-P800</b>					
P800	1	1	1	YA22040310	P.W. Board, Power Supply
	1	1	1	ZZ22040310	P.W. Board Assembly
	1	1	1	ZZ22048310	P.W. Board Assembly
<b>P800-RESISTORS</b>					
R801	1	1	1	GJ05220020	Fixed, 22Ω ±5%, 2W
R802	1	1	1	GF05100140	Fixed, 10Ω ±5%, ¼W
R803	1	1	1	RT05152140	Fixed, 1.5kΩ ±5%, ¼W
R804	1	1	1	RT05152140	Fixed, 1.5kΩ ±5%, ¼W
R805	1	1	1	GJ05221030	Fixed, 220Ω ±5%, 3W
R806	1	1	1	RT05363140	Fixed, 36kΩ ±5%, ¼W
R807	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
R808	1	1	1	RA05020130	Trimming, 5kΩ (B)
<b>P800-CAPACITORS</b>					
C801	1	1	1	DK18103510	Ceramic, 0.01μF, 500V
C802	1	1	1	EA47706310	Electrolytic, 470μF, 63V
C803	1	1	1	EA47705090	Electrolytic, 470μF, 50V
C804	1	1	1	EA10705090	Electrolytic, 100μF, 50V

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REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
C805	1	1	1	DF17473050	Film, 0.047μF, 50V
C806	1	1	1	DK18403020	Ceramic, 0.04μF, 50V
C807	1	1	1	EA33505090	Electrolytic, 3.3μF, 50V
C808	1	1	1	EA47701690	Electrolytic, 470μF, 16V
C809	1	1	1	EA10801090	Electrolytic, 1000μF, 10V
<b>P800-SEMICONDUCTORS</b>					
Q801	1	1	1	HD20012030	Diode, DS 132B
Q802	1	1	1	HD20011030	Diode, DS 131B
Q803	1	1	1	HT403302A0	Transistor, 2SD330 D or E
Q804	1	1	1	HT309452A0	Transistor, 2SC945 Q or R
Q805	1	1	1	HD30021090	Diode, BZ-140, 14V
Q806	1	1	1	HD20004130	Diode, SIB01-02
<b>P800-MISCELLANEOUS</b>					
P808	10	10	10	2933118020	Spacer, R801, R802, R805, Q801, Q802, Q806
F801	1	1		FS10100080	Fuse, MGC 1A
F802	1	1		FS10200060	Fuse, MGC 2A
F801			1	FS10100900	Fuse, SGA 1A (20mm)
F802			1	FS10200900	Fuse, SGA 2A (20mm)
J801					
J814	14	14	14	YP10001140	Plug
J815					
J818	4	4	4	YJ08000210	Socket, Fuse
<b>PRE &amp; TONE AMP. CIRCUIT BOARD-PE01</b>					
PE01	1	1	1	YD29151082	P.W. Board, Pre & Tone Amp.
	1	1	1	ZZ22041082	P.W. Board Assembly
<b>PE01-RESISTORS</b>					
RE01	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE02	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE03	1	1	1	RT05391140	Fixed, 390Ω ±5%, ¼W
RE04	1	1	1	RT05391140	Fixed, 390Ω ±5%, ¼W
RE05	1	1	1	RN05105140	Fixed, 1MΩ ±5%, ¼W
RE06	1	1	1	RN05105140	Fixed, 1MΩ ±5%, ¼W
RE07	1	1	1	RN05104140	Fixed, 100kΩ ±5%, ¼W
RE08	1	1	1	RT05103140	Fixed, 10kΩ ±5%, ¼W
RE09	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
RE10	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
RE11	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RE12	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RE13	1	1	1	RT05752140	Fixed, 7.5kΩ ±5%, ¼W
RE14	1	1	1	RT05752140	Fixed, 7.5kΩ ±5%, ¼W
RE15	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RE16	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RE17	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE18	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE19	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE20	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE21	1	1	1	RT05123140	Fixed, 12kΩ ±5%, ¼W
RE22	1	1	1	RT05123140	Fixed, 12kΩ ±5%, ¼W
RE23	1	1	1	RT05334140	Fixed, 330kΩ ±5%, ¼W
RE24	1	1	1	RT05334140	Fixed, 330kΩ ±5%, ¼W
RE25	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE26	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE27	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE28	1	1	1	RT05562140	Fixed, 5.6kΩ ±5%, ¼W
RE29	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
RE30	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
RE31	1	1	1	RT05123140	Fixed, 12kΩ ±5%, ¼W
RE32	1	1	1	RT05123140	Fixed, 12kΩ ±5%, ¼W
RE33	1	1	1	RT05153140	Fixed, 15kΩ ±5%, ¼W
RE34	1	1	1	RT05153140	Fixed, 15kΩ ±5%, ¼W
RE35	1	1	1	RT05334140	Fixed, 330kΩ ±5%, ¼W
RE36	1	1	1	RT05334140	Fixed, 330kΩ ±5%, ¼W
RE37	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
RE38	1	1	1	RT05273140	Fixed, 27kΩ ±5%, ¼W
RE39	1	1	1	RT05225140	Fixed, 2.2MΩ ±5%, ¼W
RE40	1	1	1	RT05225140	Fixed, 2.2MΩ ±5%, ¼W
RE41	1	1	1	RT05683140	Fixed, 68kΩ ±5%, ¼W
RE42	1	1	1	RT05683140	Fixed, 68kΩ ±5%, ¼W
RE43	1	1	1	RT05473140	Fixed, 47kΩ ±5%, ¼W
RE44	1	1	1	RT05473140	Fixed, 47kΩ ±5%, ¼W
RE45	1	1	1	RT05103140	Fixed, 10kΩ ±5%, ¼W
RE46	1	1	1	RT05103140	Fixed, 10kΩ ±5%, ¼W
RE47	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
RE48	1	1	1	RT05221140	Fixed, 220Ω ±5%, ¼W
RE49	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE50	1	1	1	RT05474140	Fixed, 470kΩ ±5%, ¼W
RE51	1	1	1	RM01040050	Variable, 100kΩ (B), Treble
RE52	1	1	1	RM01040050	Variable, 100kΩ (B), Mid
RE53	1	1	1	RM01040050	Variable, 100kΩ (B), Bass
RE54	1	1	1	RT05821140	Fixed, 820Ω ±5%, ¼W
RE55	1	1	1	RC00000120	Fixed, 0Ω, ¼W
RE56	1	1	1	RC00000120	Fixed, 0Ω, ¼W
<b>PE01-CAPACITORS</b>					
CE01	1	1	1	DF17224050	Film, 0.22μF ±20%, 50V
CE02	1	1	1	DF17224050	Film, 0.22μF ±20%, 50V
CE03	1	1	1	EA10603590	Electrolytic, 10μF +100%, -10%, 35V
CE04	1	1	1	EA10603590	Electrolytic, 10μF +100%, -10%, 35V
CE05	1	1	1	EE47502510	Electrolytic, 4.7μF±20%, 25V
CE06	1	1	1	EE47502510	Electrolytic, 4.7μF±20%, 25V
CE07	1	1	1	DD16101010	Ceramic, 100pF ±10%, 50V
CE08	1	1	1	DD16101010	Ceramic, 100pF ±10%, 50V
CE09	1	1	1	DF16222050	Film, 0.0022μF±10%, 50V
CE10	1	1	1	DF16222050	Film, 0.0022μF±10%, 50V
CE11	1	1	1	DF16472050	Film, 0.0047μF±10%, 50V
CE12	1	1	1	DF16472050	Film, 0.0047μF±10%, 50V
CE15	1	1	1	DF16223050	Film, 0.022μF ±10%, 50V
CE14	1	1	1	DF16223050	Film, 0.022μF ±10%, 50V
CE15	1	1	1	DF16223050	Film, 0.022μF ±10%, 50V
CE16	1	1	1	DF16223050	Film, 0.022μF ±10%, 50V
CE17	1	1	1	DF16822050	Film, 0.0082μF±10%, 50V
CE18	1	1	1	DF16822050	Film, 0.0082μF±10%, 50V
CE19	1	1	1	EE10505010	Electrolytic, 1μF ±20%, 50V
CE20	1	1	1	EE10505010	Electrolytic, 1μF ±20%, 50V
CE21	1	1	1	EE33505010	Electrolytic, 3.3μF±10%, 50V
CE22	1	1	1	EE33505010	Electrolytic, 3.3μF±10%, 50V
CE23	1	1	1	EQ10505010	Electrolytic, 1μF ±30%, 50V
CE24	1	1	1	EQ10505010	Electrolytic, 1μF ±30%, 50V
CE25	1	1	1	EA22703590	Electrolytic, 220μF +100%, -10%, 35V
<b>PE01-MISCELLANEOUS</b>					
HE01	1	1	1	HT313283A0	Transistor, 2SC1328S, T, U
HE02	1	1	1	HT313283A0	Transistor, 2SC1328S, T, U
HE03	1	1	1	HT107222A0	Transistor, 2SA722S, T
HE04	1	1	1	HT107222A0	Transistor, 2SA722S, T
HE05	1	1	1	HT313283A0	Transistor, 2SC1328S, T, U

U: For U.S.A.  
C: For Canada  
E: For Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
HE06	1	1	1	HT313283A0	Transistor, 2SC1328S, T, U
HE07	1	1	1	HT107222A0	Transistor, 2SA722S, T
HE08	1	1	1	HT107222A0	Transistor, 2SA722S, T
PE08	2	2	2	2933118020	Spacer, RE54
JE01 ? JE08	8	8	8	YP10001130	Plug
PH01	1	1		YD29151090	<b>MONO, HI FILTER, TAPE MONITOR 1 &amp; 25μS SWITCH CIRCUIT BOARD-PH01</b> P.W. Board, Mono, Hi Filter, Tape Monitor 1 & 25μS Switches
PH01	1	1		ZZ22041090	P.W. Board Assembly
PH01			1	YD29150050	P.W. Board, Mono, Hi & Low Filters, Tape Monitor 1 Switches
			1	ZZ22048050	P.W. Board Assembly
					<b>PH01-RESISTORS</b>
RH01	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RH02	1	1	1	RT05102140	Fixed, 1kΩ ±5%, ¼W
RH04	1	1	1	RT05105140	Fixed, 1MΩ ±5%, ¼W
RH05	1	1	1	RT05105140	Fixed, 1MΩ ±5%, ¼W
RH06	1	1	1	RT05472140	Fixed, 4.7kΩ ±5%, ¼W
RH07	1	1	1	RT05472140	Fixed, 4.7kΩ ±5%, ¼W
RH08	1	1	1	RT05225140	Fixed, 2.2MΩ ±5%, ¼W
RH09	1	1	1	RT05225140	Fixed, 2.2MΩ ±5%, ¼W
					<b>PH01-CAPACITORS</b>
CH01	1	1		DF15222050	Film, 0.0022μF ±10%, 50V
CH02	1	1		DF15222050	Film, 0.0022μF ±10%, 50V
CH01			1	DF16333050	Film, 0.033μF ±10%, 50V
CH02			1	DF16333050	Film, 0.033μF ±10%, 50V
CH03	1	1	1	DF16682050	Film, 0.0068μF ±10%, 50V
CH04	1	1	1	DF16682050	Film, 0.0068μF ±10%, 50V
CH05	1	1		EV22403510	Electrolytic, 0.22μF ±10%, 35V
CH06	1	1		EV22403510	Electrolytic, 0.22μF ±10%, 35V
					<b>PH01-MISCELLANEOUS</b>
SH01	1	1		SP04040140	Pushswitch
SH01			1	SP04040130	Pushswitch
JH01	1	1		YP10001200	Plug
JH02	1	1		YP10001200	Plug
JH09 ? JH28 JH01 ? JH17	20	20		YP10001200	Plug
			17	YP10001200	Plug
					<b>PHONO &amp; POPS NOISE CIRCUIT BOARD-PJ01</b>
PJ01	1	1	1	YD22040010	P.W. Board, Phono, Pops Noise
	1	1	1	ZZ22040010	P.W. Board Assembly
					<b>PJ01-MISCELLANEOUS</b>
RJ01	1	1	1	RT05684140	Resistor, Fixed, 680kΩ ±5%, ¼W
RJ02	1	1	1	RT05754140	Resistor, Fixed, 750kΩ ±5%, ¼W
RJ03	1	1	1	RT05103140	Resistor, Fixed, 10kΩ ±5%, ¼W

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
RJ04	1	1	1	RT05100140	Resistor, Fixed, 10Ω ±5%, ¼W
CJ01	1	1	1	EA10701090	Capacitor, Electrolytic, 100μF, 10V
QJ01	1	1	1	HT309452B0	Transistor, 2SC945
QJ02	1	1	1	HT309452B0	Transistor, 2SC945
QJ03	1	1	1	HT309452B0	Transistor, 2SC945
QJ04	1	1	1	HD30024090	Diode, WZ-120
JJ01 ? JJ05	5	5	5	YP10001130	Plug
					<b>SPEAKER SWITCH CIRCUIT BOARD-PT01</b>
PT01	1	1	1	YD29151100	P.W. Board, Speaker Switch
	1	1	1	ZZ22043100	P.W. Board Assembly
					<b>PT01-MISCELLANEOUS</b>
RT01	1	1	1	RT05683140	Resistor, Fixed, 68kΩ ±5%, ¼W
RT02	1	1	1	RT05683140	Resistor, Fixed, 68kΩ ±5%, ¼W
RT03	1	1	1	RT05153140	Resistor, Fixed, 15kΩ ±5%, ¼W
RT04	1	1	1	RT05153140	Resistor, Fixed, 15kΩ ±5%, ¼W
RT05	1	1	1	GJ05331020	Resistor, Fixed, 330Ω ±5%, 2W
RT06	1	1	1	GJ05331020	Resistor, Fixed, 330Ω ±5%, 2W
RT07	1	1	1	GU05151120	Resistor, Fixed, 150Ω ±5%, ¼W
RT08	1	1	1	GU05151120	Resistor, Fixed, 150Ω ±5%, ¼W
CT01	1	1	1	DD16121010	Capacitor, Ceramic, 120pF ±10%, 50V
CT02	1	1	1	DD16121010	Capacitor, Ceramic, 120pF ±10%, 50V
CT03	1	1	1	DF16273050	Capacitor, Film, 0.027μF ±10%, 50V
CT04	1	1	1	DF16273050	Capacitor, Film, 0.027μF ±10%, 50V
PT07	4	4	4	3444118050	Spacer, RT05, RT06
ST01	1	1	1	SP04040110	Pushswitch
JT01 ? JT16	16	16	16	YP10001200	Plug
					<b>DIAL LAMP CIRCUIT BOARD-PZ01</b>
PZ01	1	1	1	YD28860160	P.W. Board, Dial Lamp
	1	1	1	ZZ22041160	P.W. Board Assembly
					<b>PZ01-MISCELLANEOUS</b>
MZ01 ? MZ05	5	5	5	IN10080070	Lamp



U: For U.S.A.  
 C: For Canada  
 E: For Europe

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
JZ01 ? JZ10 JZ11 ? JZ14	10	10	10	YJ08000170	Socket
	4	4	4	YJ08000170	Plug
<b>GENERAL MISCELLANEOUS</b>					
M001	1	1	1	IM11042270	DC Meter, Signal Strength
M002	1	1	1	IM11042240	DC Meter, Tuning
M003	1	1	1	IN10080340	Lamp, Stereo Indicator
M004	1	1	1	IN10080300	Lamp, Pointer
M005	1	1	1	IN10080070	Lamp, Meter Indicator
M006	1	1	1	IN10080070	Lamp, Meter Indicator
H001	1	1	1	HT106272B0	Transistor, 2SA627M, L
H002	1	1	1	HT401882B0	Transistor, 2SD188M, L
H003	1	1	1	HT106272B0	Transistor, 2SA627M, L
H004	1	1	1	HT401882B0	Transistor, 2SD188M, L
H005	1	1	1	HV00005080	Varistor, STV-3H (Y)
H006	1	1	1	HV00005080	Varistor, STV-3H (Y)
H007	1	1	1	HD20003290	Diode, S4VB
L001	1	1	1	LF11200460	Antenna Coil, AM
L002	1	1	1	LC11540020	Choke Coil
L003	1	1	1	TS19608010	Power Transformer
L003			1	TS19608020	Power Transformer
S001	1	1	1	SP02020100	Power Switch
C001	1	1	1	DK18103010	Capacitor, Ceramic, 0.01 $\mu$ F, 50V
C002	1	1	1	DK18103010	Capacitor, Ceramic, 0.01 $\mu$ F, 50V
C003	1	1	1	EC68803520	Capacitor, Electrolytic, 6800 $\mu$ F, 35V
C004	1	1	1	EC68803520	Capacitor, Electrolytic, 6800 $\mu$ F, 35V
C006		1		DF17473590	Capacitor, Film, 0.047 $\mu$ F
C006		1		DF17223800	Capacitor, Film, 0.022 $\mu$ F, 1000V
G001	1			BF10400040	Printed Comp.
R001	1	1	1	RS05040050	Resistor, Variable, 500k $\Omega$ , Balance
R002	1	1	1	RM02540220	Resistor, Variable, 250k $\Omega$ , Volume
R003	1	1		RC10225120	Resistor, Fixed, 2.2M $\Omega$ $\pm$ 10%, 1/2W
J001	1	1	1	BY04050010	Terminal, Antenna
J002	1	1	1	YL01020030	Terminal, 2P Lug
J003	1	1	1	YT01010050	Terminal, Ground
J004	1	1	1	YT02040140	Terminal, Phono/Aux
J005	1	1	1	YT02040140	Terminal, Tape 1
J006	1	1	1	YT02040140	Terminal, Tape 2
J007	1	1	1	YT02040170	Terminal, Pre Out/Main In
J008	1	1	1	YT02010130	Terminal, Quadradial Output
J009	1	1	1	YJ05000220	Socket, Transistor
J010	1	1	1	YJ05000220	Socket, Transistor
J011	1	1	1	YJ05000220	Socket, Transistor
J012	1	1	1	YJ05000220	Socket, Transistor
J013	1	1	1	YT03040160	Terminal, System 1 Speaker
J014	1	1	1	YT03040160	Terminal, System 2 Speaker
J015	1	1	1	YJ01000980	Jack, Headphone
J016	1	1	1	YJ08000190	Socket, Meter Lamp

REF. DESIG.	Q'TY			PART NO.	DESCRIPTION
	U	C	E		
J017	1	1	1	YJ08000190	Socket, Meter Lamp
J018	1	1	1	YJ08000120	Socket, Fuse Holder
J018			1	YJ08000220	Socket, Fuse Holder
J019	1	1	1	YJ04000570	Socket, AC Outlet
J020	1	1	1	YJ04000570	Socket, AC Outlet
J021			1	BY03110010	Terminal, Voltage Conversion
W001	1	1		YC02400220	AC Cord, UL
W001			1	YC01900030	AC Cord
F001			1	FS10150900	Fuse, 1.5A SGA
F001	1	1		FS10200060	Fuse, 2A MGC
F002		1		FS20250910	Fuse, 2.5A
2121	1	1	1	2991109010	Shield
2122	1	1	1	2991053110	Cover

**12. TECHNICAL SPECIFICATIONS**

**AMPLIFIER SECTION:**

Rated Power Output, Minimum Continuous Average per Channel, both Channels Driven .....	26 W
Power Band .....	20 Hz to 20 kHz
Total Harmonic Distortion .....	0.3%
Load Impedance .....	8 ohms
Maximum Power Output, DIN 45500	
(Less than 1% THD, 10 min. test at 1 kHz) .....	32 W
Power Bandwidth at 1% THD, DIN 45500 .....	10 Hz to 70 kHz
I.M. Distortion	
(I.F. method, 60 Hz and 7 kHz mixed 4:1 at rated power output) .....	0.3%
Damping Factor .....	45
Sensitivity (at MAIN IN) .....	1.5 V
Impedance (at MAIN IN) .....	30 kohms
Frequency Response for Power Amp Only	
(at 1 W output, 20 Hz to 20 kHz) .....	±0.5 dB

**PREAMPLIFIER SECTION:**

<b>Phono</b>	
Input Overload at 1 kHz .....	100 mV
Equivalent Input Noise .....	1.5 μV
Dynamic Range	
(Dynamic Range is the ratio of input overload to equivalent input noise.) .....	96 dB
Input Sensitivity .....	1.8 mV
Input Impedance .....	47 kohms
Frequency Response, RIAA 20 Hz to 20 kHz .....	±1.0 dB
Signal-to-Noise Ratio	
(at rated output and 7.75 mV input) .....	75 dB
Signal-to-Noise Ratio, unweighted (DIN 45500) .....	50 dB
<b>High Level (Aux and Tape)</b>	
Input Sensitivity .....	180 mV
Input Impedance .....	85 kohms
Frequency Response	
(includes power amp) .....	15 Hz to 60 kHz, ±1.5 dB
Signal-to-Noise Ratio	
(ref. to rated output and 775 mV input) .....	84 dB
<b>Output Levels</b>	
Tape Out (ref. 7.75 mV at Phono inputs) .....	775 mV
Pre-Out (ref. 180 mV at Aux inputs) .....	1.5 V
(ref. 500 mV at Aux inputs, main amp disconnected) .....	4.2 V
<b>Output Impedance</b>	
Tape Out .....	600 ohms
Pre-Out .....	900 ohms

**FM TUNER SECTION:**

<b>Sensitivity</b>	
IHF Usable .....	10.8 dBf (1.9 μV)
IHF 50 dB Quieting (mono) .....	17.3 dBf (4.0 μV)
(Stereo) .....	37.2 dBf (40 μV)
DIN Sensitivity (Mono, 26 dB S/N, 300 ohm input) .....	1.6 μV
(Stereo, 46 dB S/N, 300 ohm input) .....	80 μV
<b>Quieting Slope (Mono)</b>	
RF Input for 30 dB Quieting .....	9.8 dBf (1.7 μV)
<b>Quieting at:</b>	
20 dBf ( 5.5 μV) .....	51 dB
25 dBf ( 10 μV) .....	58 dB
40 dBf ( 55 μV) .....	65 dB
65 dBf (1000 μV) .....	72 dB
<b>Quieting Slope (Stereo)</b>	
<b>Quieting at:</b>	
30 dBf ( 17 μV) .....	40 dB
40 dBf ( 55 μV) .....	50 dB
50 dBf ( 173 μV) .....	56 dB
65 dBf (1000 μV) .....	62 dB

Distortion (Mono)	
at 50 dB Quieting, 1000 Hz	0.6%
at 65 dBf (1000 $\mu$ V), 1000 Hz	0.15%
Distortion (Stereo)	
at 50 dB Quieting, 1000 Hz	0.6%
at 65 dBf (1000 $\mu$ V), 1000 Hz	0.3%
Hum and Noise	
at 65 dBf (1000 $\mu$ V)	
Mono	70 dB
Stereo	62 dB
Frequency Response	
30 Hz to 15 kHz	
Mono	+0.2, -2.0 dB
Stereo	$\pm$ 2.0 dB
Capture Ratio	
at 45 dBf (100 $\mu$ V)	1.5 dB
at 65 dBf (1000 $\mu$ V)	1.0 dB
Alternate Channel Selectivity	70 dB
Spurious Response Rejection	90 dB
Image Response Rejection	60 dB
I.F. Rejection (Balanced)	90 dB
A.M. Suppression	50 dB
Stereo Separation	
100 Hz	42 dB
1000 Hz	45 dB
10 kHz	32 dB
Subcarrier Rejection	60 dB

#### AM TUNER SECTION:

IHF Usable Sensitivity	20 $\mu$ V
Distortion (THD), 30% Modulation	0.6%
Signal-to-Noise Ratio	49 dB
Frequency Response ( $\pm$ 3 dB)	40 Hz to 2.3 kHz
Alternate Channel Selectivity	46 dB
Image Rejection	45 dB
Spurious Response Rejection	50 dB
I.F. Rejection	40 dB

#### GENERAL:

Power Requirements	120 V AC, 50/60 Hz (U.S.A. and Canadian Versions) 220 V AC, 50/60 Hz (European Version)
	(This unit can be converted by a qualified technician to operate on 110/120/240 V AC, 50/60 Hz.)
Power Consumption at rated output, both channels operating	147 W
Idling Power (Volume Control at zero)	27 W
Semiconductor Complement:	
Integrated Circuits	3
Transistors	45
Diodes	29
Field Effect Transistors	1
Dimensions:	
Panel Width	440 mm (17-5/16 inches)
Panel Height	137 mm ( 5-3/8 inches)
Depth	365 mm (14-3/8 inches)
Weight:	
Unit alone	11.5 kg (25.3 lbs)
Packed for shipment	14.5 kg ( 32 lbs)



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