

244

SERVICE MANUAL



marantz

model 2226 B

Stereophonic Receiver

TABLE OF CONTENTS

SECTION	PAGE
1. INTRODUCTION	1
2. SERVICE NOTES	1
3. TEST EQUIPMENT REQUIRED FOR SERVICING	2
4. AM ALIGNMENT PROCEDURE	2
5. FM ALIGNMENT PROCEDURE	3
6. POWER AMPLIFIER ADJUSTMENT	3
7. POWER SUPPLY ADJUSTMENT	3
8. VOLTAGE CONVERSION FOR EUROPEAN MODEL	4
9. FTZ REGULATION FOR EUROPE	4
10. MAJOR COMPONENT LOCATIONS	5
10.1 Front Panel Adjustment and Component Locations	5
10.2 Main Chassis Component Locations (Top View)	5
10.3 Rear Panel Adjustment and Component Locations	6
10.4 Main Chassis Component Locations (Bottom View)	6
11. DIAGRAM AND COMPONENT LOCATIONS	7
11.1 FM Front End Assembly (P100) Schematic Diagram and Component Locations	7
11.2 Dial Lamp Assembly (PZ01) Schematic Diagram and Component Locations	7
11.3 Phono Amp. Assembly (P400) Schematic Diagram and Component Locations	8
11.4 Tuner Assembly (P200) Schematic Diagram and Component Locations	9
11.5 Tone Switch Assembly (PE01) Schematic Diagram and Component Locations	11
11.6 Main Amp. & Power Supply Assembly (P700) Schematic Diagram and Component Locations	13
12. BLOCK DIAGRAM	15
13. CONNECTION DIAGRAMS	17
13.1 For U.S.A. & Canadian Models	17
13.2 For European Model	19
14. SCHEMATIC DIAGRAMS	21
14.1 For U.S.A. & Canadian Models	21
14.2 For European Model	23
15. EXPLODED MECHANICAL DIAGRAMS	25
15.1 Cabinet	25
15.2 Chassis	27
15.3 Rear Panel for U.S.A. & Canadian Models	29
15.4 Rear Panel for European Model	29
16. PACKING MATERIAL EXPLODED VIEW	30
17. PARTS LIST	31
18. TECHNICAL SPECIFICATIONS	39

1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for Marantz Model 2226B 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.

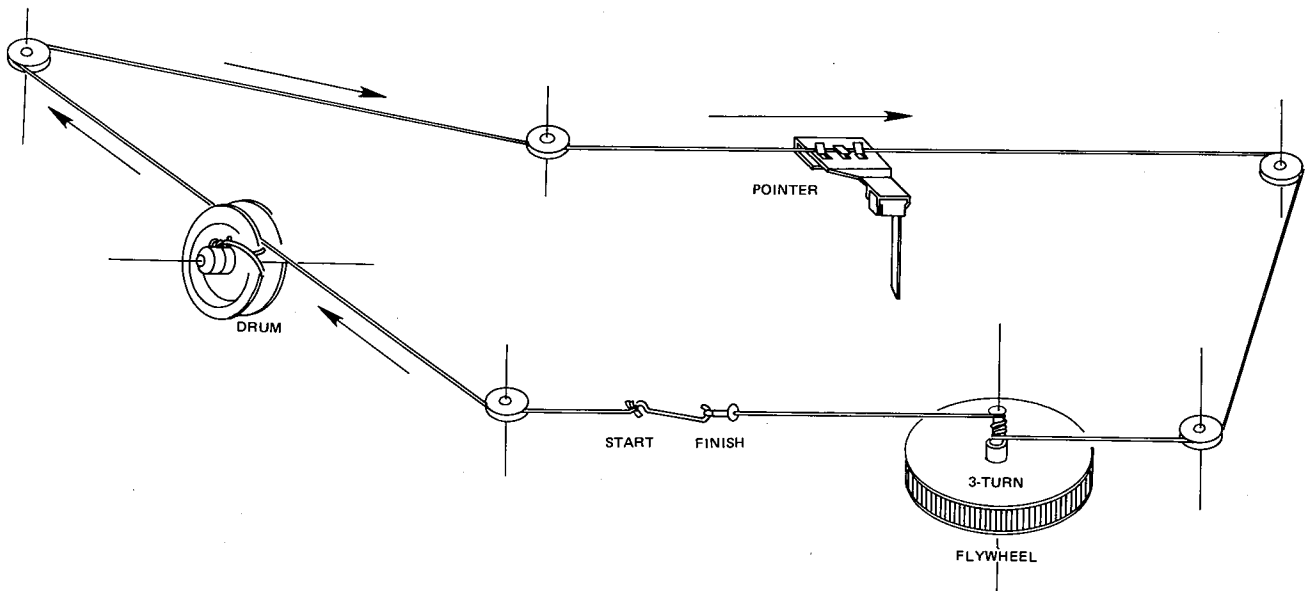
The parts list furnishes information by which replacement parts may be ordered from the Marantz Company. A simple description is included for parts which can usually be obtained through local suppliers.

2. SERVICE NOTES

As can be seen from the circuit diagram, the chassis of Model 2226B 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.B. P 100
2. Tuner mounted on P.W.B. P200
3. Phono Equalizer Amp & Selector ... mounted on P.W.B. P400
4. Main Amp. & Power Supply mounted on P.W.B. P700
5. Pre, Tone Amp. & Switch Ass'y mounted on P.W.B. PE01
6. Dial Lamp mounted on P.W.B. PZ01

Figure 1. Dial Stringing



3. TEST EQUIPMENT REQUIRED FOR SERVICING

This table lists the test equipment required for servicing the Model 2226B 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, $\pm 0.5\%$, 100W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, $\pm 0.5\%$, 100W)	Commercial Grade	Provides 4-ohm load for amplifier output termination

4. AM ALIGNMENT PROCEDURE

4.1 AM IF ALIGNMENT

1. Connect a sweep generator to the L153 and an alignment scope to the J233.
2. Rotate each core of IF transformers L155 and L156 for the maximum height and flat top symmetrical response.

4.2 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.

5. FM ALIGNMENT PROCEDURE

5.1 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 μV . 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 μV . 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 (low 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 μV 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.

5.2 STEREO SEPARATION ALIGNMENT

1. Set the FM signal generator to provide 1 μV 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.

5.3 MUTING THRESHOLD ADJUSTMENT

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

5.4 FM DOLBY LEVEL ADJUSTMENT

1. Set the FM signal generator to provide a 400 Hz, 50% modulated 98 MHz mono signal, at 1 μV output. Precisely tune the receiver to 98 MHz.
2. Depress the FM 25 μS pushswitch, and adjust R215 until the outputs of both channels are 580 mV.

6. POWER AMPLIFIER ADJUSTMENT

Connect a VTVM between R757(+) and R759(-) and adjust the trimming resistor R739 until the VTVM reads 18.8 mV DC. And next, connect a VTVM between J735 and J732 (GROUND) and adjust the trimming resistor R737 until the VTVM reads 0 mV DC. Do over again. For the other channel, connect the VTVM between R758(+) and R760(-) and adjust the R740 for the same reading, and connect the VTVM between J736 and J732 and adjust the R738 for the same reading. Do over again. When adjusting a DC offset voltage, the switch of the SPEAKER SYSTEM 1 must be turned on.

7. POWER SUPPLY ADJUSTMENT

Connect a VTVM between J708(+) and J715(-) and adjust R783 until the VTVM reads 35.0 V under no signal condition.

● **EUROPEAN MODEL ONLY**

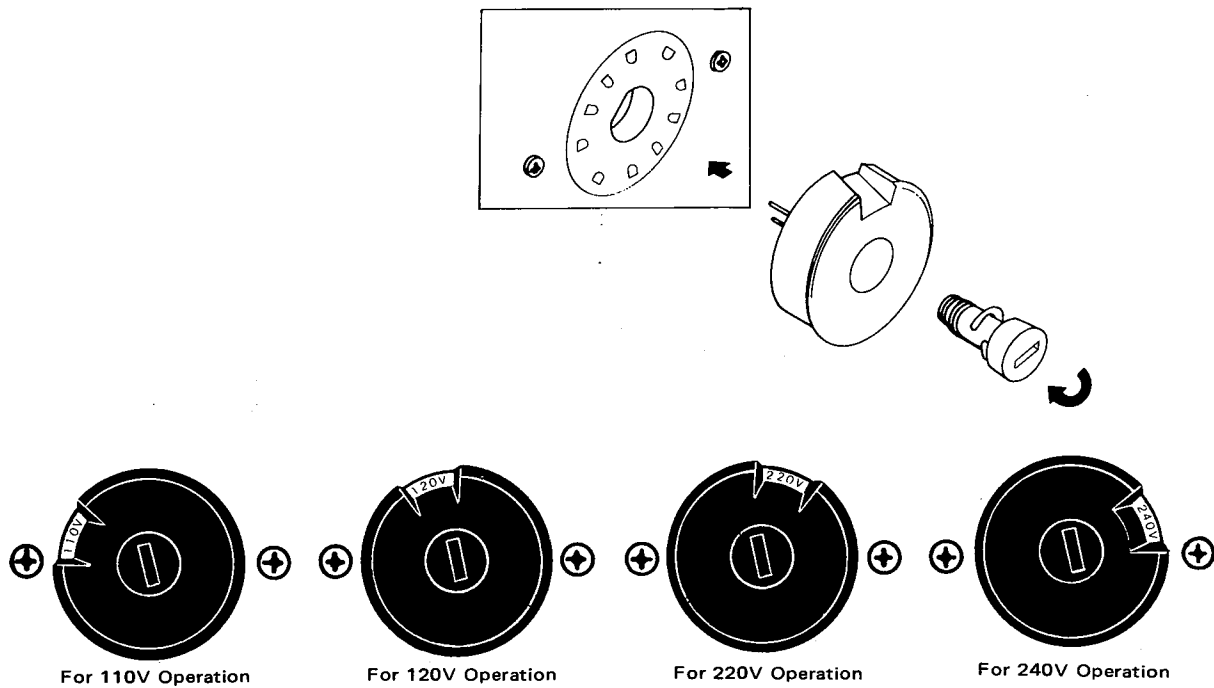
8. VOLTAGE CONVERSION

The European version of the Model 2226B 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.

Figure 2. Voltage Conversion Chart



9. FTZ REGULATION

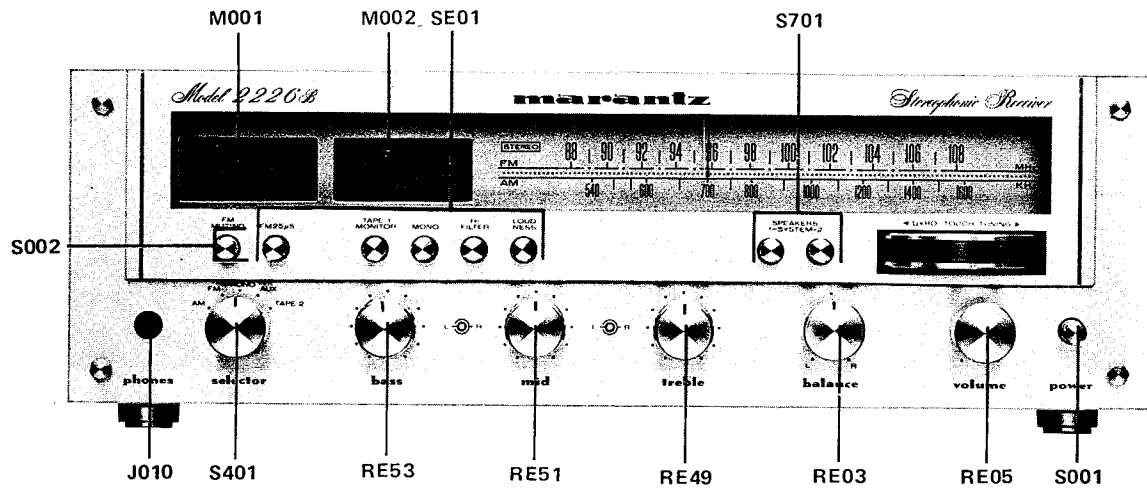
**Instruction for the use
in the rage other than specified in FTZ codes**

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

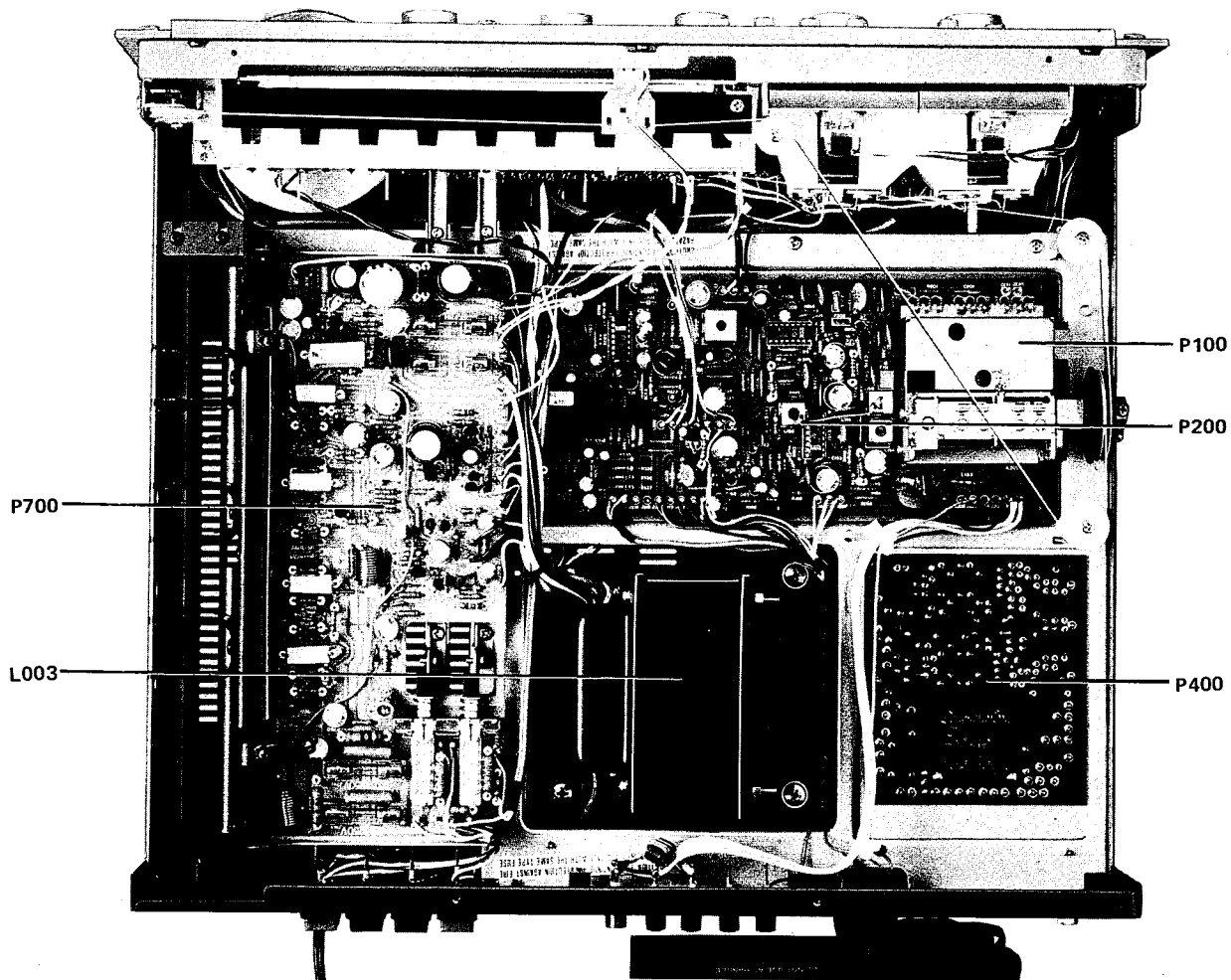
Sollte das Gerät auch für Frequenzen ausserhalb des in den FTZ-Bestimmungen angegebenen Bereiches empfangebereit sein, bitten wir, den Bereich durch Nachstellen des Kernes in der Oszillatorschule (in der Abbildung mit „FTZ“ gekennzeichnet) so zu korrigieren, dass er den Bestimmungen entspricht.

10. MAJOR COMPONENT LOCATIONS

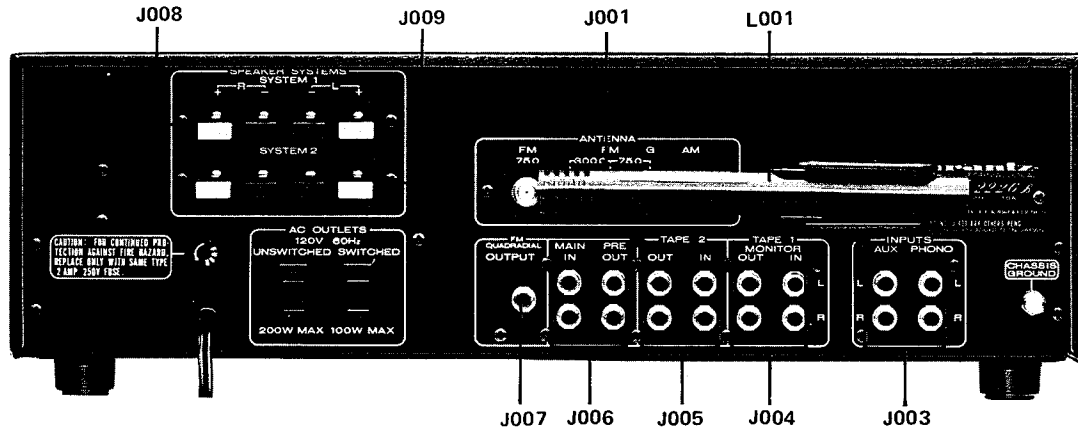
10.1 Front Panel Adjustment and Component Locations



10.2 Main Chassis Component Locations (Top View)



10.3 Rear Panel Adjustment and Component Locations



10.4 Main Chassis Component Locations (Bottom View)

