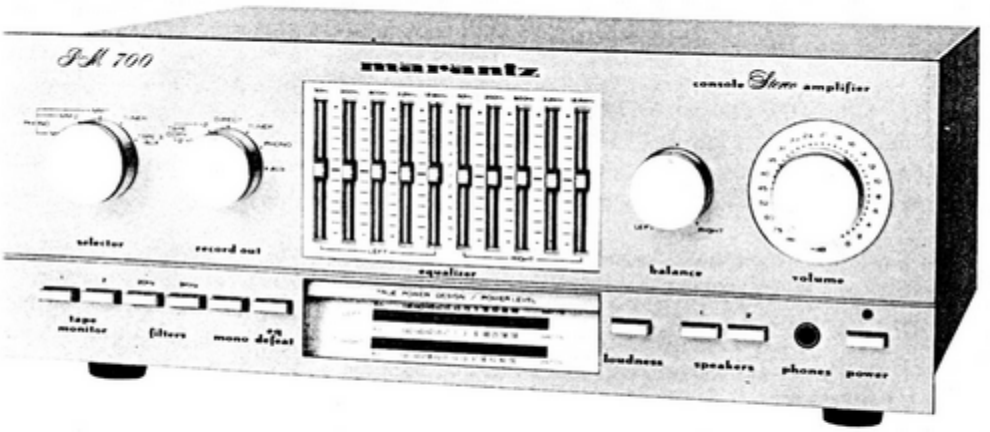
SERVICE MANUAL PM710DC

Since only the unidentical parts between the original model are listed, please use this manual (Flysheet) with the original model Pm700 (N version) service manual accordingly.

SERVICE MANUAL

marantz

model PM500/PM700



1. INTRODUCTION

This service manual was prepared for use by Authorized Warranty Stations and contains service information for the Marantz PM500/PM700 Stereo Console Amplifier. Servicing information and voltage data included in this manual are intended for use by knowledgeable and experienced personnel only. All instructions should be read carefully. No attempt should be made to proceed without a good understanding of circuitry operation.
The parts list furnishes complete ordering information. Most replacement parts should be ordered from the Marantz Company. However, a simple description is included for parts which can be obtained locally.

2. PRE-AMPLIFIER

The input signal from the PHONO-MM1 or PHONO-MM2 terminal, selected with the SELECTOR SWITCH, is applied to the PHONO AMP where it is RIAA-equalized and amplified 36 dB.
(In PM700, the signal from the PHONO-MC terminal is amplified 56 dB.)
The PHONO AMP output signal is returned to the SELECTOR switch and is also fed to the RECORDING SELECTOR (SJ04). The signals from the TUNER and AUX/TAPE 3 terminals are applied to the SELECTOR SWITCH (SJ01) and to the RECORDING SELECTOR (SJ04). (PM700 only)
The signals from the TAPE 1 IN and TAPE 2 IN are applied to the TAPE MONITOR SWITCH (SJ07) and the RECORDING SELECTOR (SJ04).
One of five signals applied to the RECORDING SELECTOR (SJ04) is selected with the RECORDING SELECTOR and fed from the TAPE 1 OUT and TAPE 2 OUT terminals.
The signal from the SELECTOR SWITCH (SJ01) is fed to the TAPE MONITOR SWITCH (SJ07), MONO SW (SH01-2) and then level controlled with the BALANCE (RG01) and VOLUME (RG02) controls.
In the volume control circuit, the signal is controlled by the loudness control in the LOUDNESS circuit when the LOUDNESS SWITCH (SG01) is ON. The signal from the VOLUME (RG02) control is amplified 19 dB with the FLAT AMP (QE01-LCH, QE-02-RCH), then fed to the EQ DEFEAT SWITCH (SH01-1). The amplified signal is also fed to the ZONE CONTROL (GRAPHIC EQUALIZER) circuit. The ZONE CONTROL output signal is applied to the EQ DEFEAT SWITCH (SH01-1).
The signal selected by the EQ DEFEAT SWITCH (SH011) is supplied to the main amplifier via the FILTER SWITCH (SH01-3 for PM500, SH01-3 and SH01-4 for PM700).

3. TROUBLESHOOTING ANALYSIS

1. Excessive line consumption
   a. Check for shorting in QN01 through to AN04.
   b. Check for any shorted transistors Q717 through to Q728.
   c. Check for open Q715, Q716, Q743, Q744, R737 and R738.
2. No line consumption or zero bias voltage
   a. Check line cord and fuse. Check for a shorted Q715 and Q716.
   b. Check for open circuits in rectifiers Q717 through to Q728 and QN01 through to QN04 or for L001.
3. High hum and noise level
   a. Check capacitors C421, C422, C803, C804, C811, C812 and Q801 through to Q806.

4. POWER AMPLIFIER ADJUSTMENT

ADJUSTING IDLING CURRENT

Connect a DC voltmeter between the emitters of Q725 and Q727. Adjust R741 for 14 mV meter reading.
Perform similar adjustment to R742, Q726 and Q728.

5. POWER METER ADJUSTMENT

PM500

Connect an 8Ω load to the left speaker terminals.
Connect VTVM across the 8Ω load and an 1kHz oscillator to the left AUX/TAPE 3. Adjust the oscillator level for a 20V VTVM reading. Adjust RX39 (L-CH) so that the power meter indicates 50W. Perform the same adjustment for the right channel (RX40).

PM700

Connect an 8Ω load to the left speaker terminals. Connect VTVM across the 8Ω load and an 1kHz oscillator to the

left AUX/TAPE 3. Adjust the oscillator level for a 23.6V VTVM reading. Adjust RX39 (L-CH) so that the power meter indicates 70W. Carry out the same adjustment for the right channel (RX40).

6. TEST EQUIPMENT REQUIRED FOR SERVICING

Table 1 lists the test equipment required for servicing the PM500/PM700 Stereo Console Amplifier. The wattmeter, AC voltmeter, and variable autotransformer may be assembled as a test fixture as shown schematically in Figure 1. The load resistors and AC ammeter may be assembled into a second test fixture as shown in Figure 2.

7. PERFORMANCE VERIFICATION

TEST PROCEDURE

A. TEST EQUIPMENT

Refer to Table 1 for required test equipment.

B. PRELIMINARY PROCEDURES

1. Make the test setup shown in Figure 1 with the instrument controls set in the following positions:

Line Switch	OFF
Variable-line switch	Variable
Wattmeter Switch	ON
Variable Autotransformer	0 V **(fully CCW)**
Load	8 ohms (0.5 mfd–OFF)
Audio Generator	1 kHz
Output	5 V range
Gain	Minimum
AC Voltmeter	30 V range

2. Make sure that connections between the resistive load and the system terminals of the PM500/PM700 have negligible resistance when compared with the resistance of the load itself. Appreciable resistance in wiring adds to the total load, resulting in inaccurate measurements of output power.

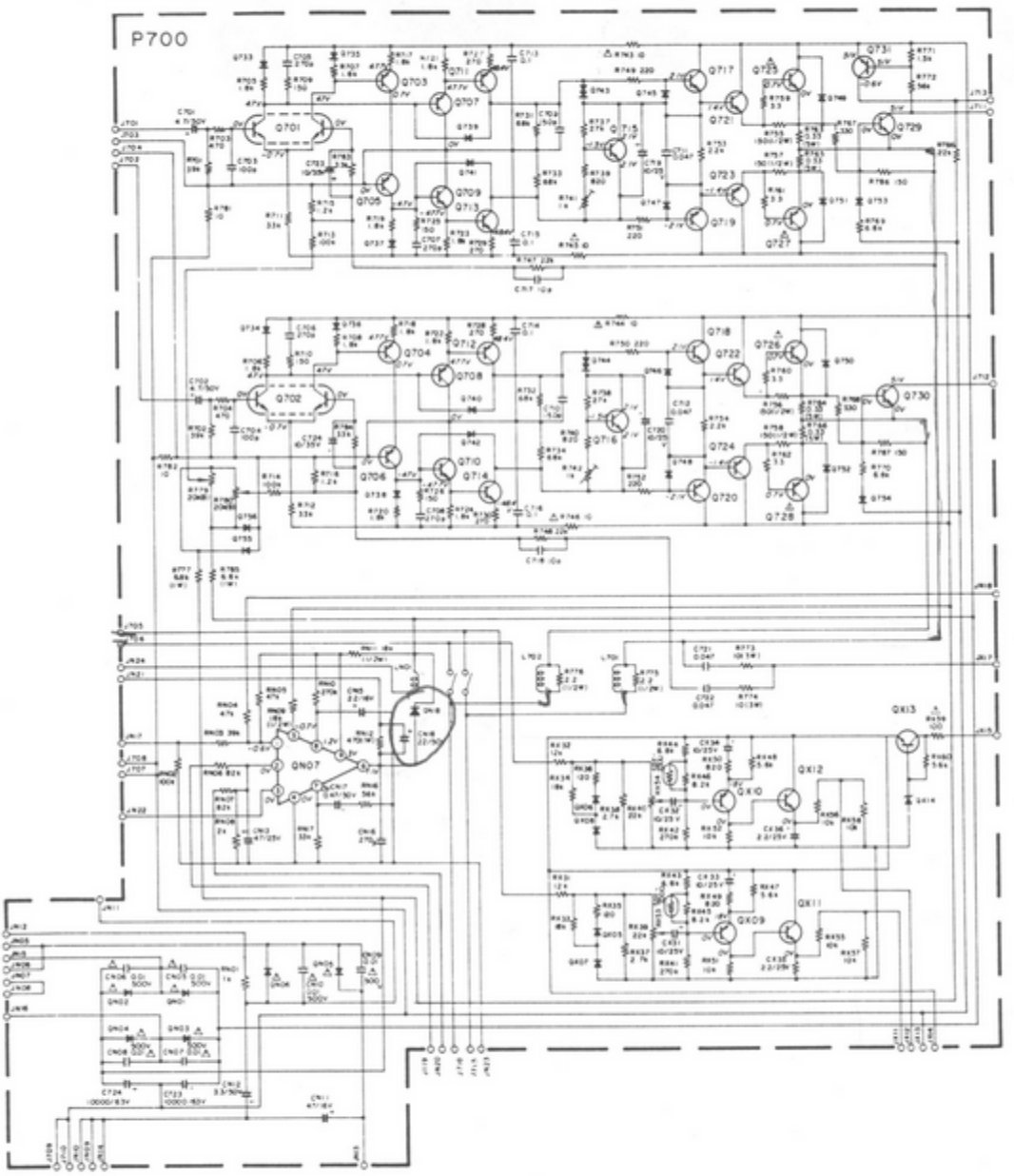
3. Connect amplifier output to load and connect AC cord to line power. Connect shorting plugs to the Phono input jacks of the PM500/PM700.

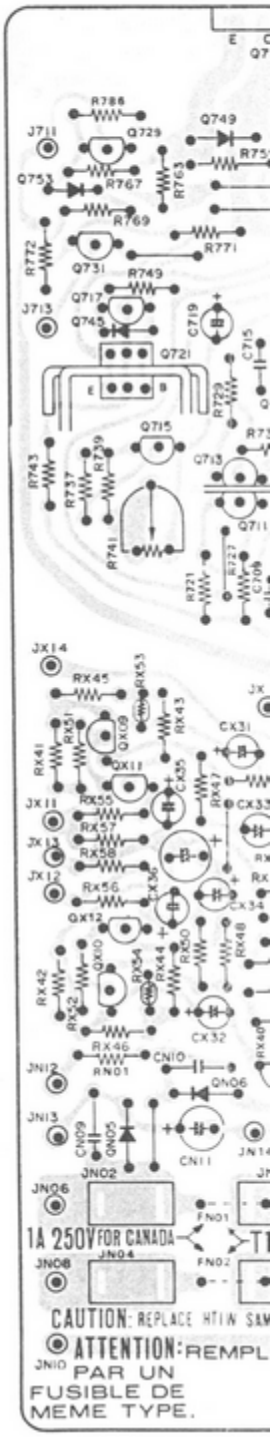
Table 1. Test Equipment Required for Servicing

Item	Manufacturer and Model No.	Use
Distortion Analyzer Audio Oscillator AC Voltmeter	Sound Technology Model 1700B	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
Circuit Tester		Trouble shooting
DC Voltmeter	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 ~ 10 A)	Monitors amplifier output under short circuit condition
Line Voltmeter	Simpson Model 1359	Monitors potential of primary power to amplifier
Variable Autotransformer	Superior Electronic Co., Powerstet 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% 100 W)	Commercial Grade	Provides 8-ohm load for amplifier output termination
Output Load (4 ohms, ±0.5% 100 W)	Commercial Grade	Provides 4-ohm load for amplifier output termination
Output Load Capacitor (0.5 mfd)	Mylar	Provides capacitive load for instability checks
AC Power Control Box	Optional Item. Fabricate in accordance with Figure 1	Monitors and controls primary power for amplifier
Amplifier Output Load Box	Optional Item. Fabricate in accordance with Figure 2	Provides various amplifier loads and can monitor shorted output

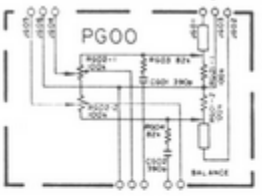
9. DIAGRAM AND COMPONENT LOCATIONS

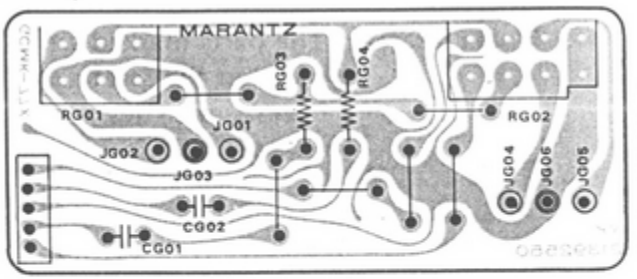
9.1 Main Amp. Assembly (P700) Schematic Diagram and Component Locations

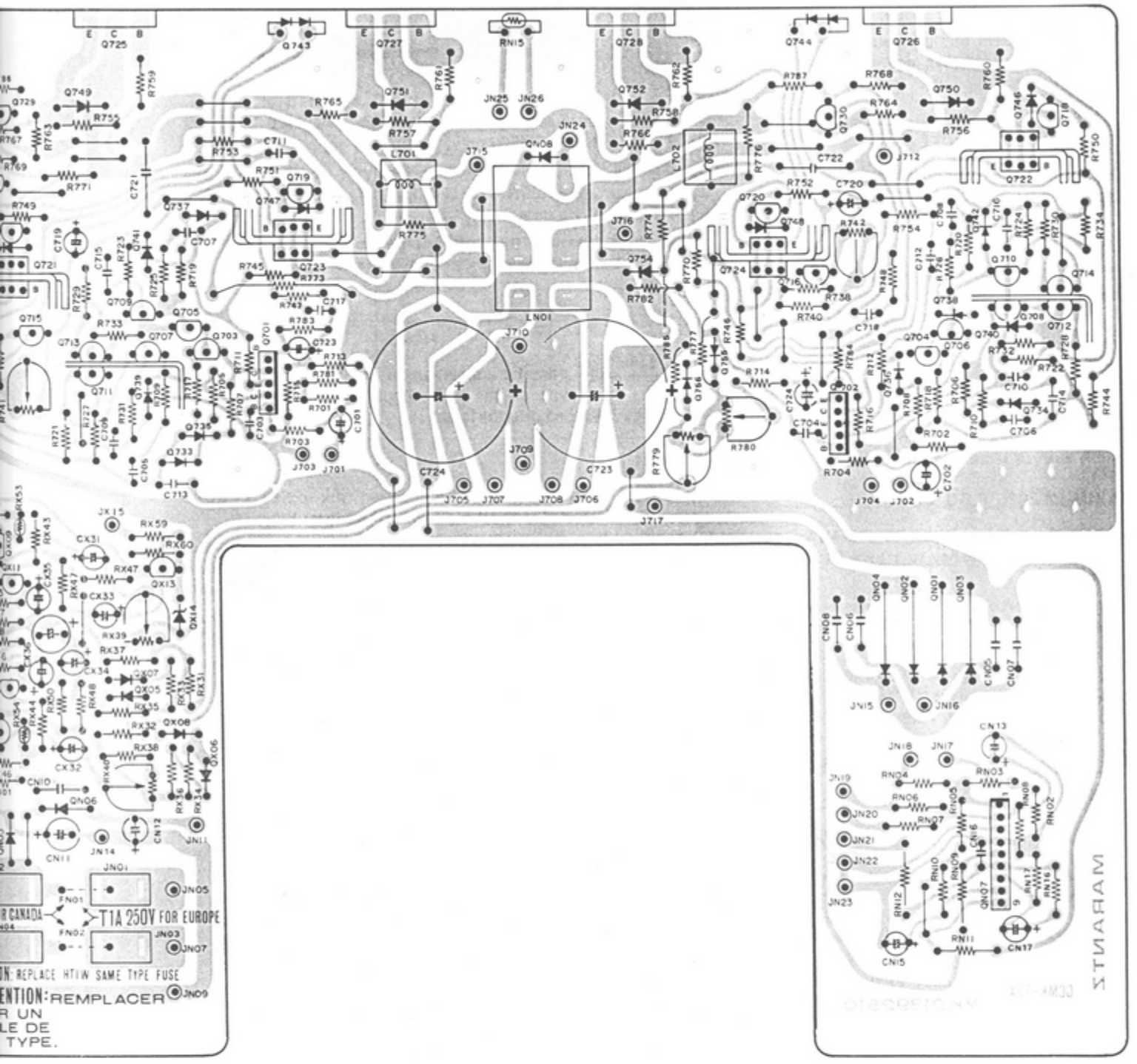




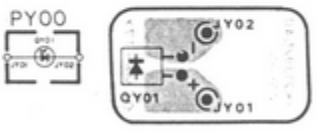
9.2 Volume and Balane Assembly (PG00) Schematic Diagram and Component Locations



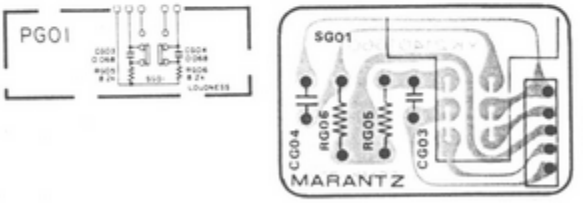




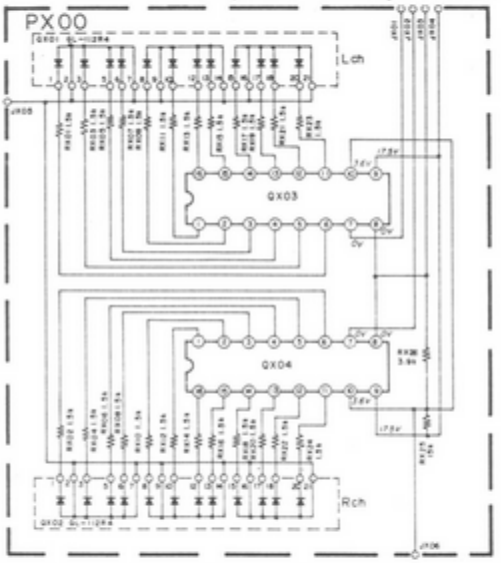
9.3 LED Power Lamp Assembly (PY00)
Schematic Diagram and Component Locations



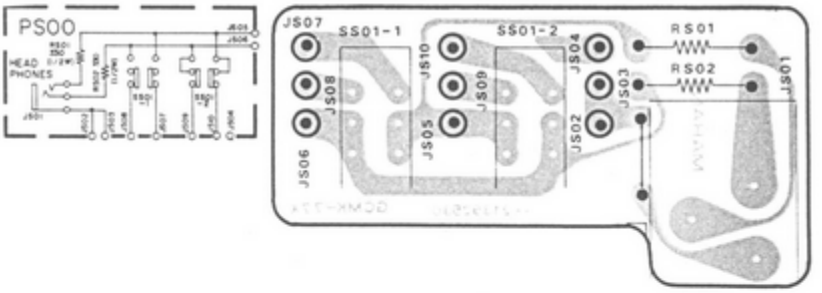
9.4 Loudness Assembly (PG01)
Schematic Diagram and Component Locations

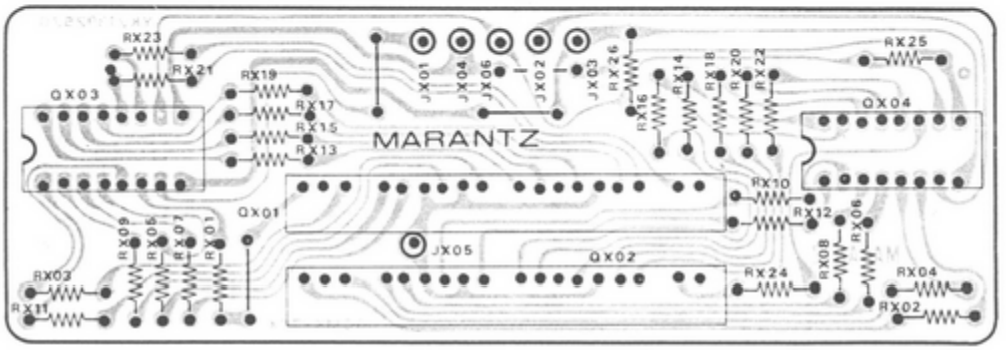


9.5 LED Power Meter Assembly (PX00)
Schematic Diagram and Component Locations



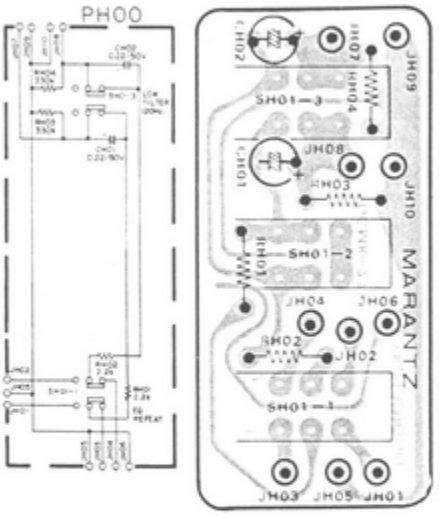
9.6 Head Phone Assembly (PS00)
Schematic Diagram and Component Locations



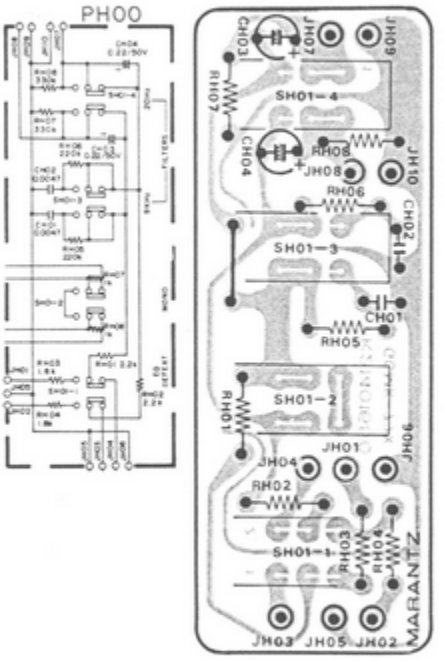


9.7 Filter Assembly (PH00) Schematic Diagram and Component Locations (PM500 and PM700)

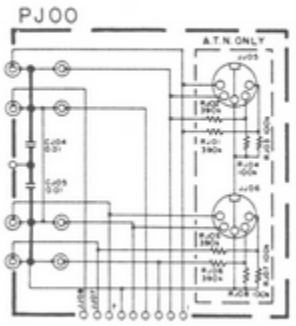
(PM500 ONLY)

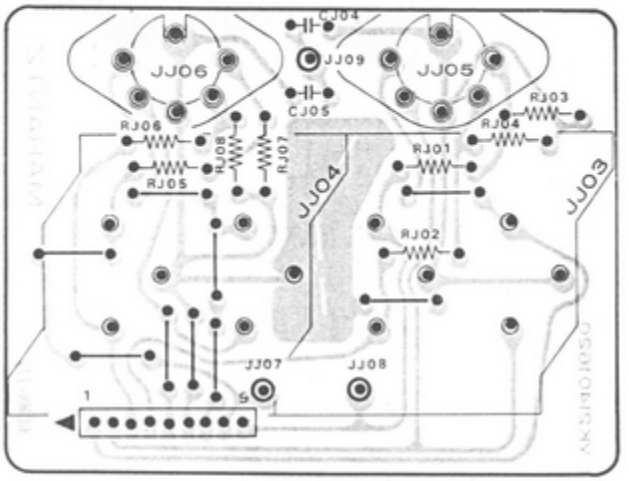


(PM700 ONLY)

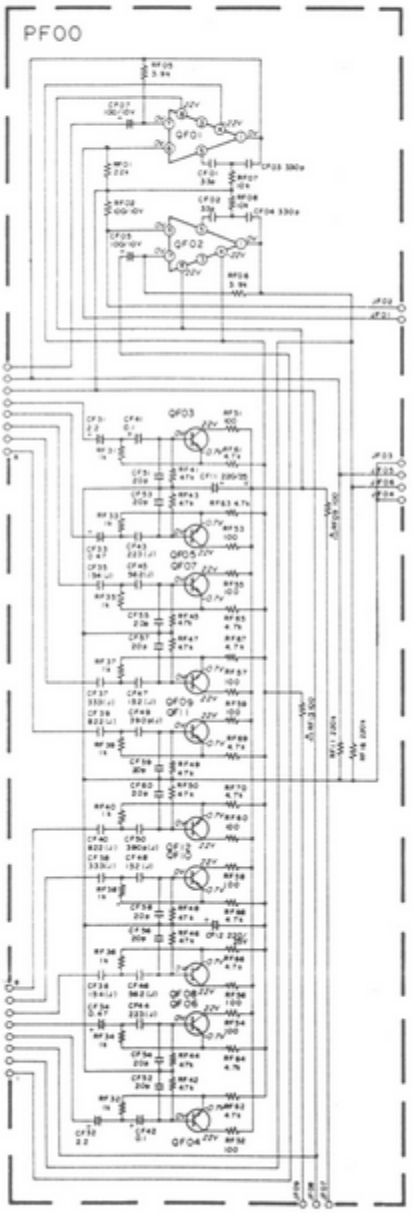


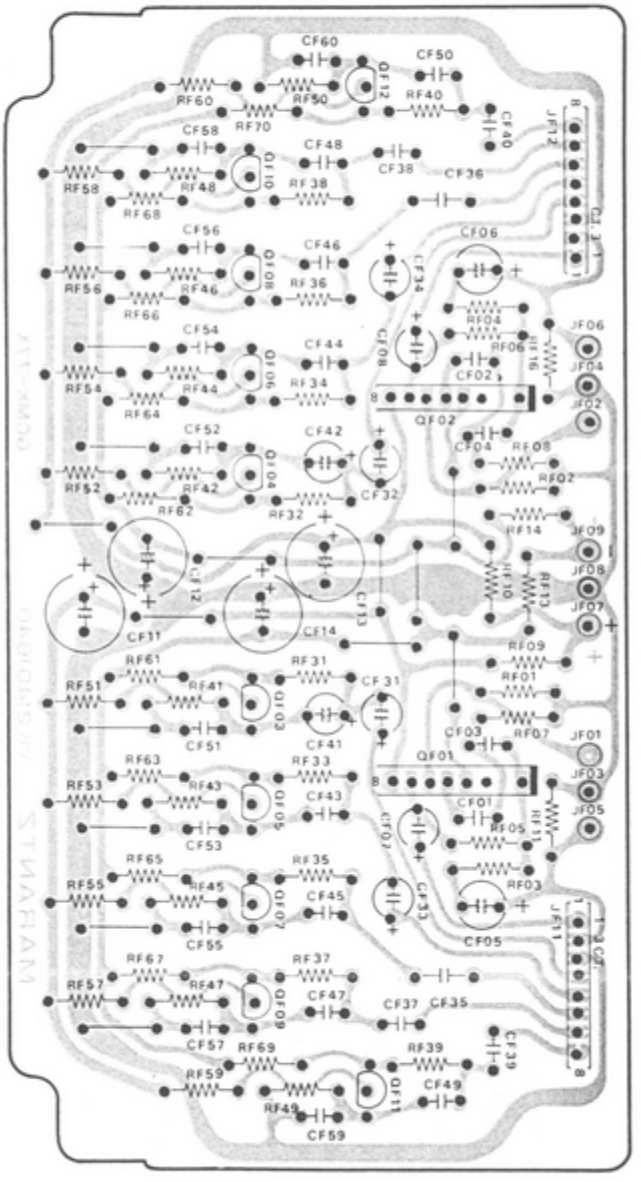
9.8 Tape In and Tape Out Assembly (PJ00) Schematic Diagram and Component Locations





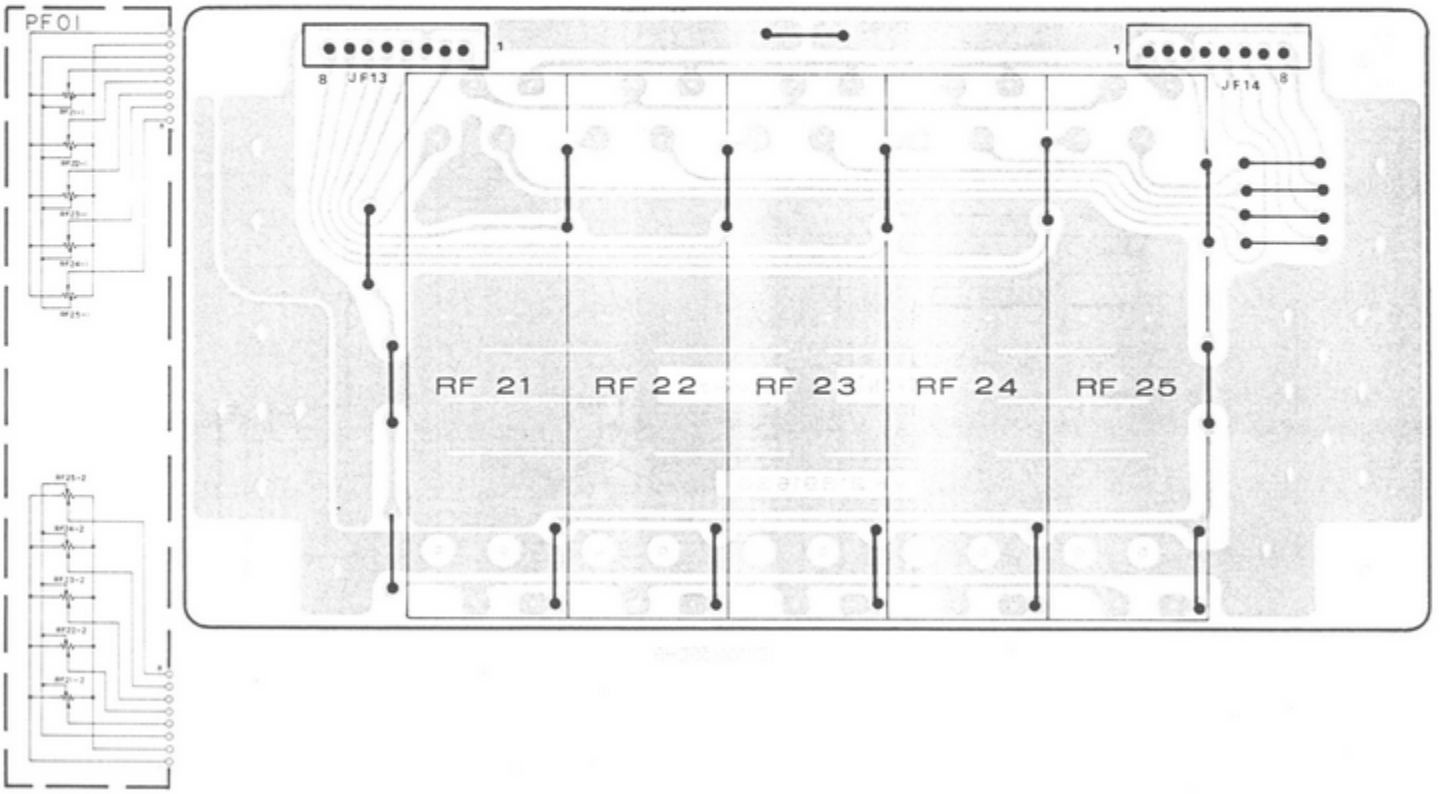
9.9 Graphic Amp. Assembly (PF00) Schematic Diagram and Component Locations



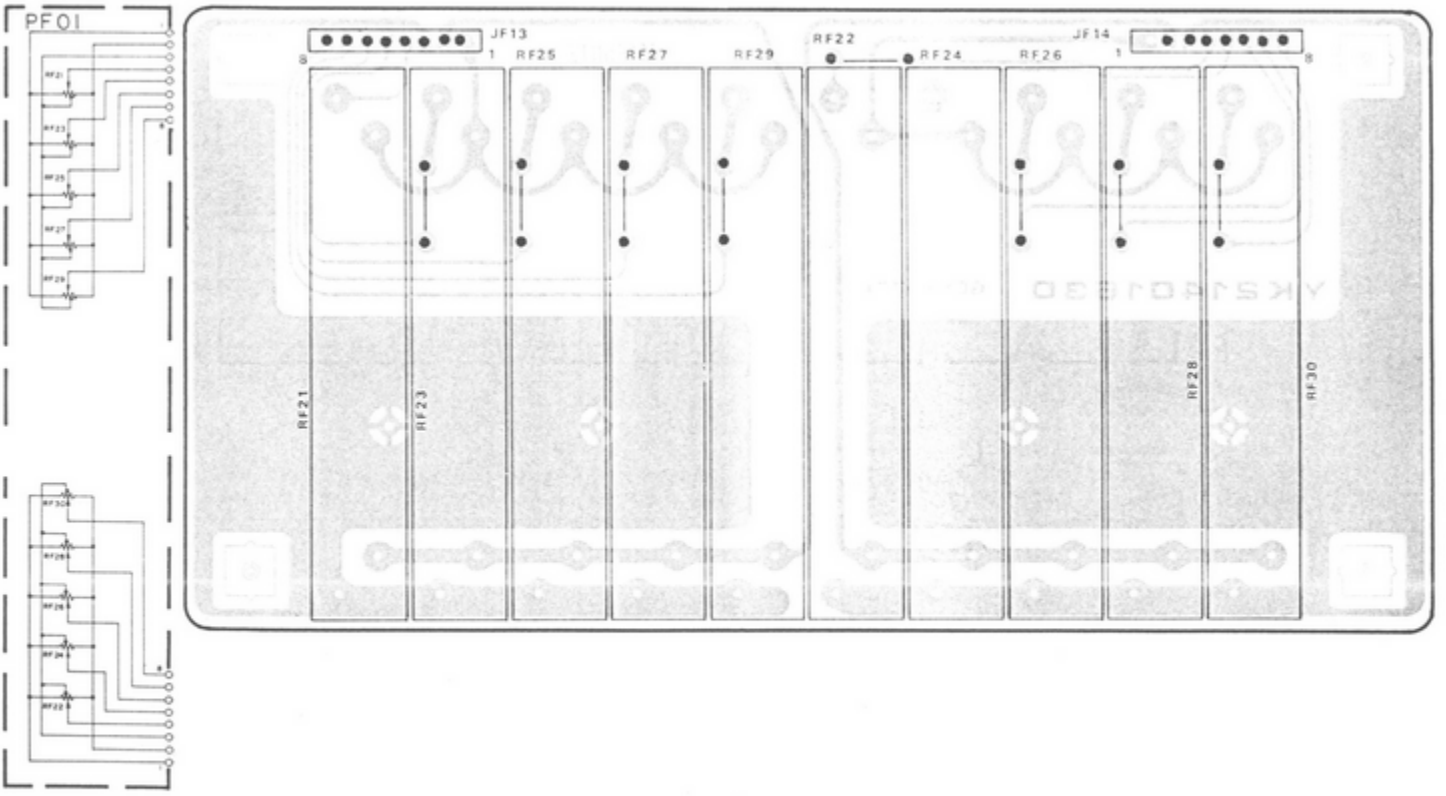


9.10 Graphic Volume Assembly (PF01) Schematic Diagram and Component Locations (PM500 and PM700)

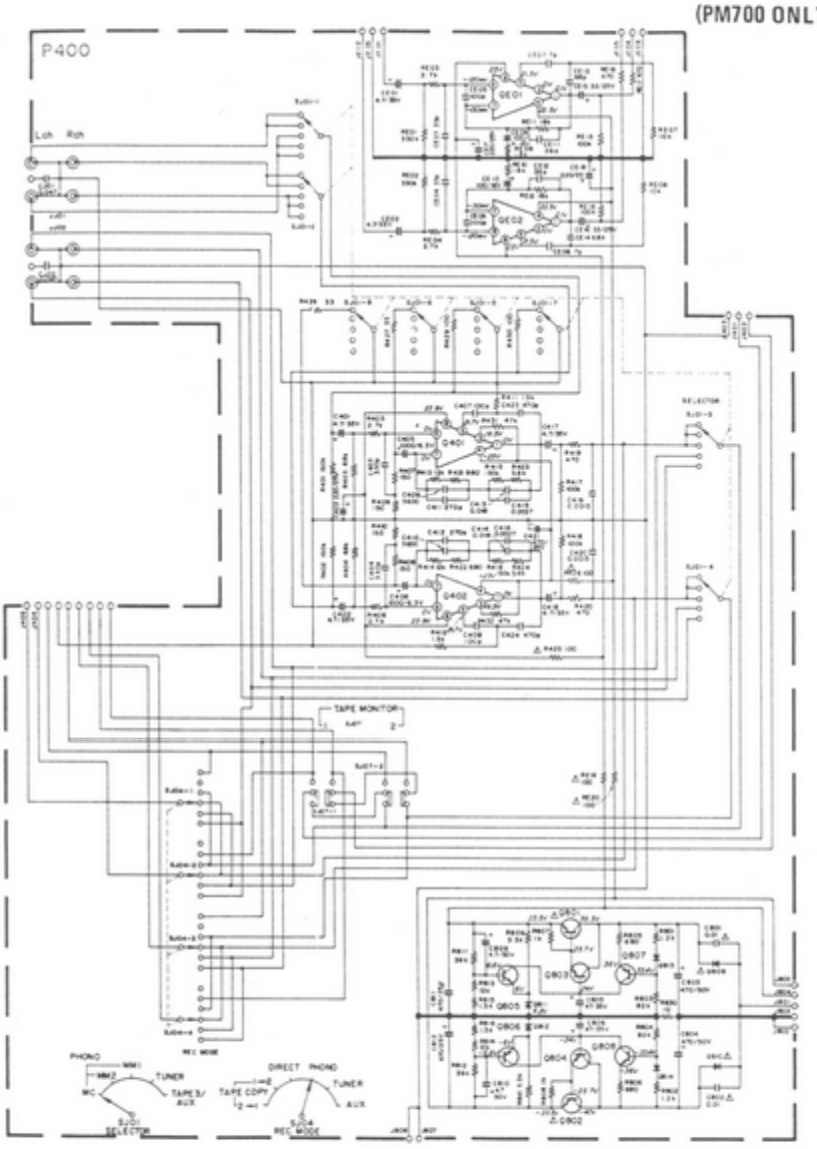
(PM500 ONLY)

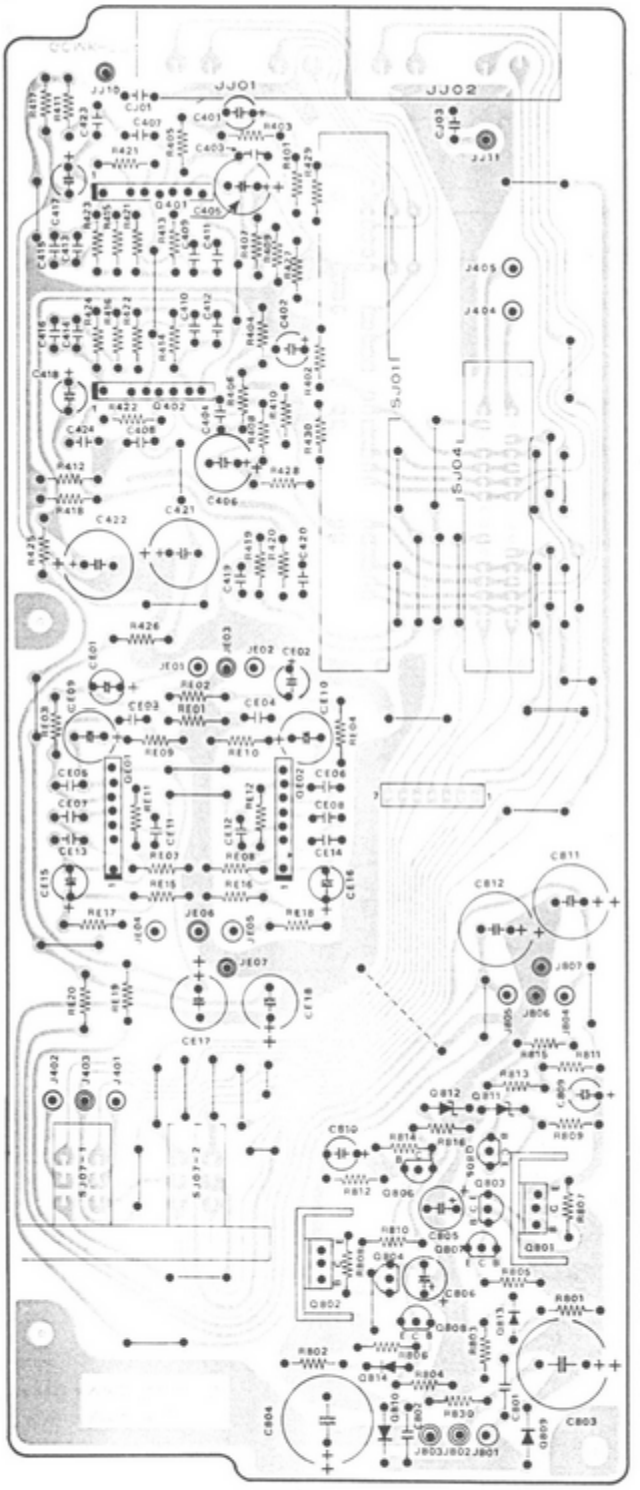


(PM700 ONLY)

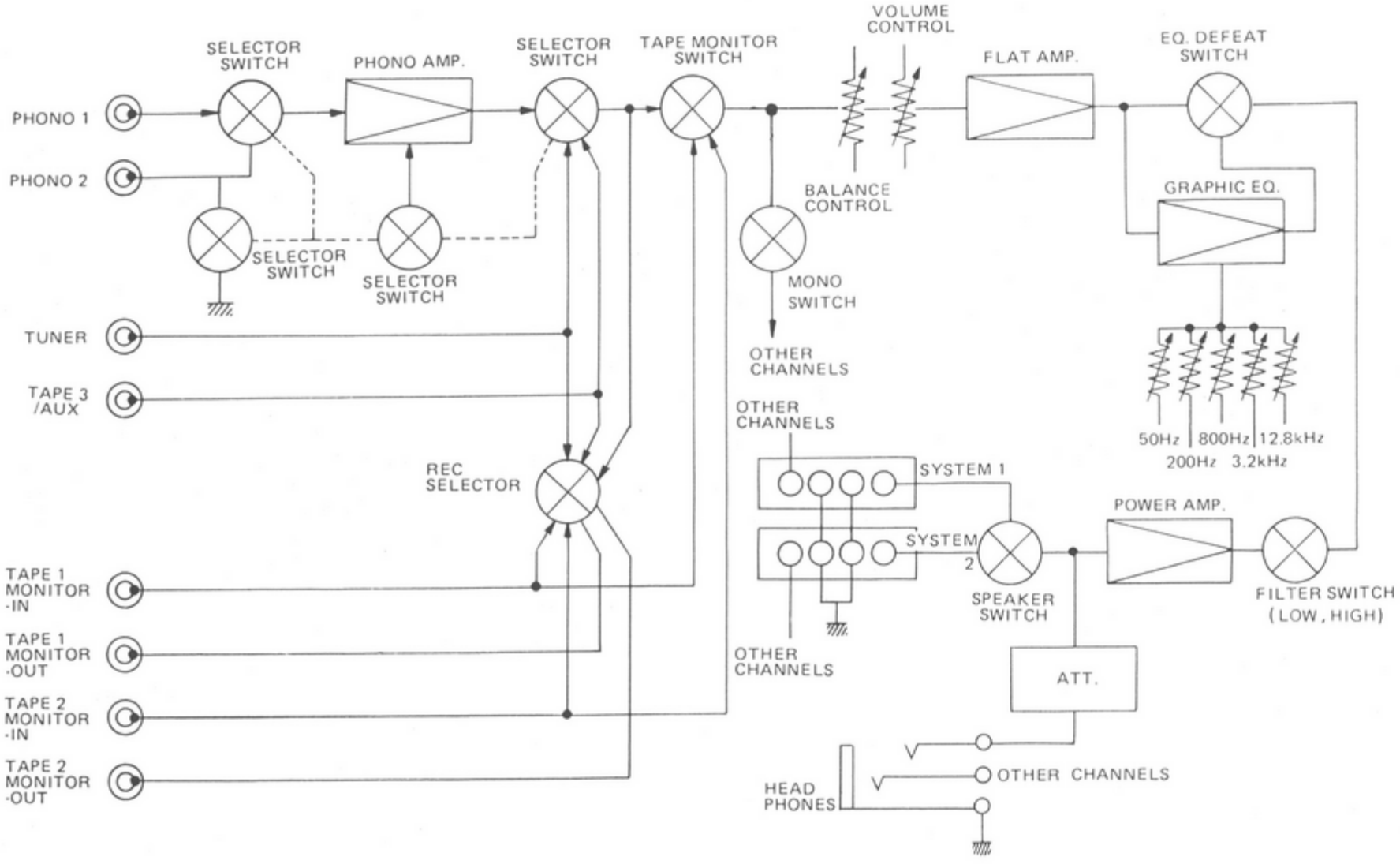


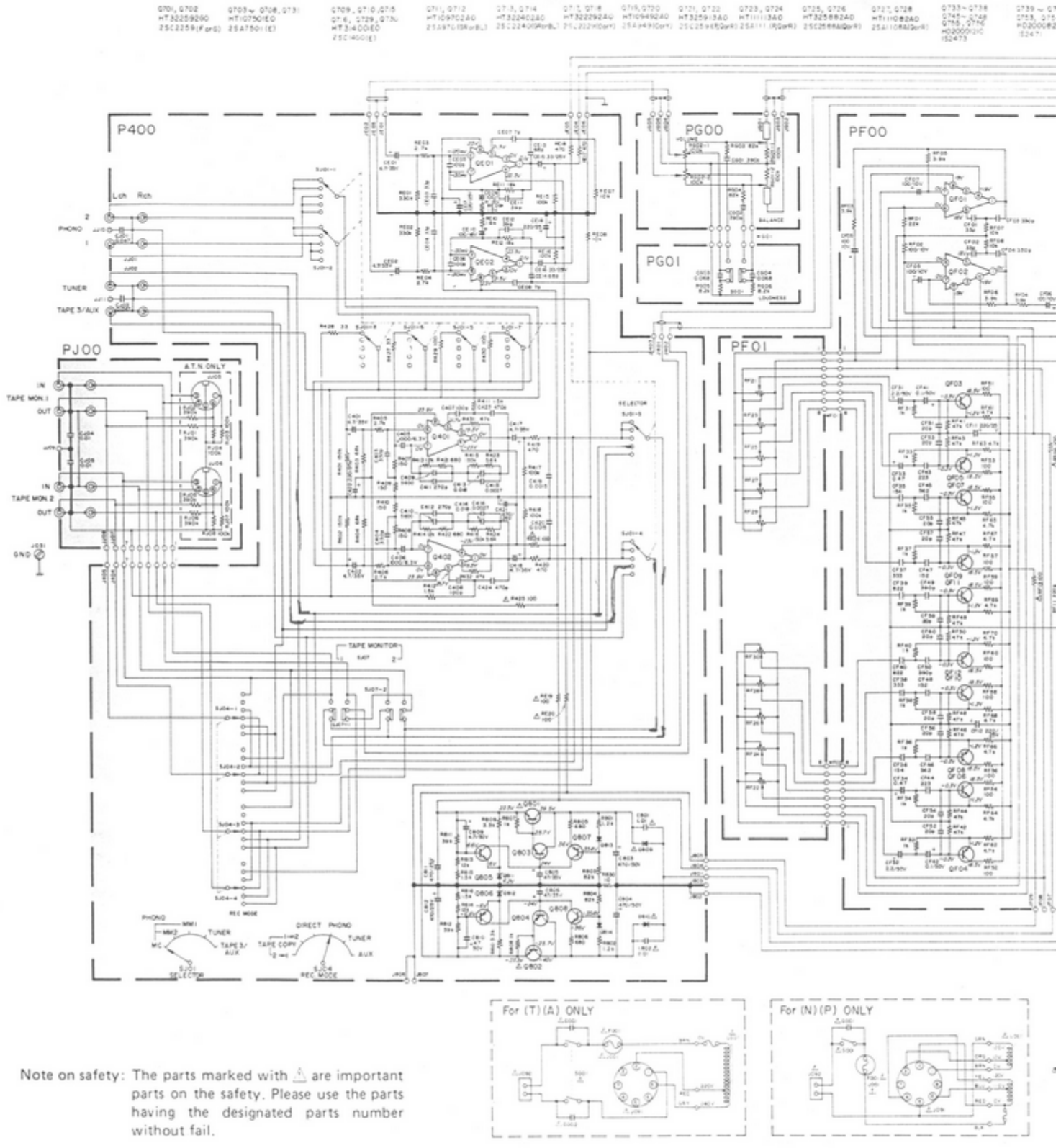
(PM700 ONLY)


P400
Lch Rch
TAPE MONITOR
PHONO
TUNER
TAPE 3/ AUX
SJ01 SELECTOR
DIRECT PHONO
TAPE COPY
TUNER
AUX
SJ04 REC MODE

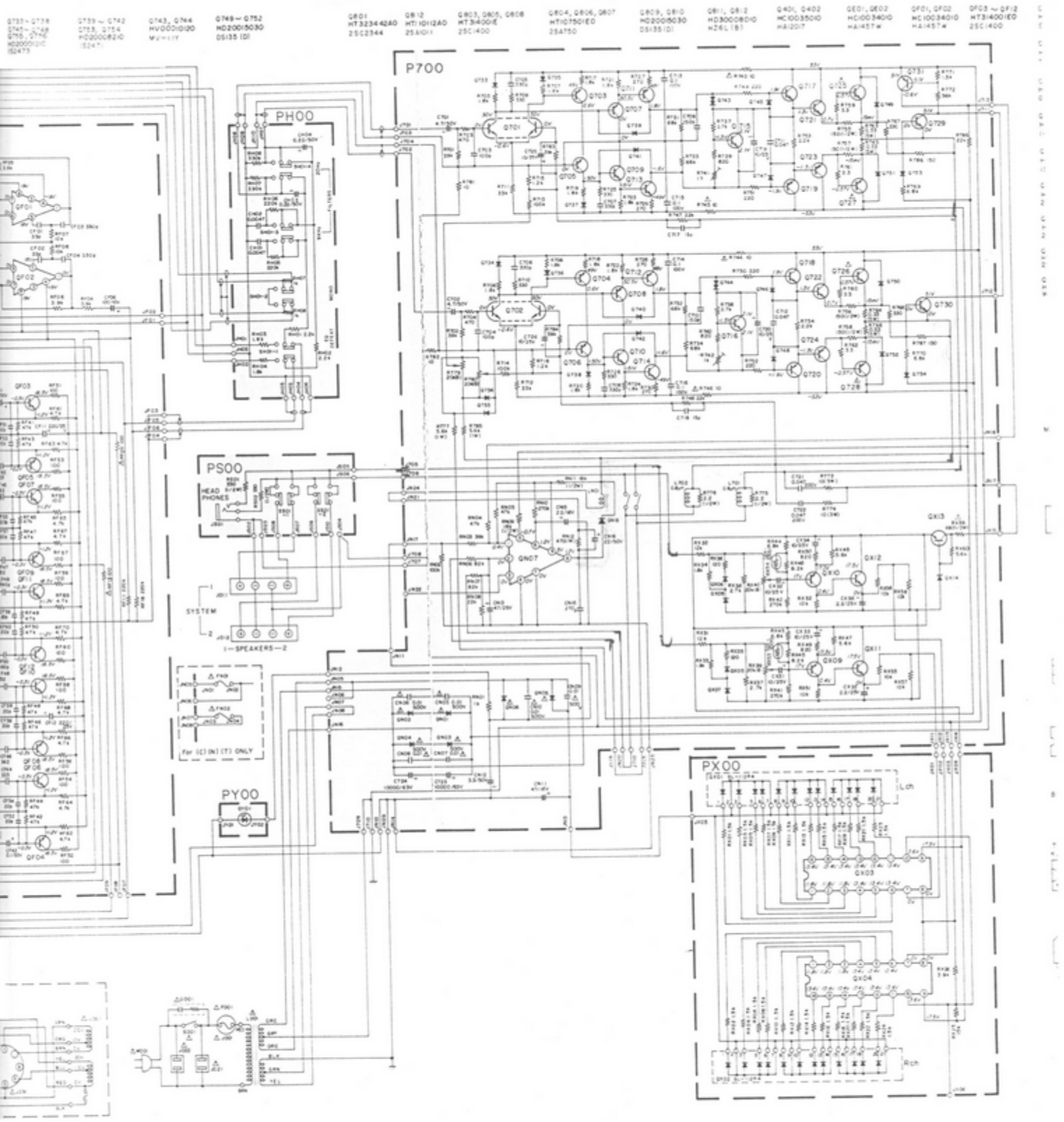

JJ01
JJ02
SJ01
SJ04

MODEL PM700


VOLUME CONTROL
SELECTOR SWITCH
PHONO AMP.
SELECTOR SWITCH
TAPE MONITOR SWITCH
FLAT AMP.
EQ. DEFEAT SWITCH
PHONO 1
PHONO 2
BALANCE CONTROL
GRAPHIC EQ.
SELECTOR SWITCH
SELECTOR SWITCH
MONO SWITCH
TUNER
OTHER CHANNELS
TAPE 3 /AUX
OTHER CHANNELS
50Hz
800Hz
12.8kHz
200Hz
3.2kHz
REC SELECTOR
SYSTEM 1
POWER AMP.
SYSTEM 2
SPEAKER SWITCH
FILTER SWITCH (LOW, HIGH)
TAPE 1 MONITOR -IN
TAPE 1 MONITOR -OUT
OTHER CHANNELS
ATT.
TAPE 2 MONITOR -IN
TAPE 2 MONITOR -OUT
OTHER CHANNELS
HEAD PHONES



Note on safety: The parts marked with ⚠ are important parts on the safety. Please use the parts having the designated parts number without fail.


P700
PH00
PS00
PX00
PY00
HEAD PHONES
SYSTEM
1—SPEAKERS—2
For (C) (N) (T) ONLY
Lch
Rch