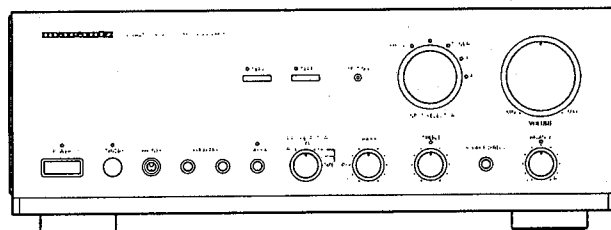
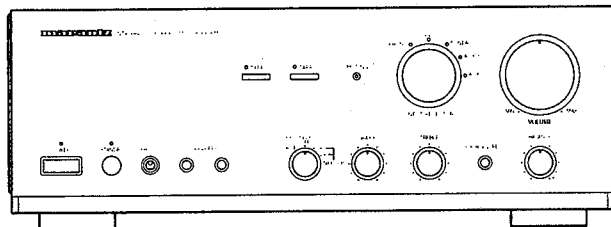




For more Hi-Fi manuals and set-up information  
please visit [www.hifiengine.com](http://www.hifiengine.com)

# Service Manual

74 PM68 / PM78 /02B/ 02G  
 PM-68 / PM-78 /FB/ FN  
 PM-68 /UBL  
 Integrated stereo amplifier



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Please use this service manual with referring to the user guide (D.F.U) without fail.  
 修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

# marantz®

## Model PM-68 / PM-78

## MARANTZ DESIGN AND SERVICE

Using superior design and selected high grade components, **MARANTZ** company has created the ultimate in stereo sound. Only original **MARANTZ** parts can insure that your **MARANTZ** product will continue to perform to the specifications for which it is famous.

Parts for your **MARANTZ** equipment are generally available to our National Marantz Subsidiary or Agent.

### ORDERING PARTS :

Parts can be ordered either by mail or by Fax.. In both cases, the correct part number has to be specified.

The following information must be supplied to eliminate delays in processing your order :

1. Complete address
2. Complete part numbers and quantities required.
3. Description of parts
4. Model number for which part is required
5. Way of shipment
6. Signature : any order form or Fax. must be signed, otherwise such part order will be considered as null and void.

#### USA

**MARANTZ AMERICA, INC.**  
440 MEDINAH ROAD  
ROSELLE, ILLINOIS 60172- 2330  
USA  
PHONE : 630 - 307 - 3100  
FAX : 630 - 307 - 2687

#### CANADA

**LENBROOK INDUSTRIES LIMITED**  
633 GRANITE COURT,  
PICKERING, ONTARIO L1W 3K1  
CANADA  
PHONE : 416-831-6333  
FAX : 416-831-6936

#### EUROPE

**MARANTZ EUROPE B.V.**  
P.O.BOX 80002  
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THE NETHERLANDS  
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**SUPERSCOPE TECHNOLOGIES, INC.**  
MARANTZ PROFESSIONAL PRODUCTS  
1000 CORPORATE BLVD., SUITE D  
AURORA, ILLINOIS 60504 USA  
PHONE : 630 - 820 - 4800  
FAX : 630 - 820 - 8103

#### PROFESSIONAL CANADA

**TC ELECTRONICS CANADA LTD.**  
540 FIRING AVE.  
BAIE D'URFÉ, QUEBEC H9X 3T2  
CANADA  
PHONE : 514 - 457 - 4044  
FAX : 514 - 457 - 5524

#### TRADING

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5600 JB EINDHOVEN  
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PHONE : +31 - 40 - 2732241  
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**MARANTZ BRAZIL**  
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CEP 04698-970  
Sao Paulo, SP, BRAZIL  
PHONE : 0800 - 123123 (Discagem Direta Gratuita)  
FAX : +55 11 534. 8988

#### THAILAND

**MRZ STANDARD CO., LTD.**  
746 - 750 WANGBURAPA BANGKOK  
10200 THAILAND  
PHONE : +66 2222 9181  
FAX : +66 2225 8871

#### HONG KONG

**FORWARD INTERNATIONAL CORP.LTD.**  
15 TH FLOOR, REGENT CENTRE,  
88 QUEEN'S ROAD, CENTRAL, H. K.  
PHONE : +852 521 - 0883  
FAX : +852 521 - 7835

#### TAIWAN

**PAI-YUING CO., LTD.**  
6 TH FL NO, 148 SUNG KIANG ROAD,  
TAIPEI, 10429, TAIWAN R.O.C.  
PHONE : +886 (2) 5221304 - 8  
FAX : +886 (2) 5630415

#### MALAYSIA

**WO KEE HONG ELECTRONICS SDN. BHD.**  
NO. 1 02 JALAN SS 21/35, DAMANSARA  
UTAMA, 47400 PETALING JAYA  
SELANGOR DARUL EHSAN,  
MALAYSIA  
PHONE : +60 3 - 7184666  
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#### JAPAN Technical

**MARANTZ JAPAN INC.**  
35- 1, 7- chome, Sagamiono  
Sagamihara - shi, Kanagawa  
Japan  
PHONE : +81 427 44 7950  
FAX : +81 427 48 0889

#### 日本マランツ株式会社

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神奈川県相模原市相模大野 7 - 35 - 1  
営業本部 〒150  
東京都渋谷区恵比寿南 1 - 11 - 9

#### SINGAPORE

**FORWARD MARKETING (SINGAPORE) PTE. LTD.**  
29, LENG KEE ROAD  
SINGAPORE | 59099,  
PHONE : +65 475 - 4555  
FAX : +65 475 - 8623

### SHOCK, FIRE HAZARD SERVICE TEST :

**CAUTION :** After servicing this appliance and prior to returning to customer, measure the resistance between either primary AC cord connector pins ( with unit NOT connected to AC mains and its Power switch ON ), and the face or Front Panel of product and controls and chassis bottom.

Any resistance measurement less than 1 Megohms should cause unit to be repaired or corrected before AC power is applied, and verified before it is return to the user/customer.

Ref. UL Standard NO. 1492.

In case of difficulties, do not hesitate to contact the Technical Department at above mentioned address.

## 1. SPECIFICATIONS

### Power output (class AB operation)

RMS 8ohms (20 Hz -20 kHz) .....	95W
DIN 8 ohms ..	105W
THD at 8 ohms RMS rated output .....	0.03%
Damping factor .....	150

### Power out put (PM-78 classA operation)

RMS 8 ohms (20 Hz-20 kHz) .....	25 W
DIN 8 ohms ..	28 W
THD at 8 ohms RMS. rated output .....	0.03%
Damping factor .....	150

### IHF dynamic power (class AB operation)

8 ohms /4 ohms /2 ohms .....	120 / 185 / 220 W
------------------------------	-------------------

### IHF dynamic power (PM-78 class A operation)

8 ohms/4 ohms/2 ohms .....	35 / 45 / 50 W
----------------------------	----------------

### Magnetic cartridge input (MM)

input sensitivity impedance .....	2.5 mV/ 47 kOhms
Accuracy of frequency response to IEC RIAA .....	0.5 dB
Signal to noise ratio .....	85 dB

### Tuner/CD/Aux/Tape inputs

input sensitivity impedance .....	150 mV / 40 kOhms
Signal to noise ratio .....	88dB
Frequency response	
(-1 dB limits, Source Direct) .....	10 Hz - 65 kHz
Tone characteristic (100 Hz and 10 kHz) .....	± 8 dB
Channel separation	
(1 kHz/10 kHz, Source direct) .....	> 80 / > 70 dB

### General

#### Power Requirements

/O2 versions .....	230 V AC,50 Hz
U versions .....	120 V AC,60 Hz

#### Dimensions

Width .....	439 mm
Height .....	159 mm
Depth .....	375 mm

#### Weight

Unit alone .....	12.3 kg
------------------	---------

Specifications subject to change without prior notice

定格出力 (20 Hz - 20 kHz 両チャンネル同時駆動)

クラス AB .....	100 W x 2 (8 Ω 負荷)
クラス A (PM-78 のみ) .....	25 W x 2 (8 Ω 負荷)
ダイナミックパワー	
クラス AB .....	150 W x 2 (6 Ω 負荷)
	190 W x 2 (4 Ω 負荷)
	220 W x 2 (2 Ω 負荷)

全高周波歪率(20 Hz - 20 kHz, 10 W 出力時 8 Ω 負荷)

クラス AB .....	0.015
クラス A (PM-78 のみ) .....	0.010 %

混変調歪率 (SMPTE) .....

出力帯域幅 (8 Ω 負荷, 0.08% 歪率) .....

周波数特性

(CD, ソースダイレクト) .....

ダンピングファクター (8 Ω 負荷, 100 Hz - 10 kHz) .....

入力感度/入力インピーダンス

    PHONO (MM) .....

    HIGH LEVEL .....

PHONO 最大許容入力 (1 kHz)

(MM) .....

RIAA 偏差 (20 Hz) .....

(40 Hz - 20 kHz) .....

S/N比 (IHF、Aネットワーク、入力ショート)

    PHONO (MM) .....

    HIGH LEVEL .....

トーンコントロール

    BASS (100 Hz) .....

    TREBLE (10 kHz) .....

電源電圧 .....

消費電力 (電気用品取締法) .....

最大外形寸法

    幅 .....

    高さ .....

    奥行き .....

質量 .....

付属品

    リモートコントロール送信機 (RC-68PM) .....

本機の規格および外観は改良のため予告なく変更することがあります。

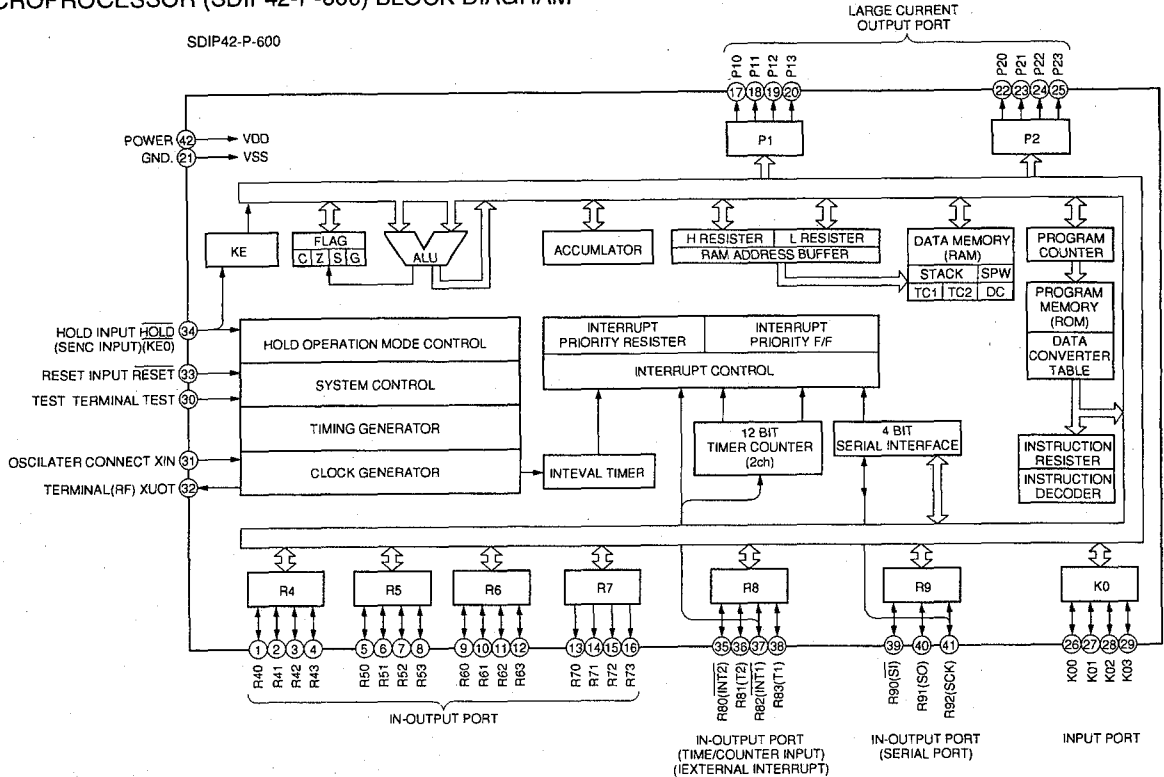
## 2. TEST EQUIPMENT REQUIRED SERVICING

Item	Use
Distortion Analyzer	Distortion measurements
Audio Oscillator	Sinewave and squarewave signal source
AC VTVM	Voltage measurements (AC)
Oscilloscope	Waveform analysis and trouble shooting and ASO alignment
DC VTVM	Voltage measurements (DC)
AC Wattmeter	Monitors primary power to amplifier
Line Voltmeter	Monitors of primary voltage to amplifier
Variable Autotransformer	Adjust level of primary voltage to amplifier
Circuit Tester	Trouble shooting
Shorting Plug	Shorts amplifier input to eliminate noise pickup

項 目	使 用 方 法
歪 率 計	歪の測定
低 周 波 発 振 器	正弦波および矩形波の信号源
A C V T V M	交流電圧の測定
オシロスコープ	波計分析、トラブルシューティングおよびASOの調整
D C V T V M	直流電圧の測定
交流ワットメーター	アンプの一次側消費電力のモニター
電 源 電 圧 計	アンプの一次側電圧のモニター
ス ラ イ ダ ッ ク	アンプの一次側電圧の調整
テ ス タ ー	トラブルシューティング
ショート用プラグ	雑音を拾わないようにアンプ入力を短絡する

### 3. IC INFORMATIONS

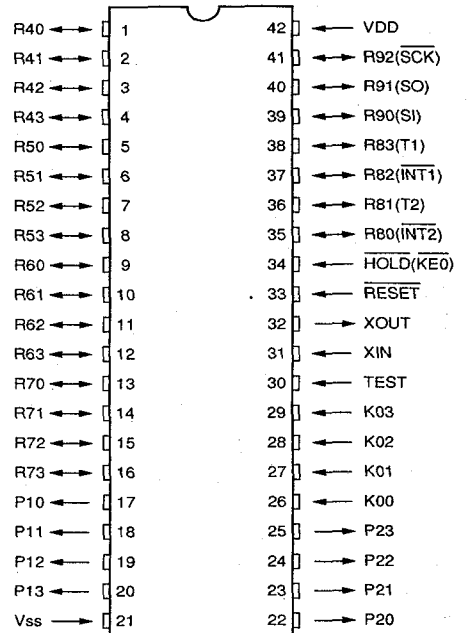
#### MICROPROCESSOR (SDIP42-P-600) BLOCK DIAGRAM



PIN no.	PORT NAME	ACT	FUNCTION
1	R40	MMUT	H MANUAL MUTE SIGNAL MUTE
2	R41	FMUT	L SIGNAL(SOURCE/MONITOR SWITCH)
3	R42	VOUP	L MOTOR DRIVE VOLUME UP
4	R43	VODW	L MOTOR DRIVE VOLUME DOWN
5	R50	T3K	L MONITOR INPUT SWITCH (TAPE3)
6	R51	T2K	L MONITOR INPUT SWITCH (TAPE2)
7	R52	T1K	L MONITOR INPUT SWITCH (TAPE1)
8	R53	AX2K	L SOURCE INPUT SWITCH (AUX2)
9	R60	AX1K	L SOURCE INPUT SWITCH (AUX1)
10	R61	TUNK	L SOURCE INPUT SWITCH (TUNER)
11	R62	CDK	L SOURCE INPUT SWITCH (CD)
12	R63	PHOK	L SOURCE INPUT SWITCH (PHONO)
13	R70	LSTB	L LED INDICATOR STAND BY DISPLAY
14	R71	LMUT	L LED INDICATOR MUTE DISPLAY
15	R72	LPRO	L LED INDICATOR PROCESSOR DISPLAY
16	R73	LTP3	L LED INDICATOR TAPE3 DISPLAY
17	P10	LTP2	L LED INDICATOR TAPE2 DISPLAY
18	P11	LTP1	L LED INDICATOR TAPE1 DISPLAY
19	P12	LSOU	L LED INDICATOR SOURCE DISPLAY
20	P13	LAX2	L LED INDICATOR AUX2 DISPLAY
21	VSS		GND.
22	P20	LAX1	L LED INDICATOR AUX1 DISPLAY
23	P21	LTUN	L LED INDICATOR TUNER DISPLAY
24	P22	LECD	L LED INDICATOR CD DISPLAY
25	P23	LPHO	L LED INDICATOR PHONO DISPLAY
26	K00	1RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit1
27	K01	2RS	L SOURCE INPUT SWITCH(ROTARY ENCODER) bit2
28	K02	PRK	L PROCESSOR IN-OUT SWITCH
29	K03	MUK	L MANUAL MUTE
30	TEST		NOT USED (GND)
31	XIN		CLOCK 4.00 MHz (IN)
32	XOUT		CLOCK 4.00 MHz (OUT)
33	RESET	RES	L SYSTEM RESET
34	HOLD	PDW	L POWER DOWN CHECK
35	R80	RXRC	L REMOTE CONTROL INPUT (RC-5)
36	R81	EN1	MODEL SELECT 1
37	R82	EN2	MODEL SELECT 2
38	R83	EN3	MODEL SELECT 3
39	R90	TXRC	L SERIAL DATA(RC-5 REMOTE CONTROL)
40	R91	ENTX	L ENABLE (REMOTE CONTROL)
41	R92	RELY	L STAND-BY RELAY CONTROL
42	VDD		POWER SUPPLY

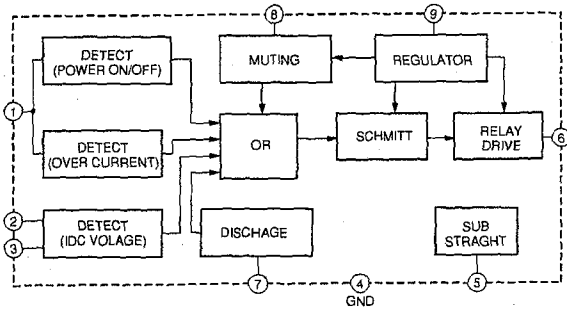
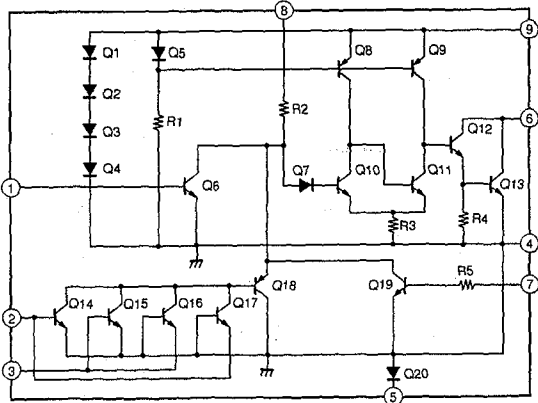
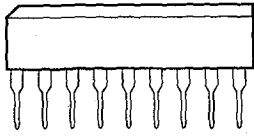
#### MICROPROCESSOR (SDIP42-P-600) Position NO.7401

SDIP42-P-600



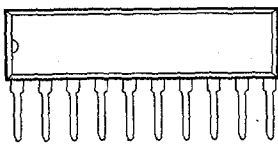
**TA7317P (Position NO.7290)**

TA7317P

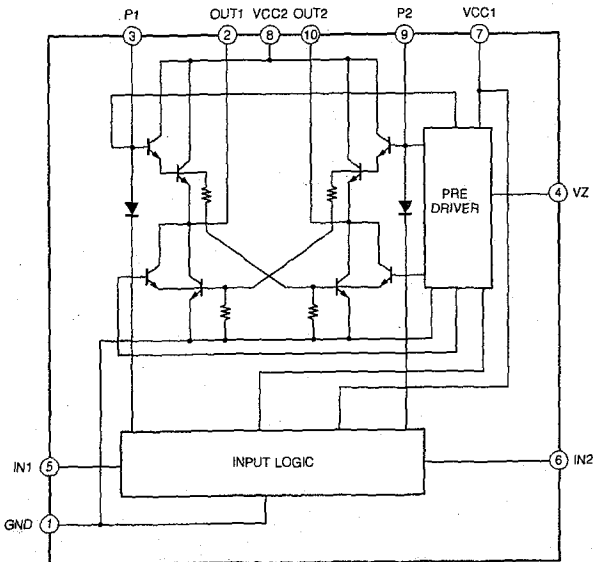


**LB1641(Position NO.7402)**

LB1641

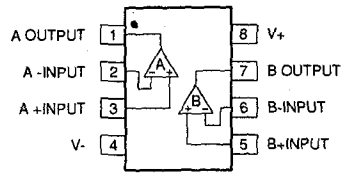


LB1641

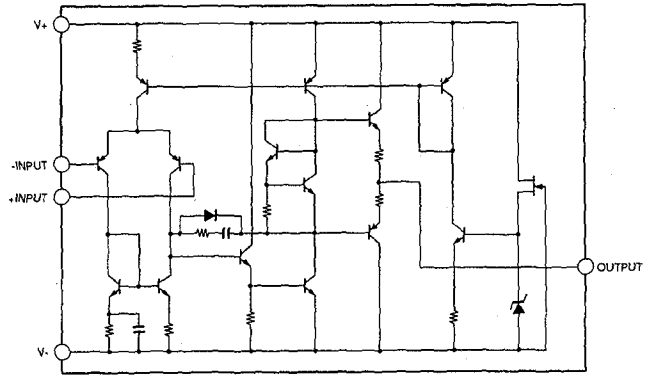


**NJM2068 (Position NO.7501,7502,7503)**

NJM2068

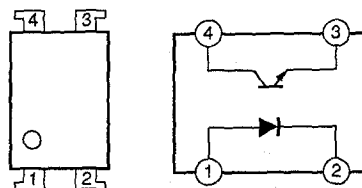


NJM2068



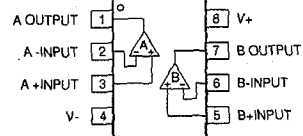
**PC817 (Position NO.7269,7270)**

PC817

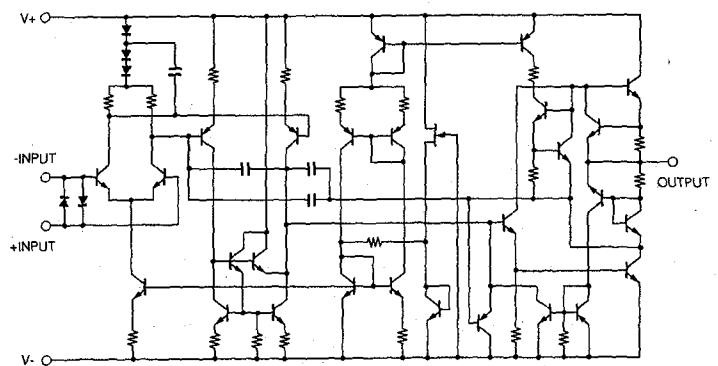


**NJM2114(Position NO.7555,7655)**

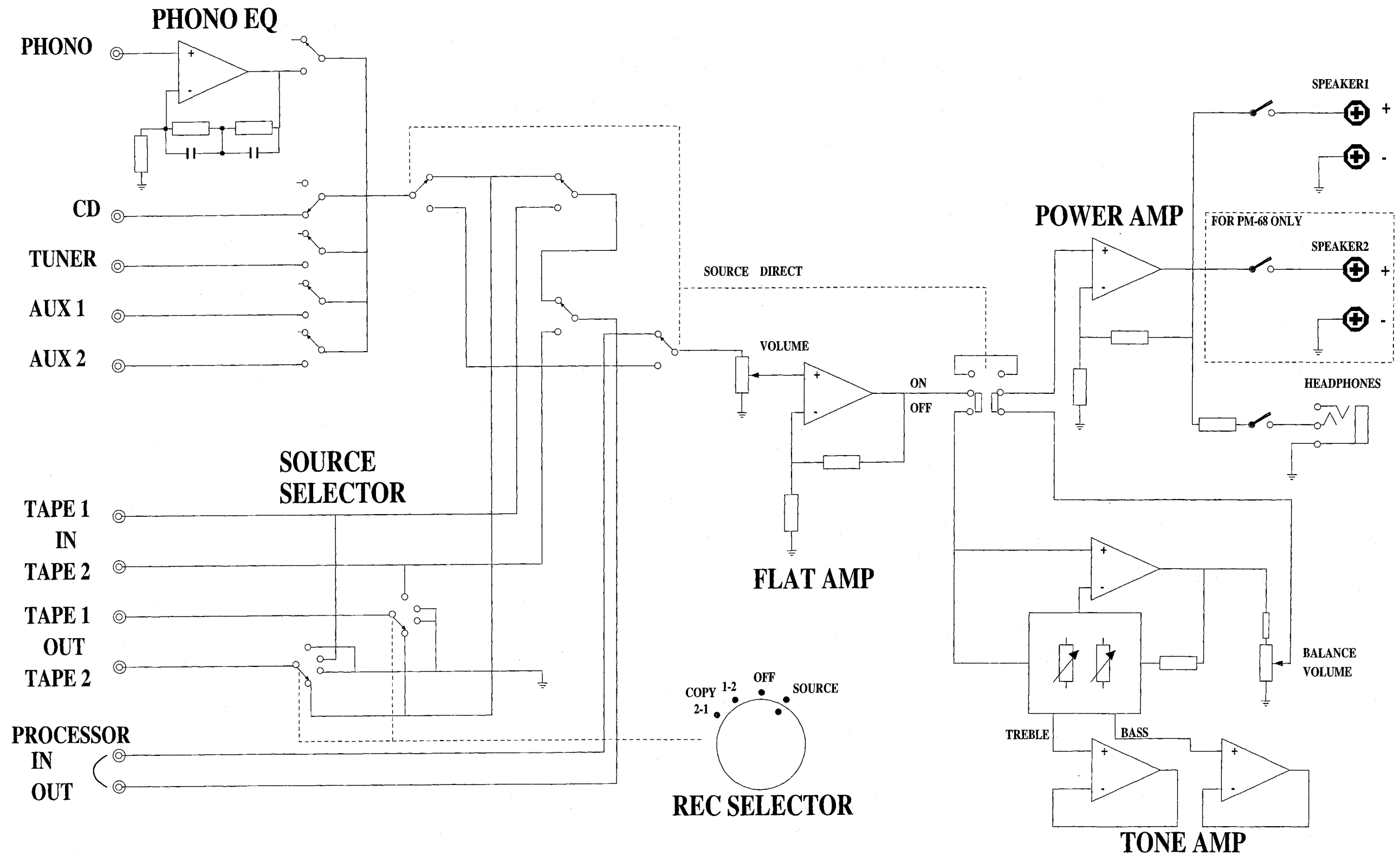
NJM2114



NJM2114

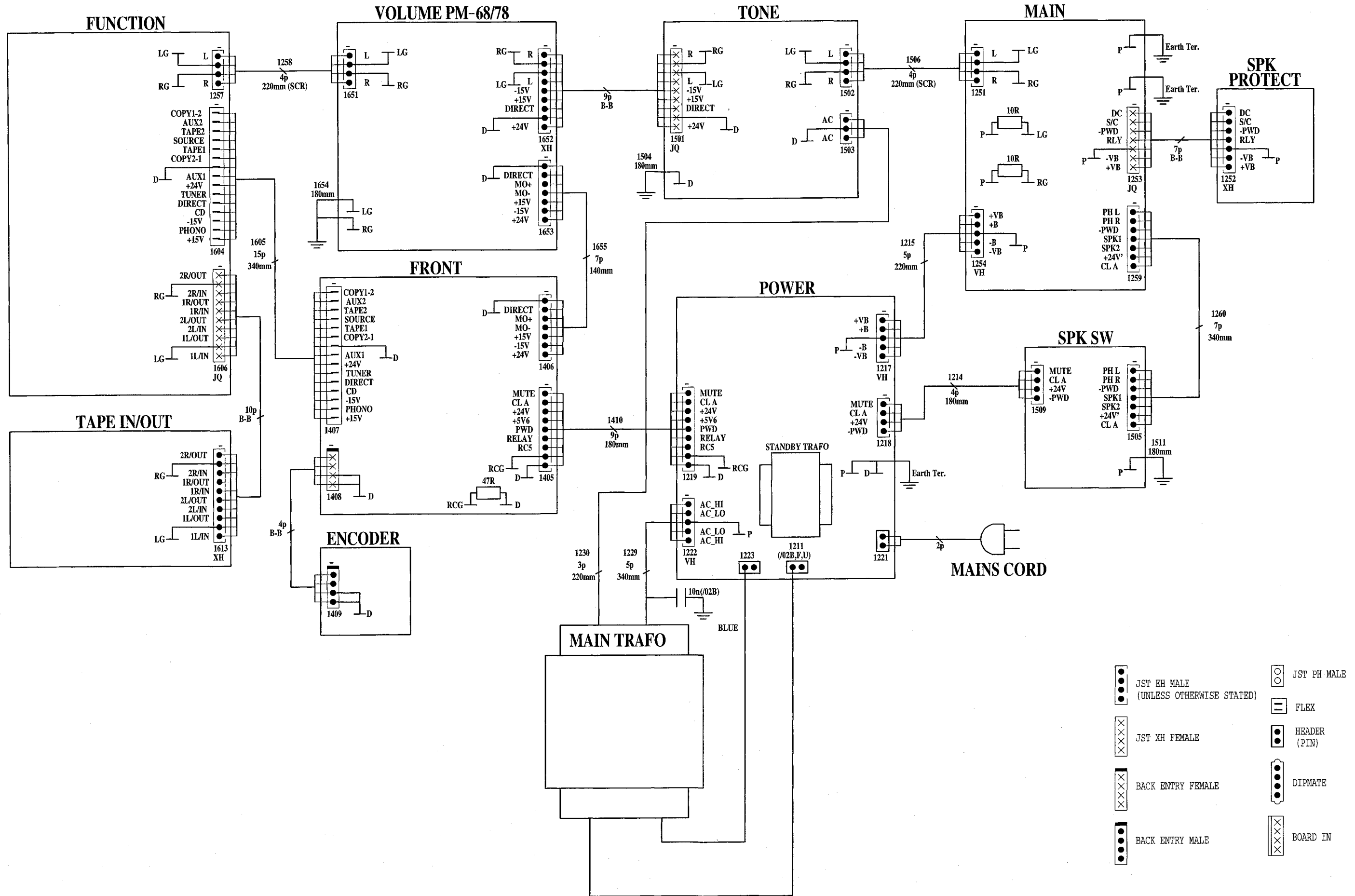


4. BLOCK DIAGRAM

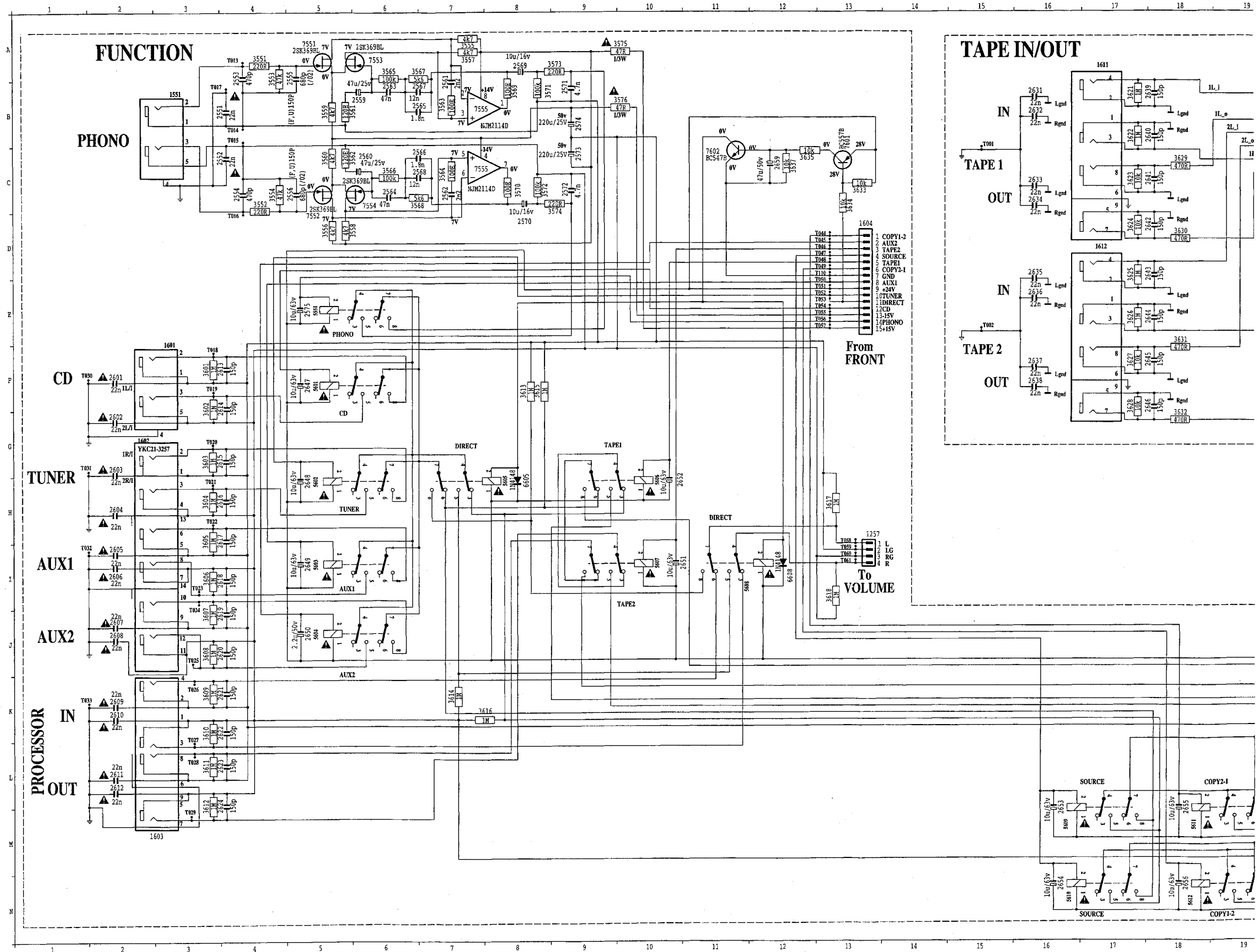


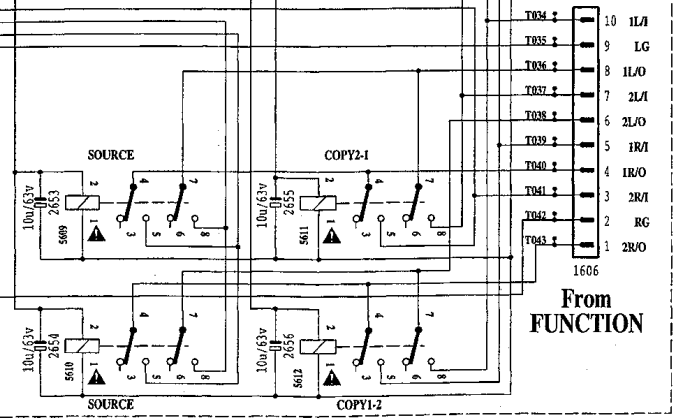
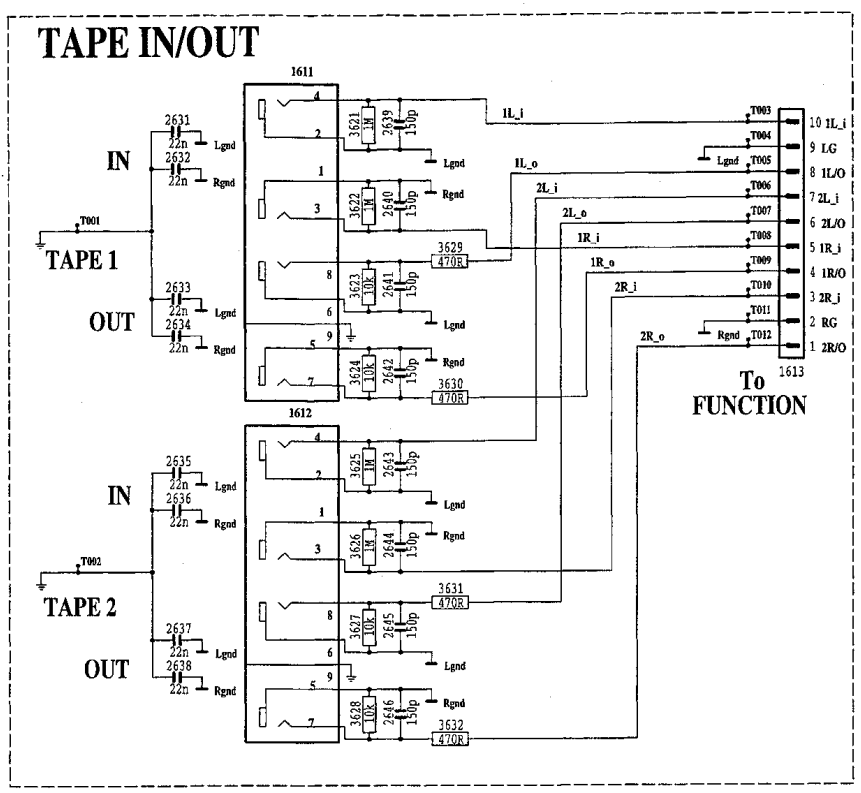
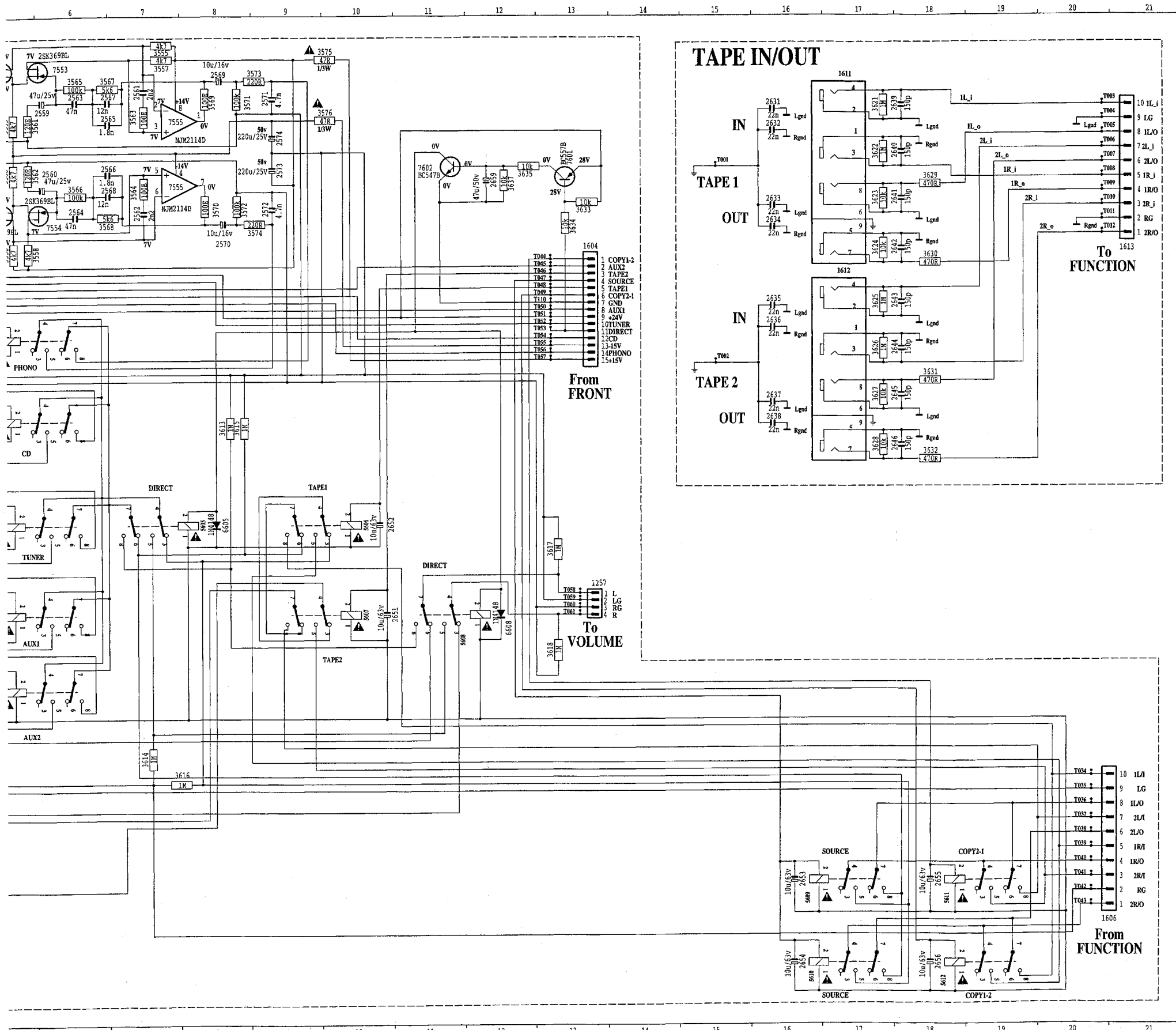


5. WIRING DIAGRAM



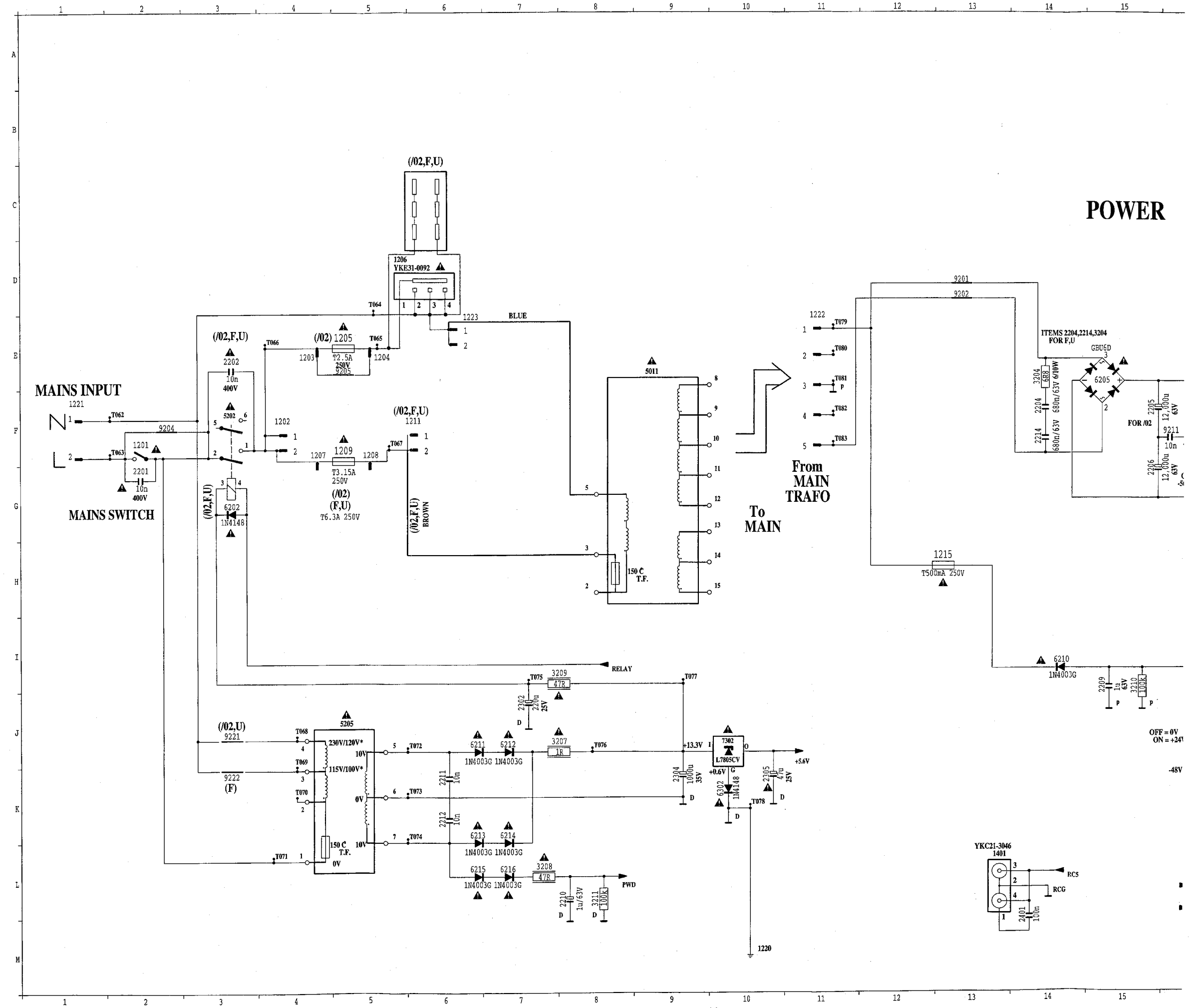
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE)  
POWER CIRCUIT II





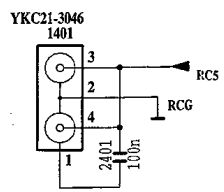
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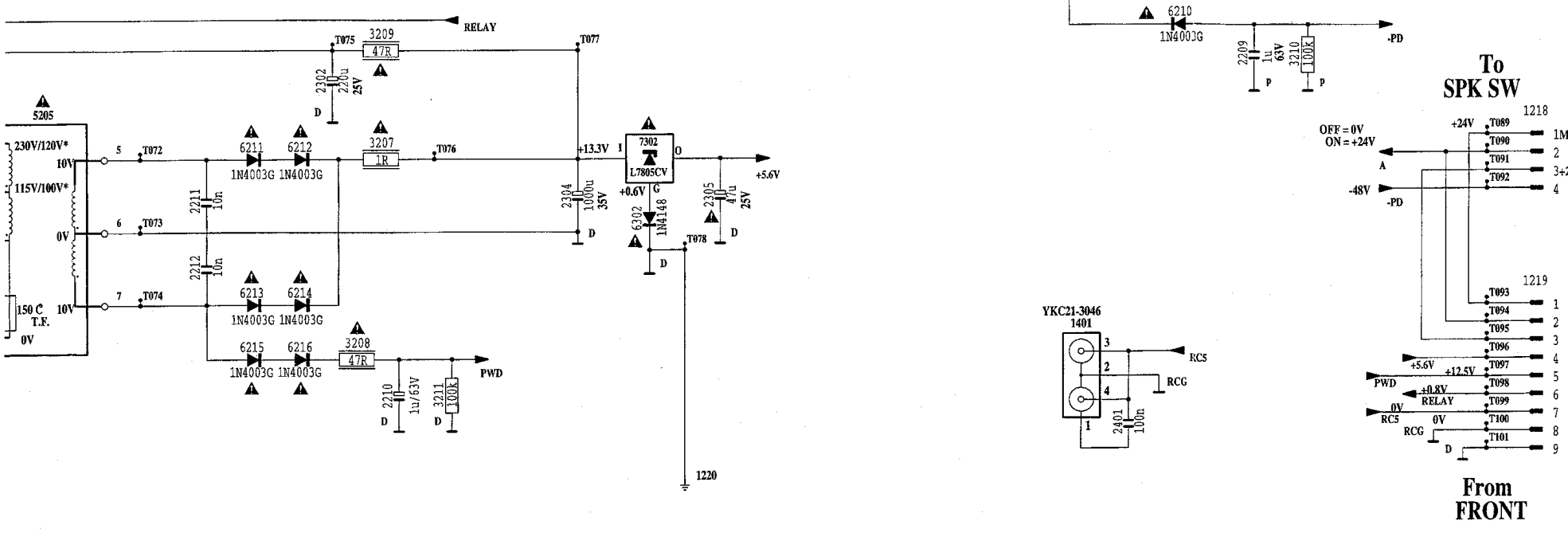
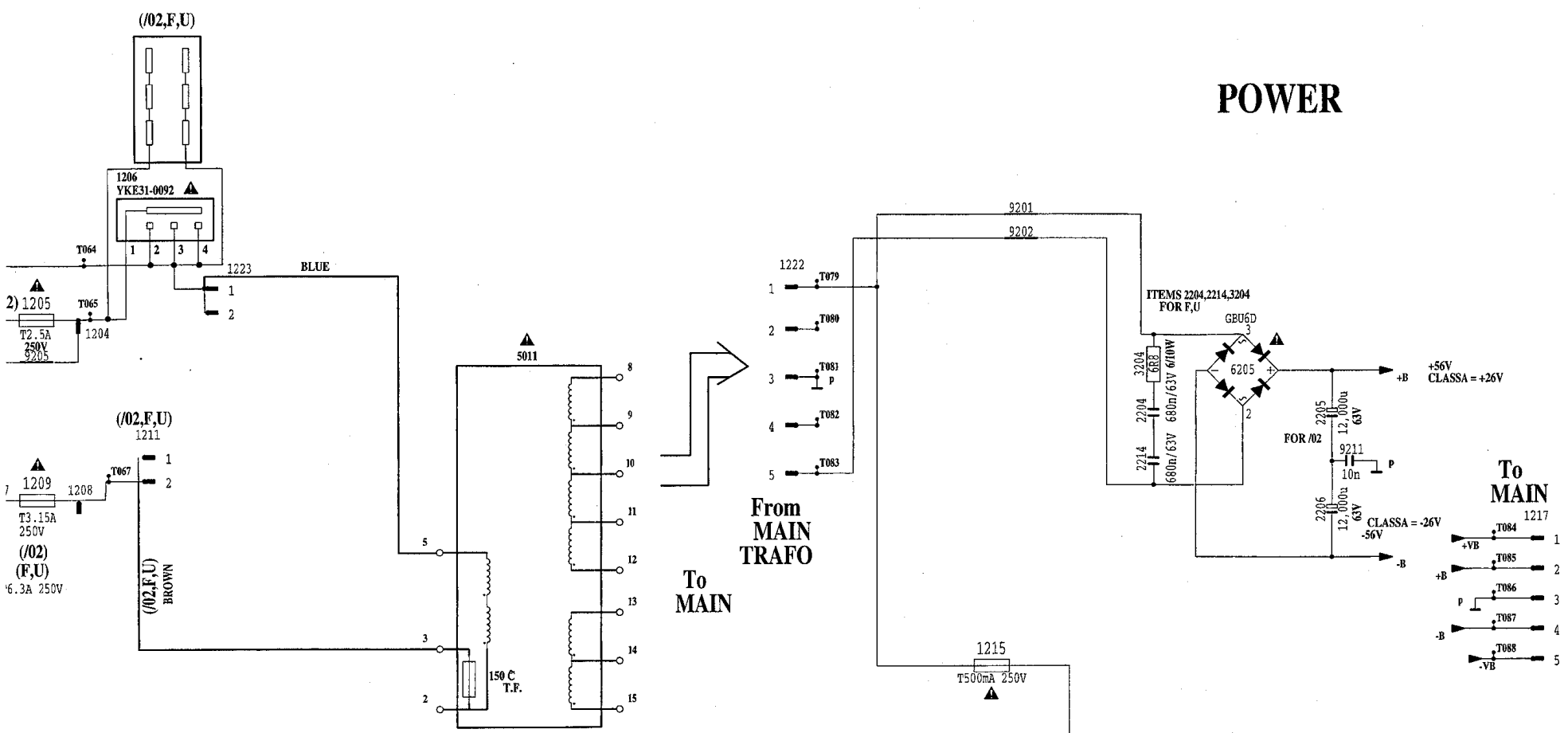
POWER CIRCUIT I (PM-68)



POWER

OFF = 0V  
ON = +24V  
-48V





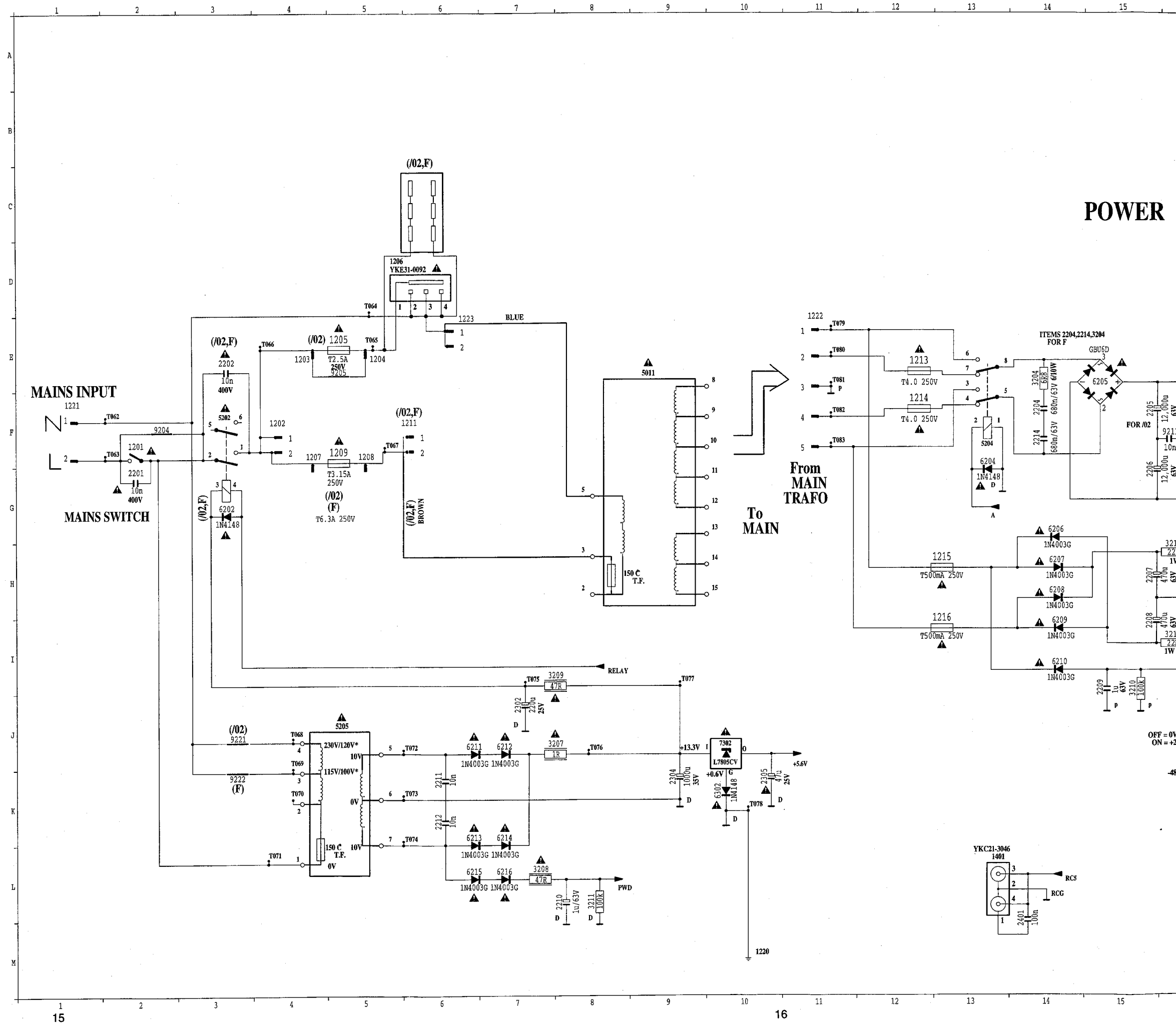
**POWER**

To MAIN

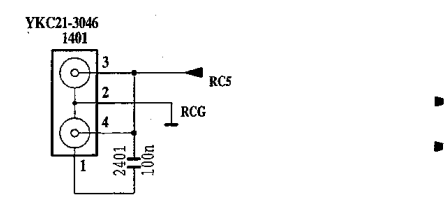
To SPK SW

From FRONT

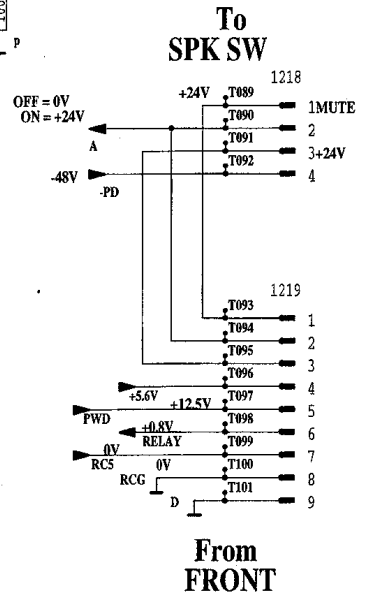
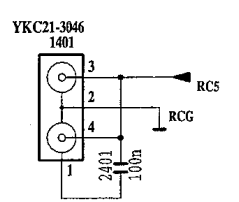
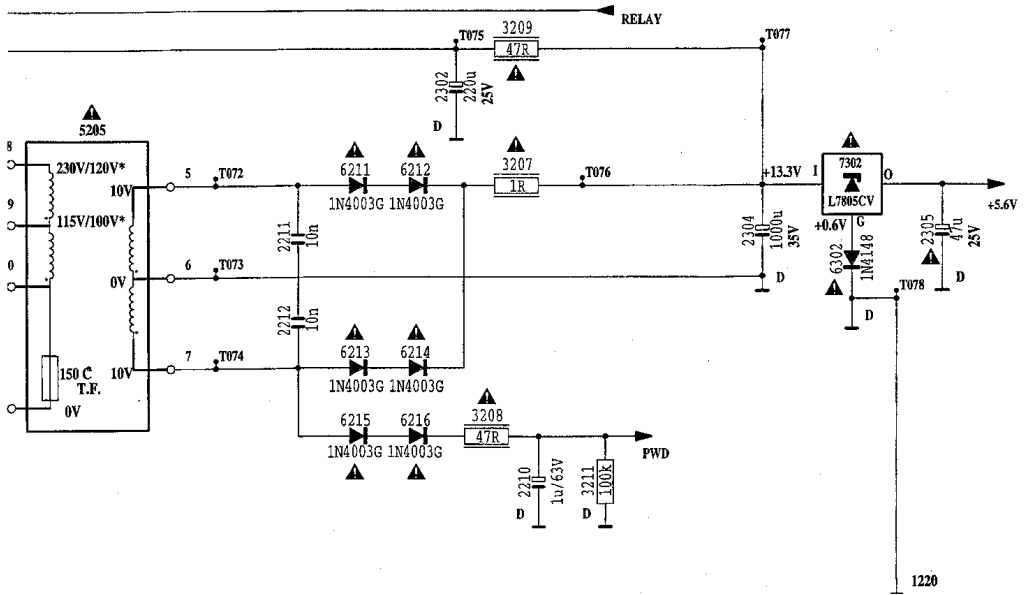
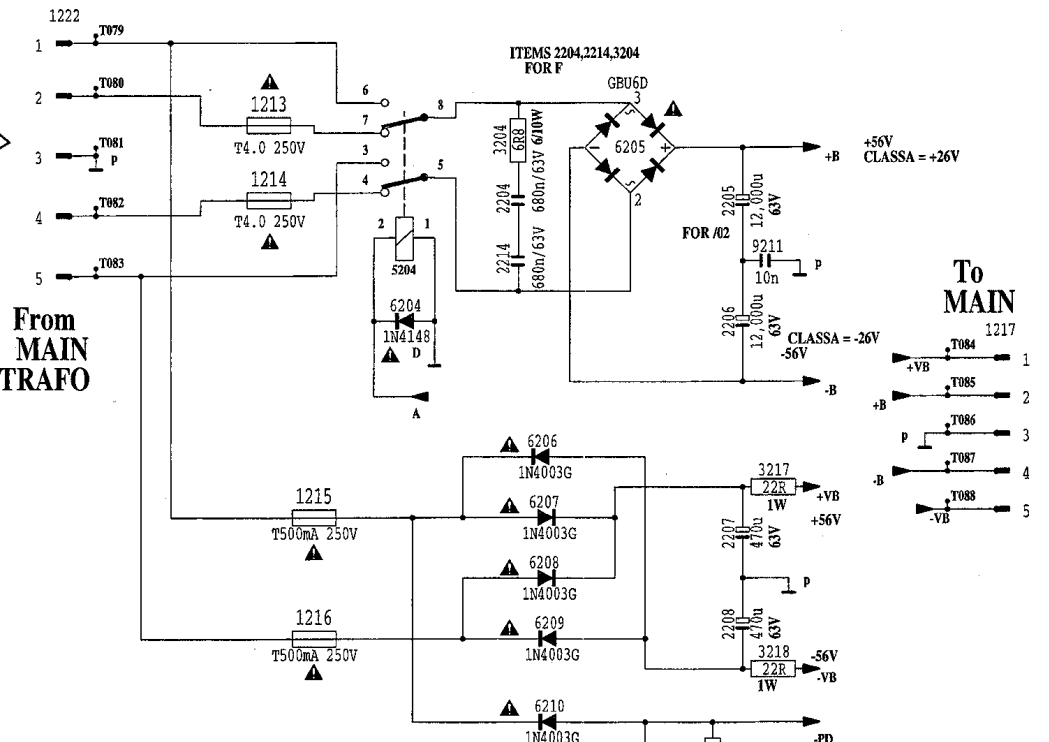
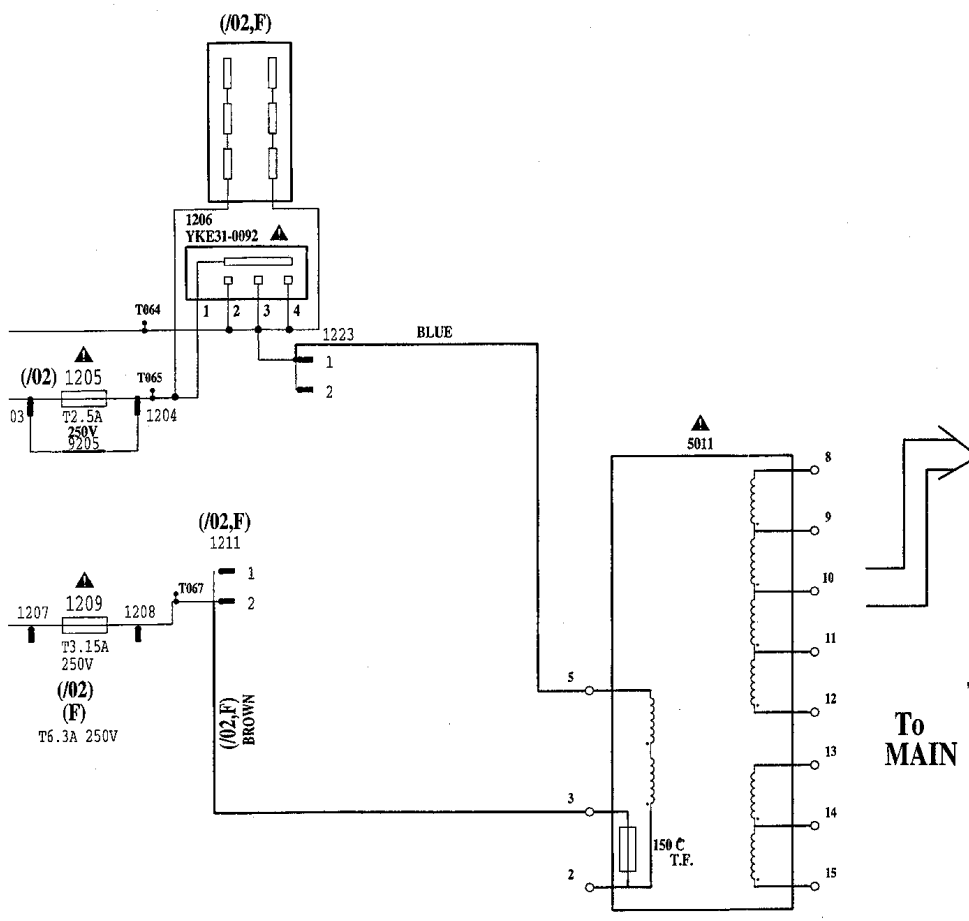
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- 1400



OFF = 0V  
ON = +24V  
-48V

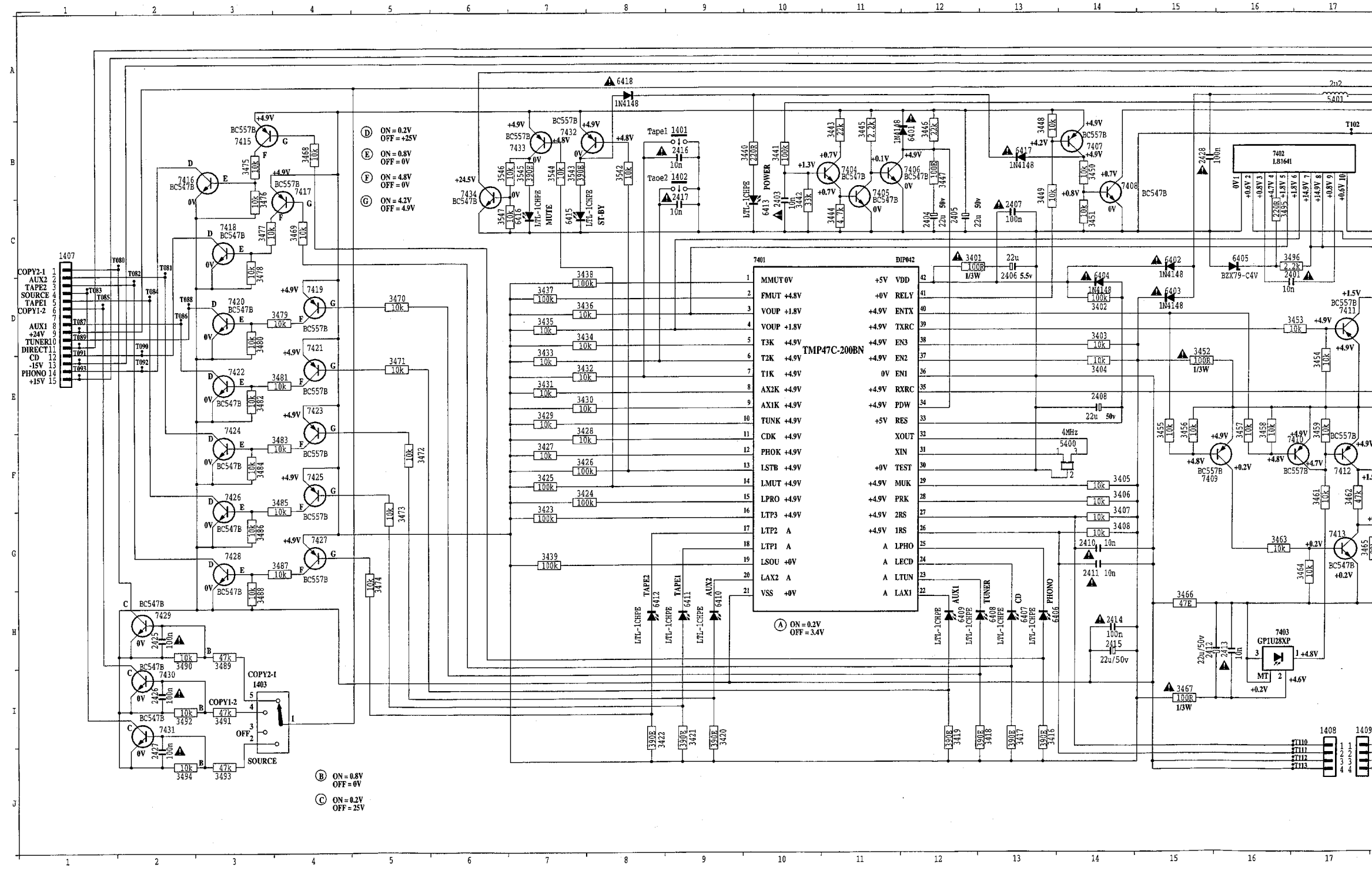


# POWER



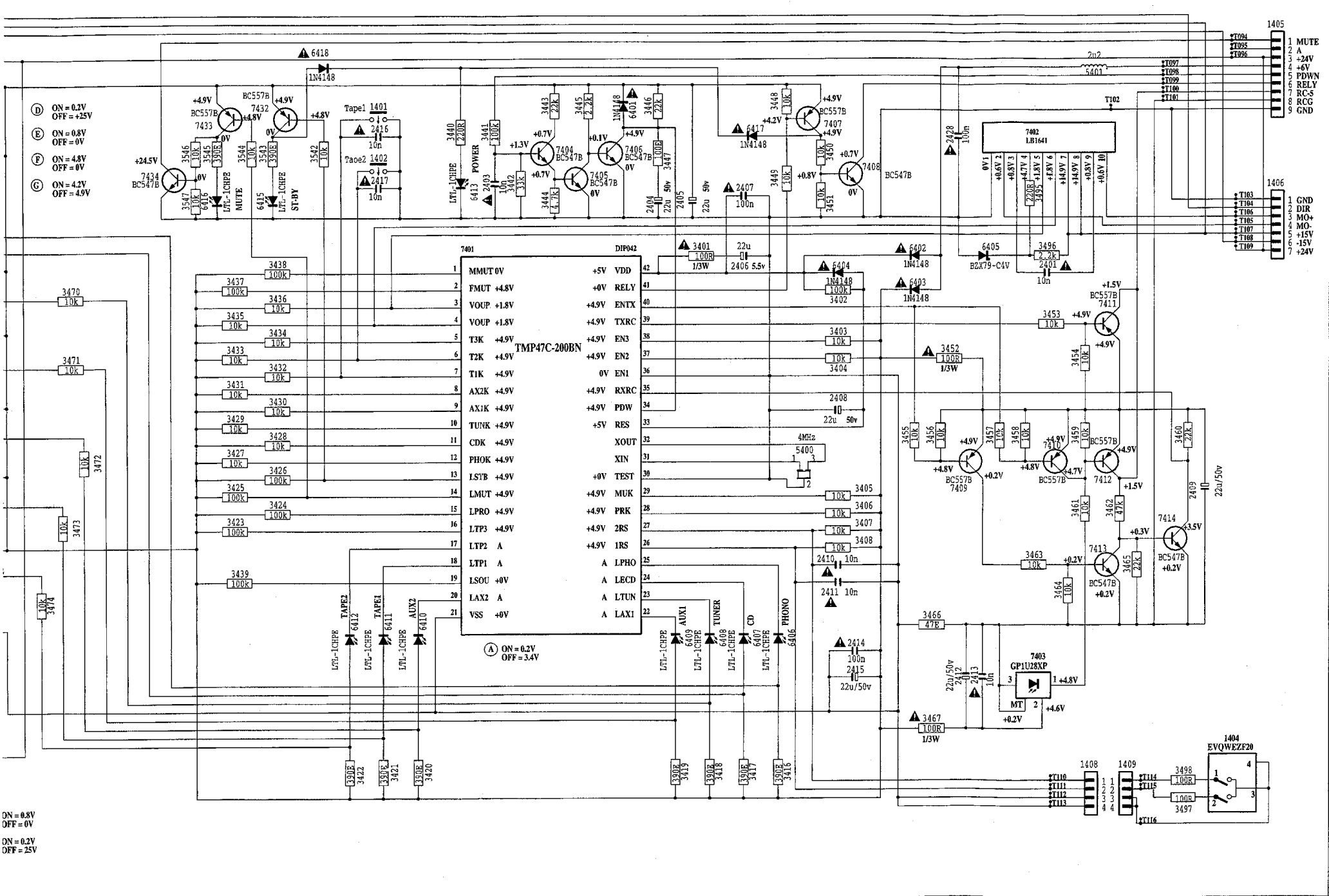
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 1202 F 2  
 1203 F 2  
 1204 F 2  
 1205 F 2  
 1206 F 2  
 1207 F 2  
 1208 F 2  
 1209 F 2  
 1211 F 2  
 1212 F 2  
 1213 F 2  
 1214 F 2  
 1215 F 2  
 1216 F 2  
 1217 F 2  
 1218 F 2  
 1219 F 2  
 1221 F 1  
 1222 E11  
 1223 F 2  
 1224 F 2  
 1225 F 2  
 1226 F 2  
 1227 F 2  
 1228 F 2  
 1229 F 2  
 1230 F 2  
 1231 F 2  
 1232 F 2  
 1233 F 2  
 1234 F 2  
 1401 L13  
 2201 G 2  
 2202 G 2  
 2204 F14  
 2205 F15  
 2206 G15  
 2207 H15  
 2208 H15  
 2209 H15  
 2210 L 1  
 2211 R 6  
 2212 K 6  
 2213 F 4  
 2214 K 9  
 2215 H12  
 2216 F12  
 2217 J 7  
 2304 K 9  
 2305 K10  
 2401 L14  
 3204 G14  
 3207 J 8  
 3208 L 7  
 3209 L 7  
 3210 T1  
 3211 L 1  
 3212 H12  
 3213 H12  
 5202 F 3  
 5204 F13  
 6202 G 3  
 6204 F13  
 6205 F15  
 6206 G14  
 6207 H14  
 6208 H14  
 6209 H14  
 6210 H14  
 6211 J 6  
 6212 K 6  
 6213 K 6  
 6214 K 7  
 6215 L 6  
 6216 K10  
 6302 L10  
 7302 H10  
 9201 D13  
 9202 D13  
 9205 F 2  
 9206 F 2  
 9207 F 2  
 9222 C 2

CONTROL CIRCUIT I (PM-68)



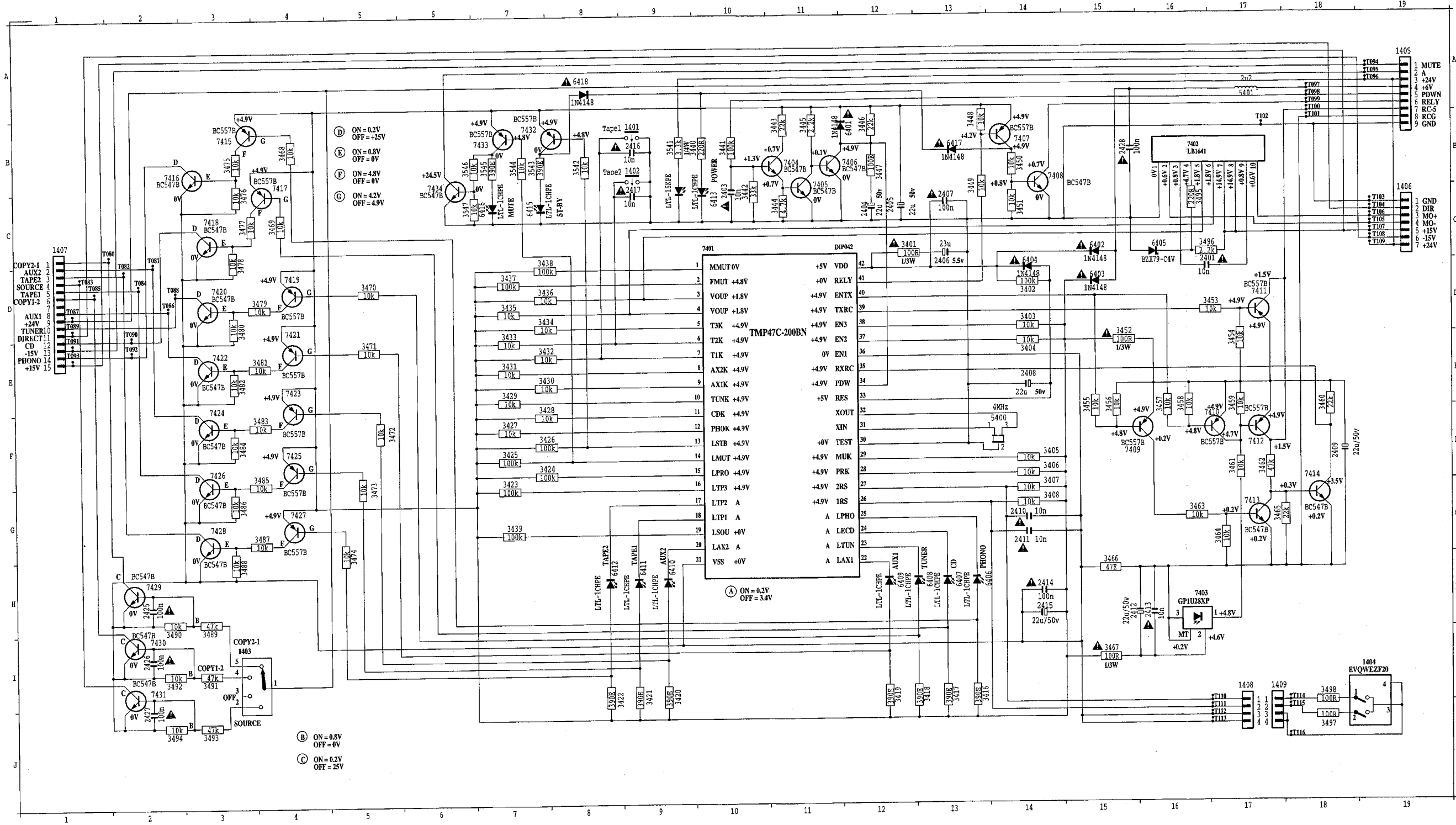


5 6 7 8 9 10 11 12 13 14 15 16 17 18 19



1401	MUTE
1402	A
1403	+24V
1404	-6V
1405	PDWN
1406	RELY
1407	RCC
1408	GND
1409	GND
1410	DIR
1411	MO+
1412	MO-
1413	+15V
1414	+15V
1415	+24V
1416	
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# CONTROL CIRCUIT I (PM-78)



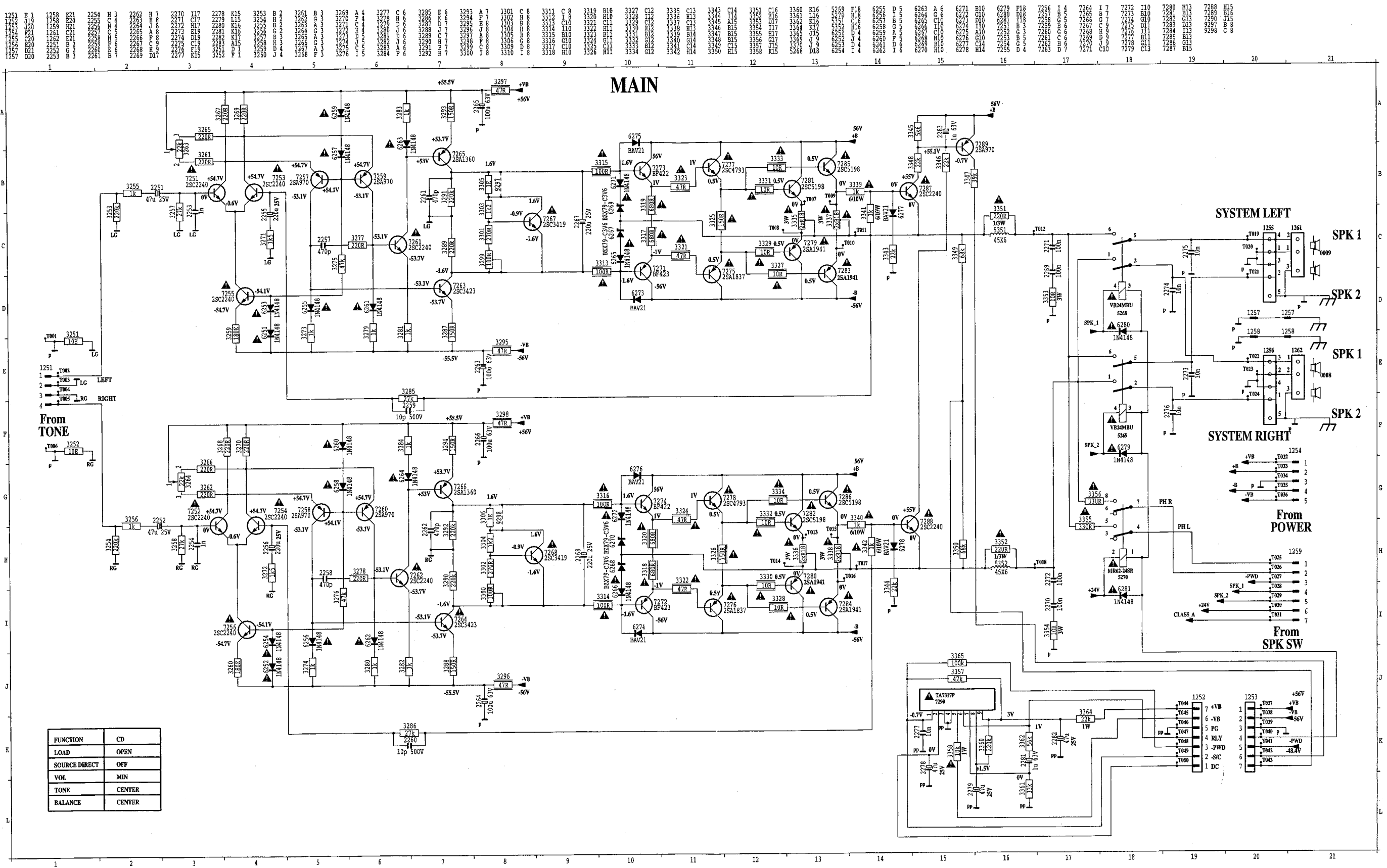
1405

1	MUTE
2	A
3	+24V
4	+6V
5	PDWN
6	RELY
7	RC-5
8	RCC
9	GND

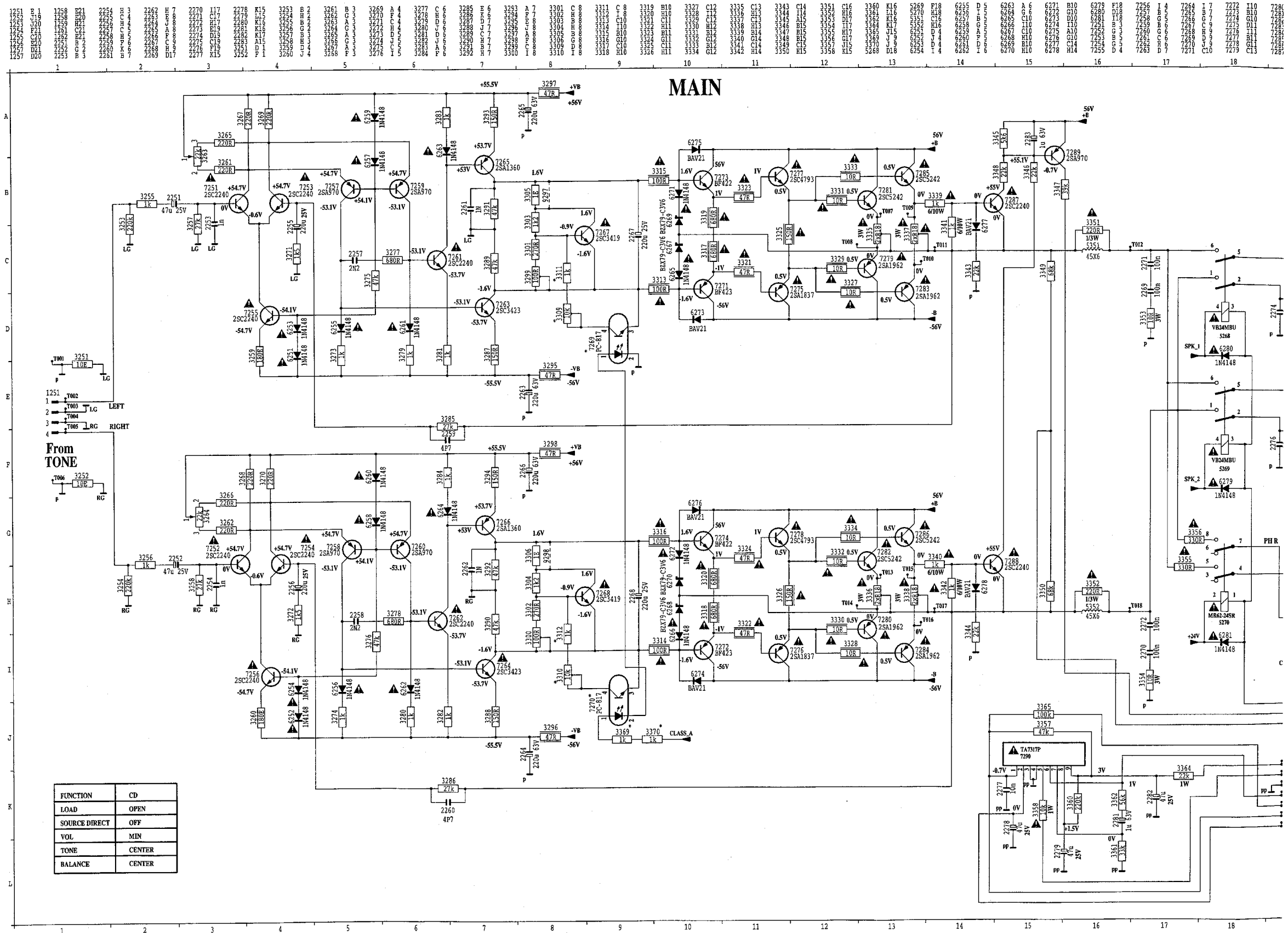
1406

1	GND
2	DIR
3	MO+
4	MO-
5	+15V
6	+15V
7	+24V

# MAIN CIRCUIT (PM-68)

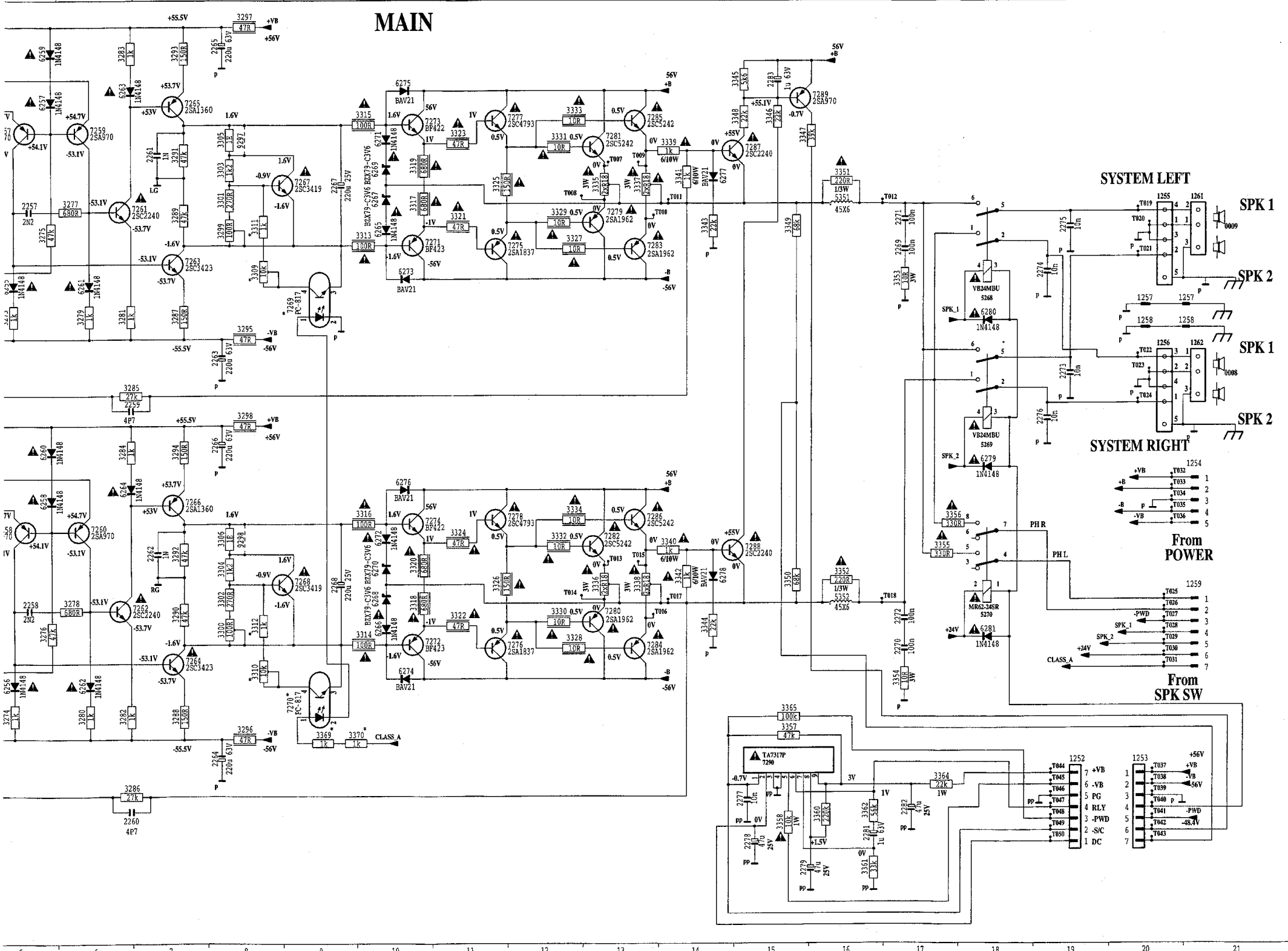


MAIN CIRCUIT(PM-78)



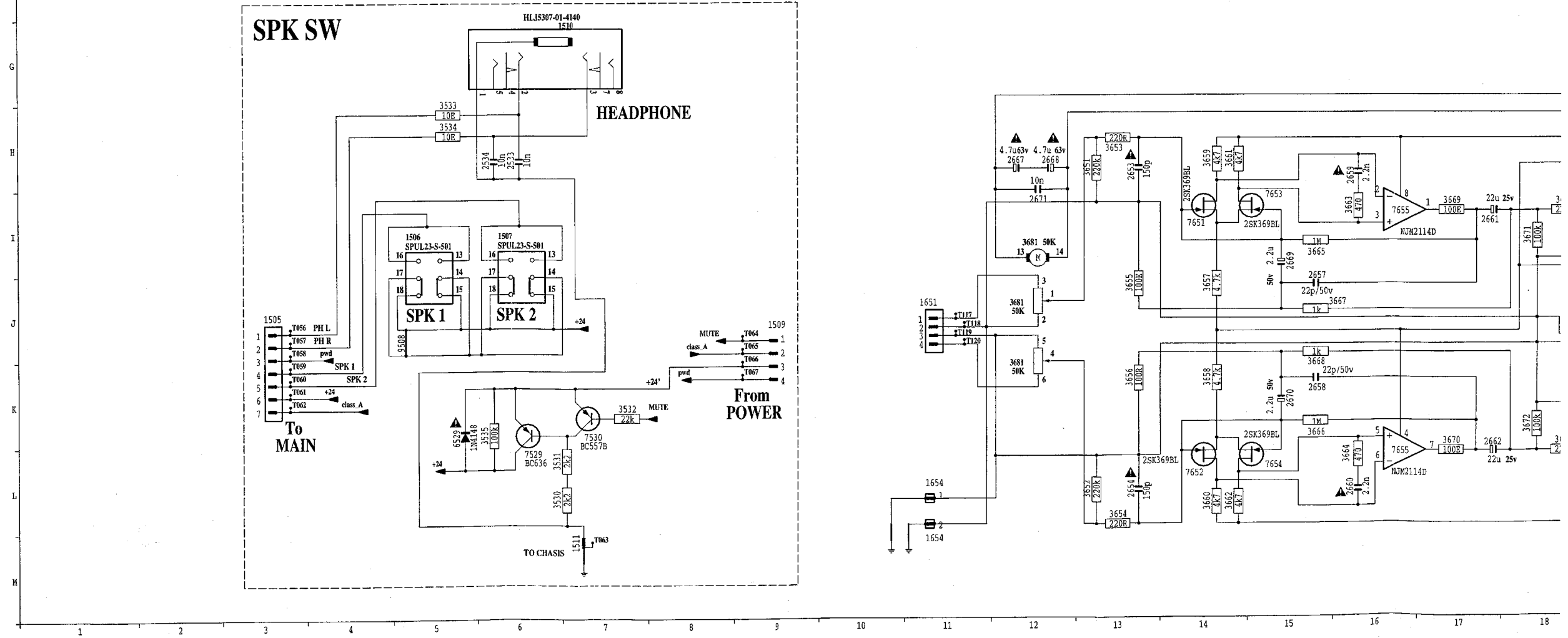
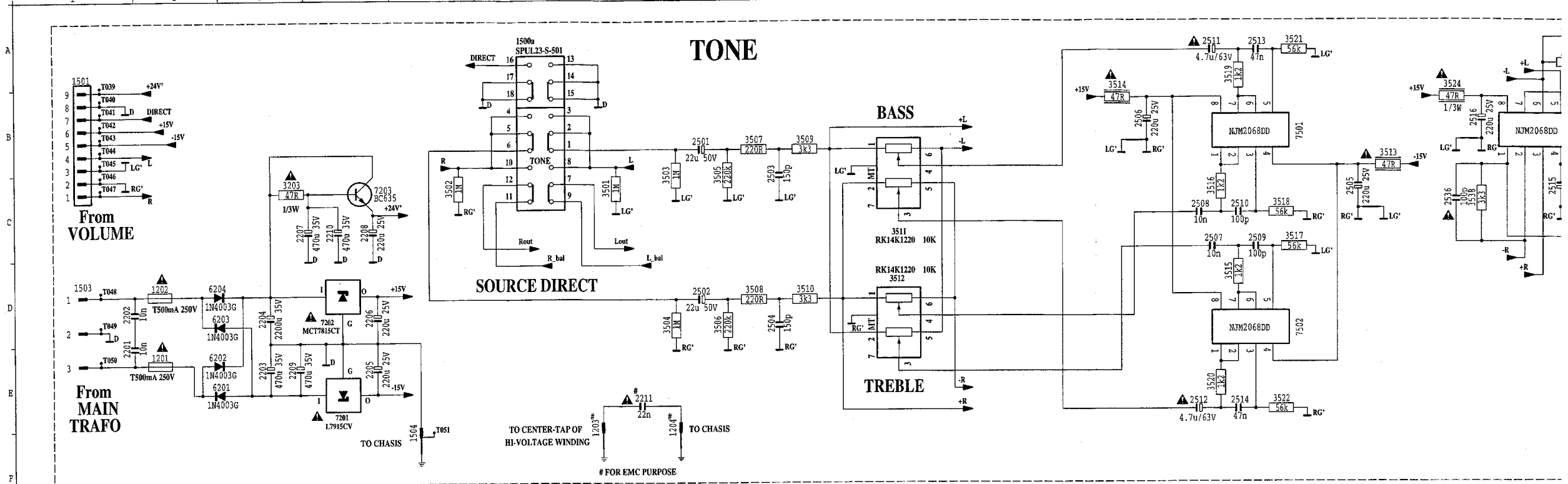
FUNCTION	CD
LOAD	OPEN
SOURCE DIRECT	OFF
VOL	MIN
tone	CENTER
BALANCE	CENTER

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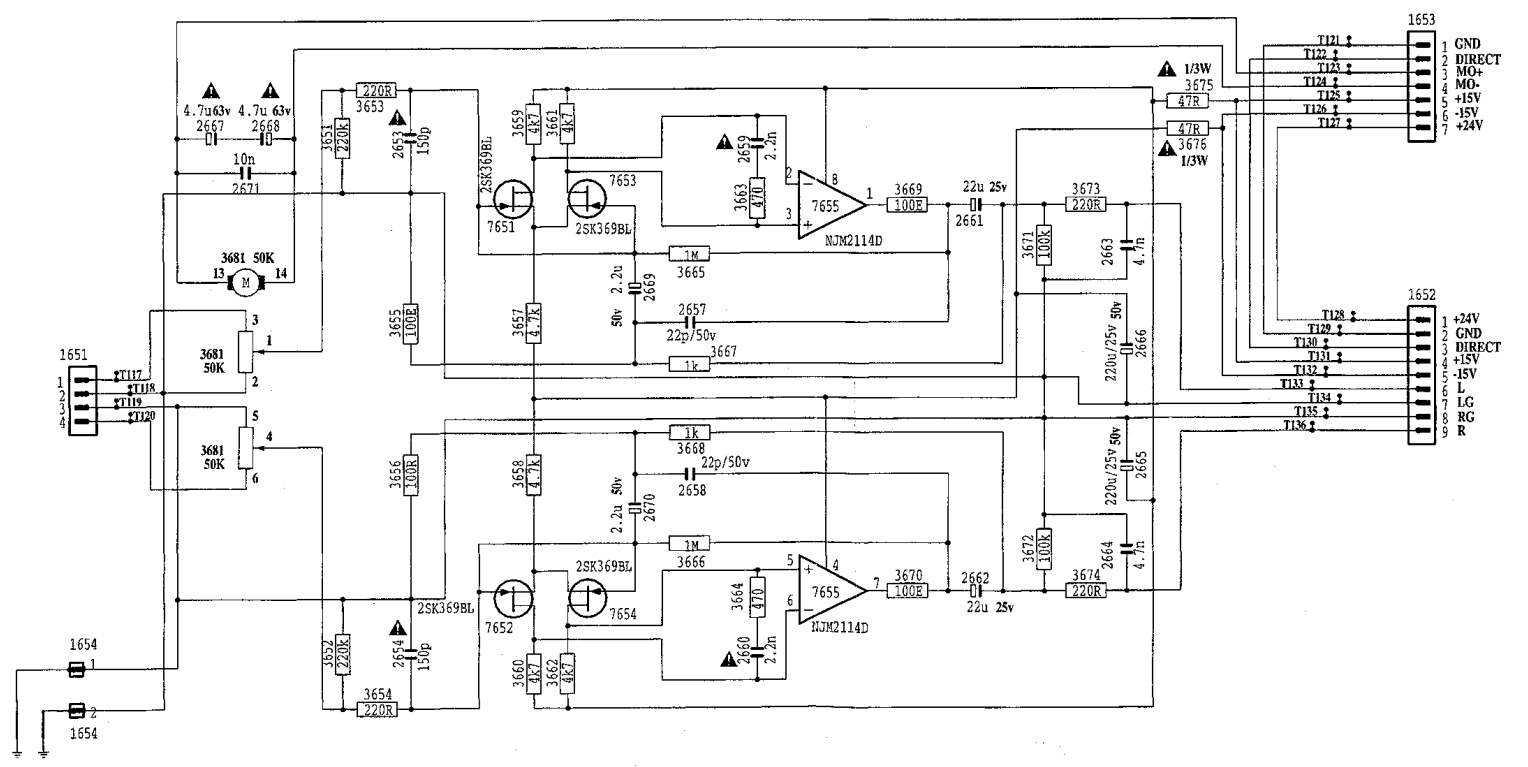
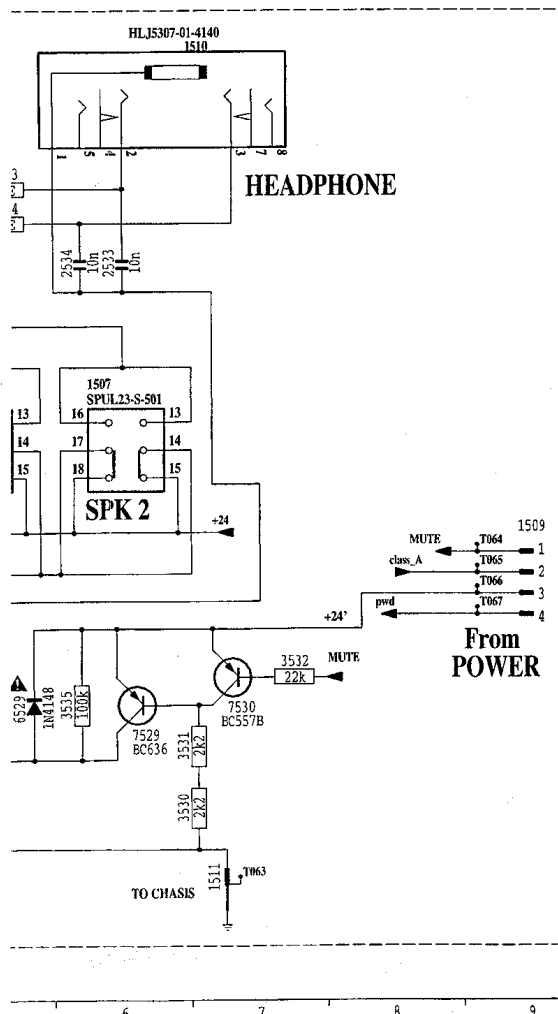
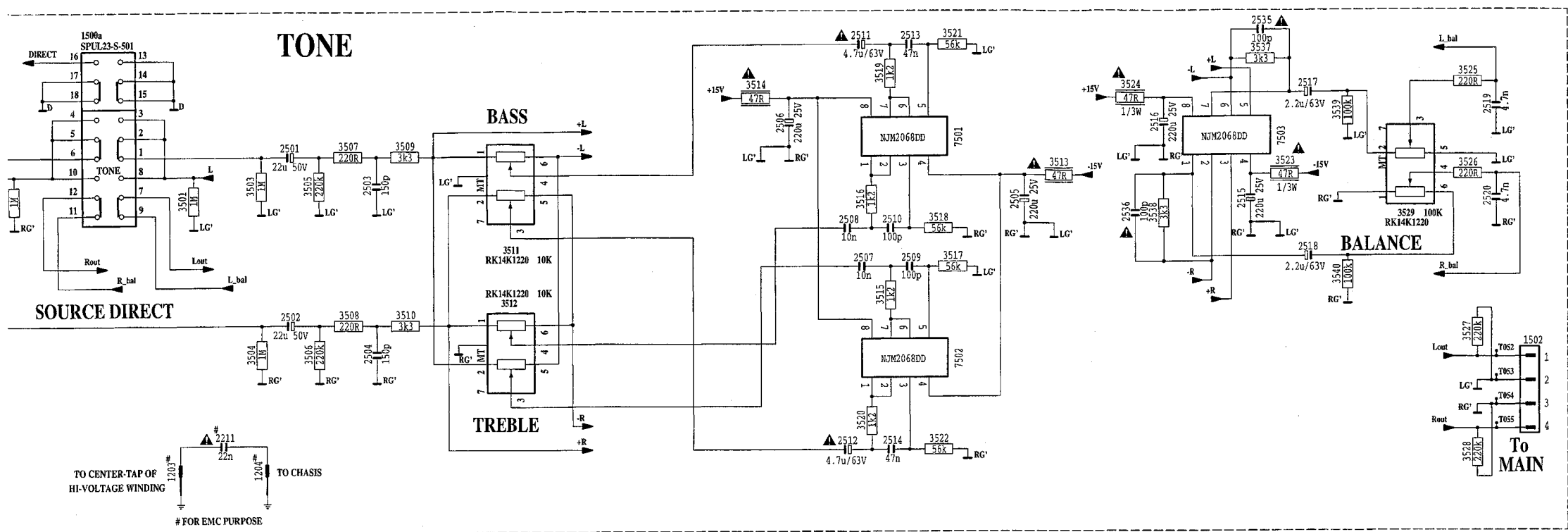


# CONTROL CIRCUIT II (PM-68)

1201	B	2	1501	A	1	1507	H	6	1652	I	20	2203	D	2	2209	B	3	2504	C	9	3510	C	14	3516	B	17	3533	H	6	3553	H	13	3559	H	16	3665	H	19	3671	I	12	3505	C	8	3511	C	11	3517	C	15	3523	B	19	3529	C	20	3535	K	6	3652	L	13	3658	H	14	3664	L	16	3670	K	17	3676	H	19	6203	D	3	7501	B	15	7652	D	2	1502	D	21	1508	H	8	1653	G	20	2204	D	4	2210	B	4	2505	C	10	3511	A	14	3517	B	18	3666	L	15	3672	K	18	6204	D	4	7502	B	16	7653	D	3	1503	F	1	1509	H	9	1654	M	11	2205	C	11	2206	C	12	2506	C	11	3512	A	15	3518	B	19	3667	L	16	3673	K	19	6205	D	5	7503	B	17	7654	D	4	1504	A	6	1510	M	11	1654	M	11	2206	C	12	2506	C	11	3512	A	15	3518	B	19	3667	L	16	3673	K	19	6205	D	5	7503	B	17	7654	D	4	1505	A	6	1511	M	11	1654	M	11	2206	C	12	2506	C	11	3512	A	15	3518	B	19	3667	L	16	3673	K	19	6205	D	5	7503	B	17	7654	D	4	1506	B	6	1651	J	11	1651	J	11	2202	D	1	2208	C	4	2503	C	9	3508	B	18	3514	C	14	3520	B	20	3526	H	22	3532	B	20	3538	H	25	3651	H	13	3657	L	14	3658	H	14	3664	L	16	3670	K	17	3676	H	19	6202	D	2	7501	B	15	7652	D	2	1506	B	6	1651	J	11	1651	J	11	2202	D	1	2208	C	4	2503	C	9	3508	B	18	3514	C	14	3520	B	20	3526	H	22	3532	B	20	3538	H	25	3651	H	13	3657	L	14	3658	H	14	3664	L	16	3670	K	17	3676	H	19	6202	D	2	7501	B	15	7652	D	2
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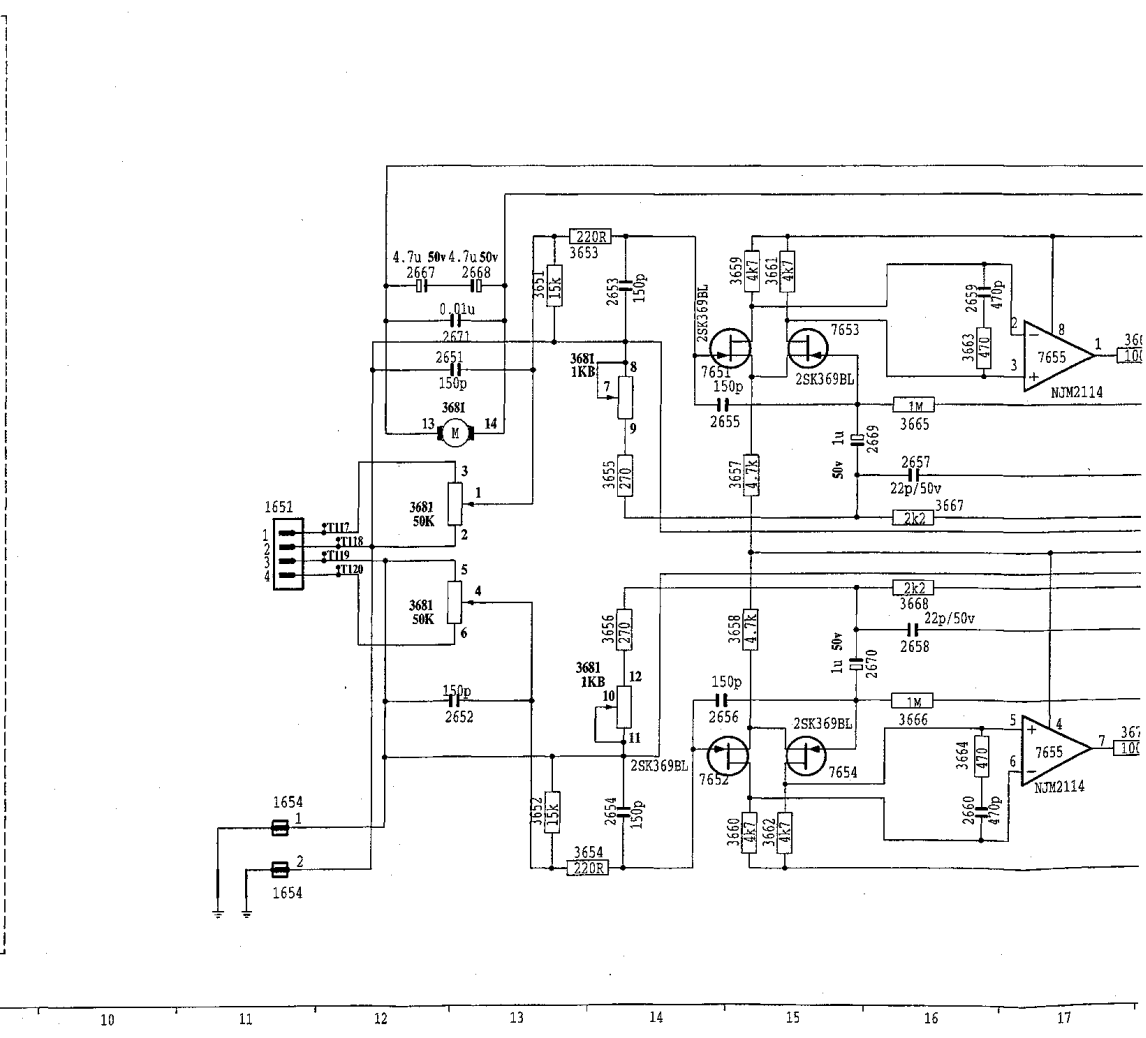
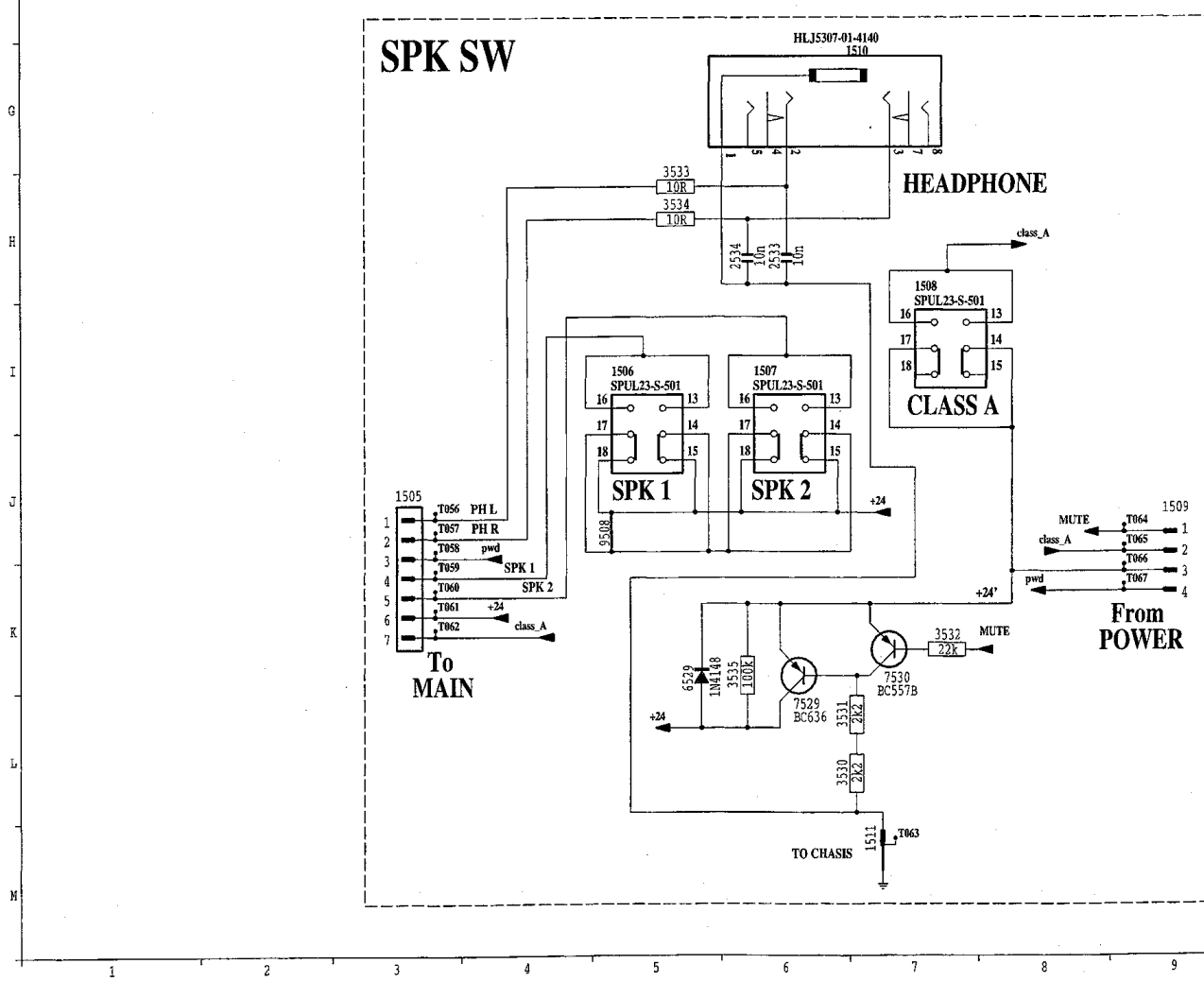
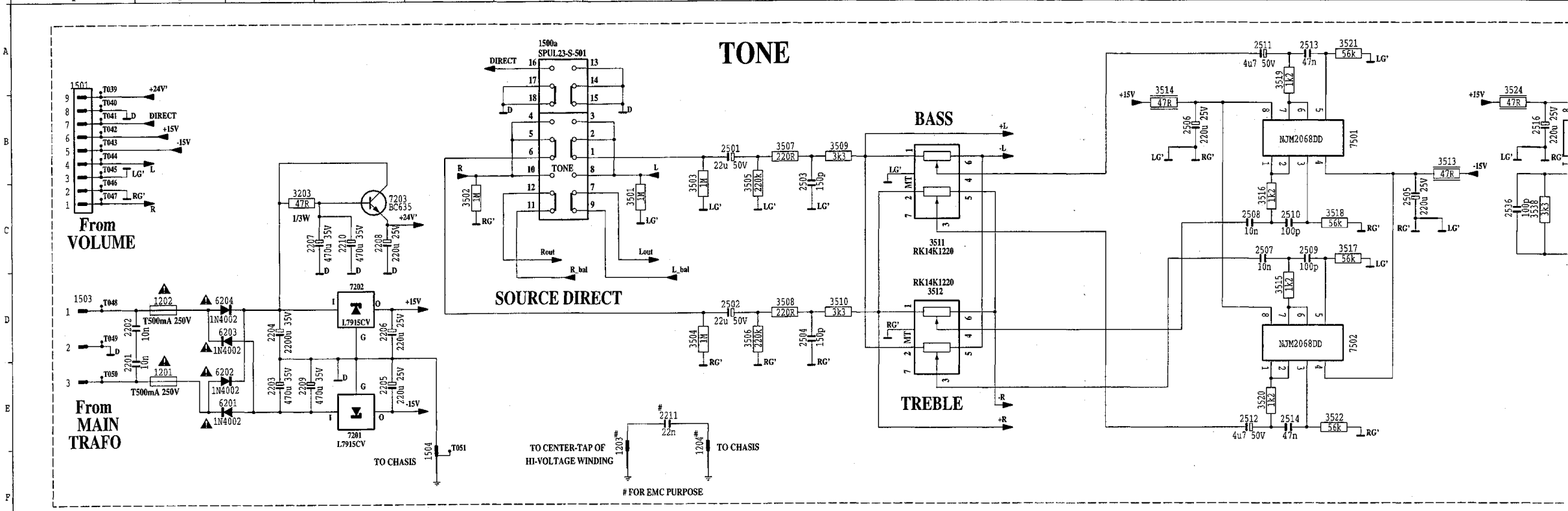


2516	B17	2533	H 6	2653	H13	2659	H16	2665	K19	2671	I12	3505	C 8	3511	C11	3517	C15	3523	B19	3529	C20	3535	F 6	3541	L13	3548	K14	3554	L14	3560	K17	3566	H19	6203	D 3	7501	H15	7507	H15	7513	L14		
2517	B19	2534	H 6	2654	L13	2660	H16	2666	J19	2672	C13	3506	D 9	3512	D11	3518	D15	3524	B17	3530	C20	3536	F 6	3542	L13	3549	K14	3555	L14	3561	K17	3567	H19	6204	D 2	7502	H15	7508	H15	7514	L14	7520	H15
2518	B19	2535	H 6	2655	L13	2661	H16	2667	J19	2673	C13	3507	D 9	3513	D11	3519	D15	3525	B17	3531	C20	3537	F 6	3543	L13	3550	K14	3556	L14	3562	K17	3568	H19	6205	D 2	7503	H15	7509	H15	7515	L14	7521	H15
2519	B19	2536	H 6	2656	L13	2662	H16	2668	J19	2674	C13	3508	D 9	3514	D11	3520	D15	3526	B17	3532	C20	3538	F 6	3544	L13	3551	K14	3557	L14	3563	K17	3569	H19	6206	D 2	7504	H15	7510	H15	7516	L14	7522	H15
2520	C21	2651	I12	2657	J15	2663	I18	2669	J15	2675	D 8	3509	D 9	3515	C14	3521	A15	3527	D20	3533	C20	3539	H19	3545	L17	3552	K14	3558	L14	3564	K17	3570	H19	6207	C 4	7201	D 4	7505	K 7	7511	K 7	7517	L15
2530	L 7	2652	K12	2658	K15	2664	K18	2670	K15	3504	D 8	3510	D 9	3516	C14	3522	B15	3528	E20	3534	H 5	3540	H19	3546	L17	3553	K14	3559	L17	3565	K17	3571	H19	6208	C 4	7202	D 4	7506	K 7	7512	L15	7518	L15



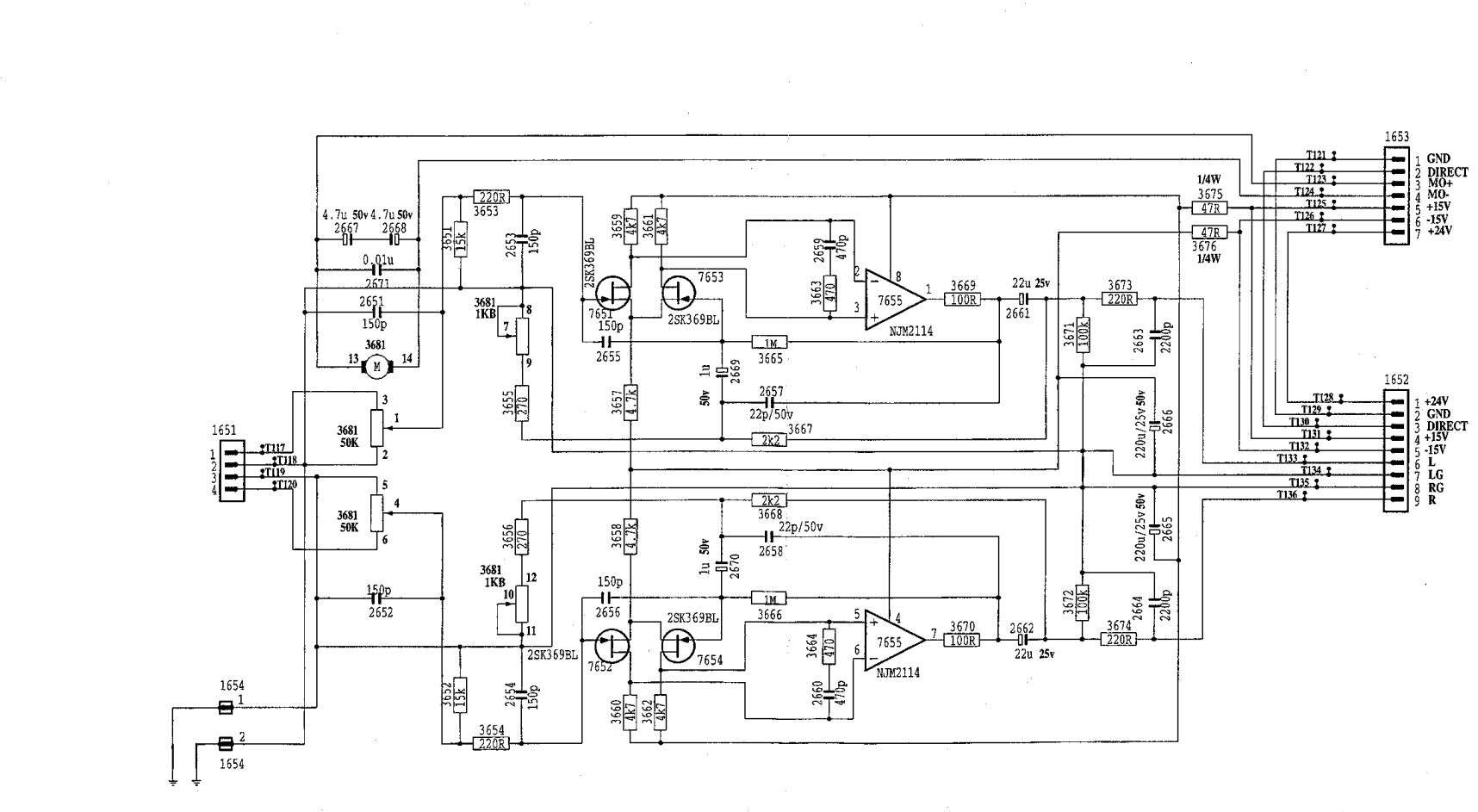
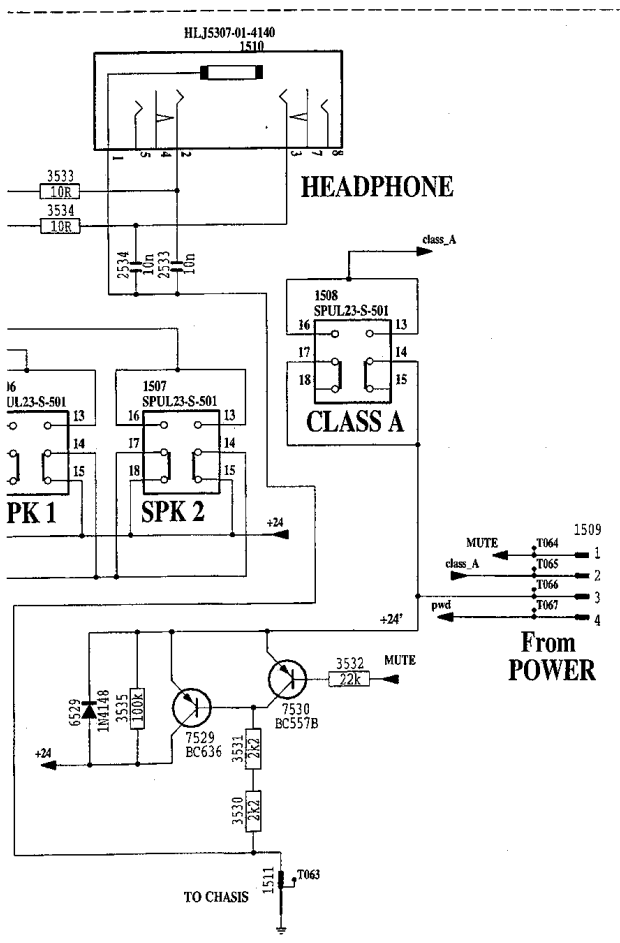
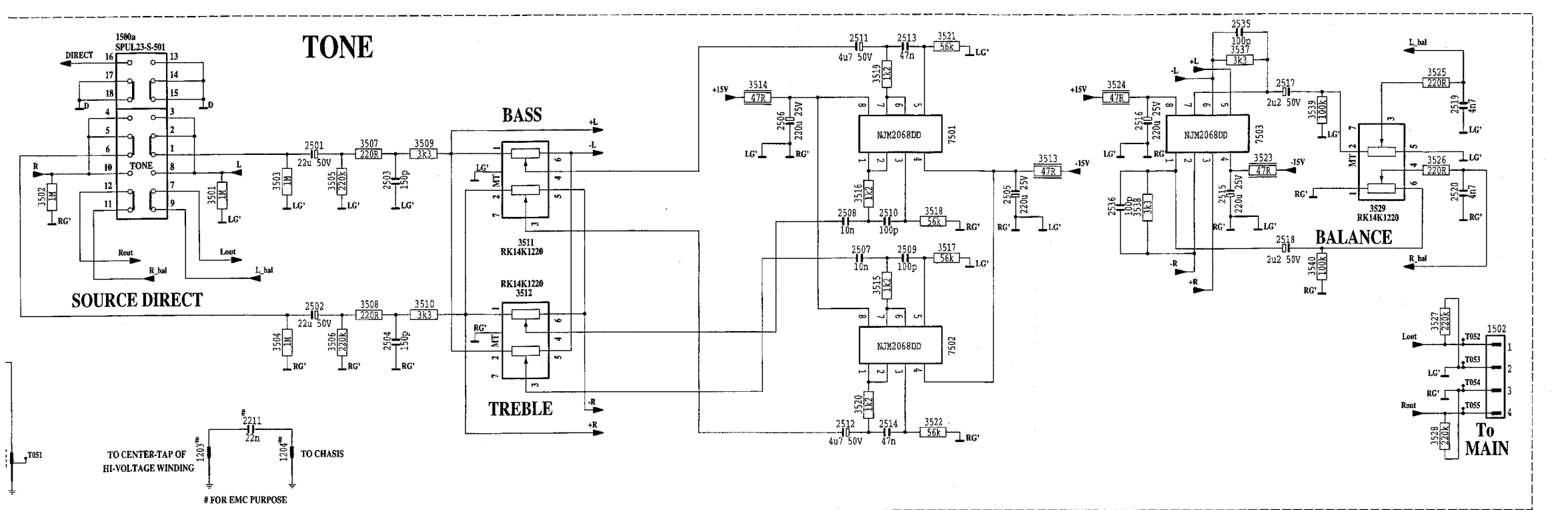
# CONTROL CIRCUIT II (PM-78)

1201	1500a	A 6	1503	D 1	1507	I 6	1511	D 7	2204	D 3	2208	D 4	2501	B 8	2505	C 2	2509	C 15	2513	A 15	2517	B 19	2530	F 7	2536	C 17	3503	D 8	3507	D 9	3511	C 11	3515	D 14	3519	A 14	3523	B 18	3527	D 20	3531	F 6	3535	K 6	3540	C 19	6204	D 2	7203	C 4	7529	D 2
1202	1500b	B 6	1504	E 1	1508	II 7	2201	D 1	2205	C 2	2209	D 4	2502	B 8	2506	B 12	2510	C 14	2514	A 14	2518	B 18	2531	F 7	2537	C 17	3504	D 8	3508	D 9	3512	D 11	3516	D 14	3520	B 14	3524	B 17	3528	B 20	3532	F 6	3536	K 6	6201	D 2	7204	C 4	7530	D 2		
1203	1501	A 1	1505	E 2	1509	III 8	2202	D 1	2206	C 2	2210	D 4	2503	B 8	2507	B 12	2511	C 14	2515	A 14	2519	B 18	2532	F 7	2538	C 17	3505	D 8	3509	D 9	3513	D 11	3517	D 14	3521	B 14	3525	B 17	3529	B 20	3533	F 6	3537	K 6	6202	D 2	7205	C 4	7531	D 2		
1204	1502	D 21	1506	E 3	1510	IV 9	2203	D 1	2207	C 2	2211	D 4	2504	B 8	2508	B 12	2512	C 14	2516	A 14	2520	B 18	2533	F 7	2539	C 17	3506	D 8	3510	D 9	3514	D 11	3518	D 14	3522	B 14	3526	B 17	3530	B 20	3534	F 6	3538	K 6	6203	D 2	7206	C 4	7532	D 2		

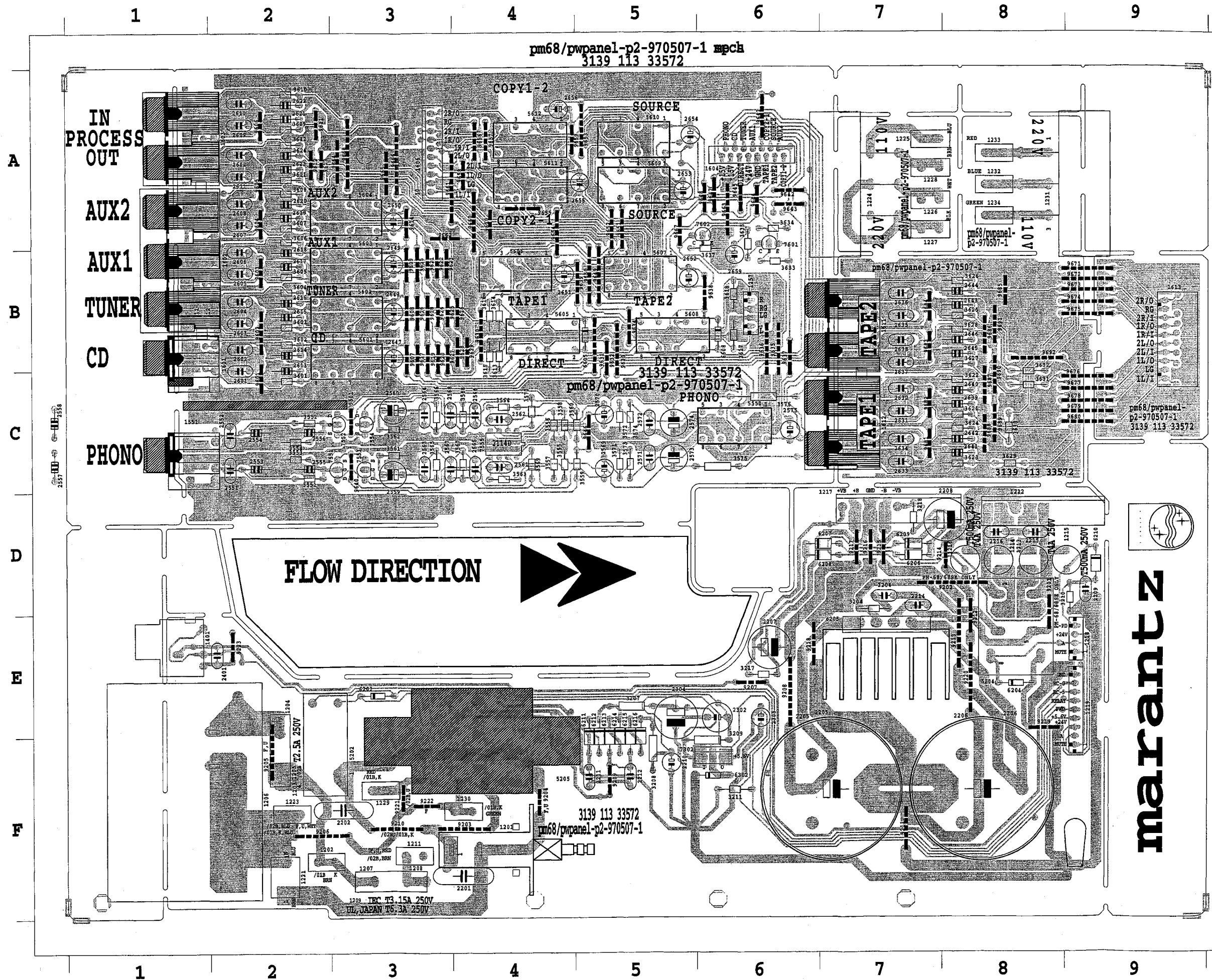




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C16	C16	C15	C15	A15	A15	C19	B19	B19	C20	L 7	2536	C17	3503	C 8	3507	B 9	3511	C11	3515	D14	3519	A14	3523	B19	3527	D20	3531	L 6	3535	K 6	3540	C19	6204	D 2	7203	C 4	7529	L 6																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
2505	2506	2507	2508	2510	2511	2512	2513	2514	2515	2516	2517	2518	2519	2520	2521	2522	2523	2524	2525	2526	2527	2528	2529	2530	2531	2532	2533	2534	2535	2536	2537	2538	2539	2540	2541	2542	2543	2544	2545	2546	2547	2548	2549	2550	2551	2552	2553	2554	2555	2556	2557	2558	2559	2560	2561	2562	2563	2564	2565	2566	2567	2568	2569	2570	2571	2572	2573	2574	2575	2576	2577	2578	2579	2580	2581	2582	2583	2584	2585	2586	2587	2588	2589	2590	2591	2592	2593	2594	2595	2596	2597	2598	2599	2600	2601	2602	2603	2604	2605	2606	2607	2608	2609	2610	2611	2612	2613	2614	2615	2616	2617	2618	2619	2620	2621	2622	2623	2624	2625	2626	2627	2628	2629	2630	2631	2632	2633	2634	2635	2636	2637	2638	2639	2640	2641	2642	2643	2644	2645	2646	2647	2648	2649	2650	2651	2652	2653	2654	2655	2656	2657	2658	2659	2660	2661	2662	2663	2664	2665	2666	2667	2668	2669	2670	2671	2672	2673	2674	2675	2676	2677	2678	2679	2680	2681	2682	2683	2684	2685	2686	2687	2688	2689	2690	2691	2692	2693	2694	2695	2696	2697	2698	2699	2700	2701	2702	2703	2704	2705	2706	2707	2708	2709	2710	2711	2712	2713	2714	2715	2716	2717	2718	2719	2720	2721	2722	2723	2724	2725	2726	2727	2728	2729	2730	2731	2732	2733	2734	2735	2736	2737	2738	2739	2740	2741	2742	2743	2744	2745	2746	2747	2748	2749	2750	2751	2752	2753	2754	2755	2756	2757	2758	2759	2760	2761	2762	2763	2764	2765	2766	2767	2768	2769	2770	2771	2772	2773	2774	2775	2776	2777	2778	2779	2780	2781	2782	2783	2784	2785	2786	2787	2788	2789	2790	2791	2792	2793	2794	2795	2796	2797	2798	2799	2800	2801	2802	2803	2804	2805	2806	2807	2808	2809	2810	2811	2812	2813	2814	2815	2816	2817	2818	2819	2820	2821	2822	2823	2824	2825	2826	2827	2828	2829	2830	2831	2832	2833	2834	2835	2836	2837	2838	2839	2840	2841	2842	2843	2844	2845	2846	2847	2848	2849	2850	2851	2852	2853	2854	2855	2856	2857	2858	2859	2860	2861	2862	2863	2864	2865	2866	2867	2868	2869	2870	2871	2872	2873	2874	2875	2876	2877	2878	2879	2880	2881	2882	2883	2884	2885	2886	2887	2888	2889	2890	2891	2892	2893	2894	2895	2896	2897	2898	2899	2900	2901	2902	2903	2904	2905	2906	2907	2908	2909	2910	2911	2912	2913	2914	2915	2916	2917	2918	2919	2920	2921	2922	2923	2924	2925	2926	2927	2928	2929	2930	2931	2932	2933	2934	2935	2936	2937	2938	2939	2940	2941	2942	2943	2944	2945	2946	2947	2948	2949	2950	2951	2952	2953	2954	2955	2956	2957	2958	2959	2960	2961	2962	2963	2964	2965	2966	2967	2968	2969	2970	2971	2972	2973	2974	2975	2976	2977	2978	2979	2980	2981	2982	2983	2984	2985	2986	2987	2988	2989	2990	2991	2992	2993	2994	2995	2996	2997	2998	2999	3000

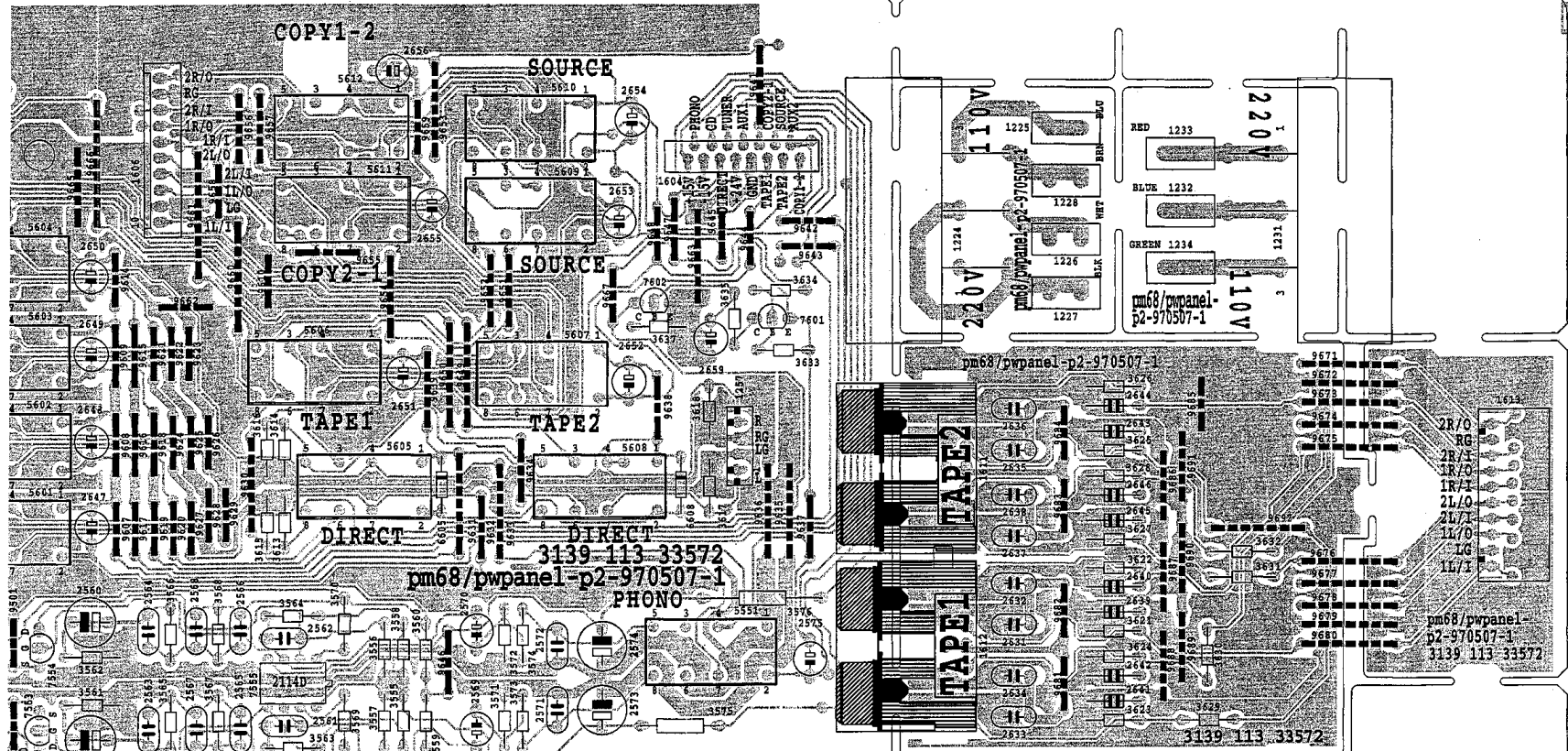


POWER BOARD

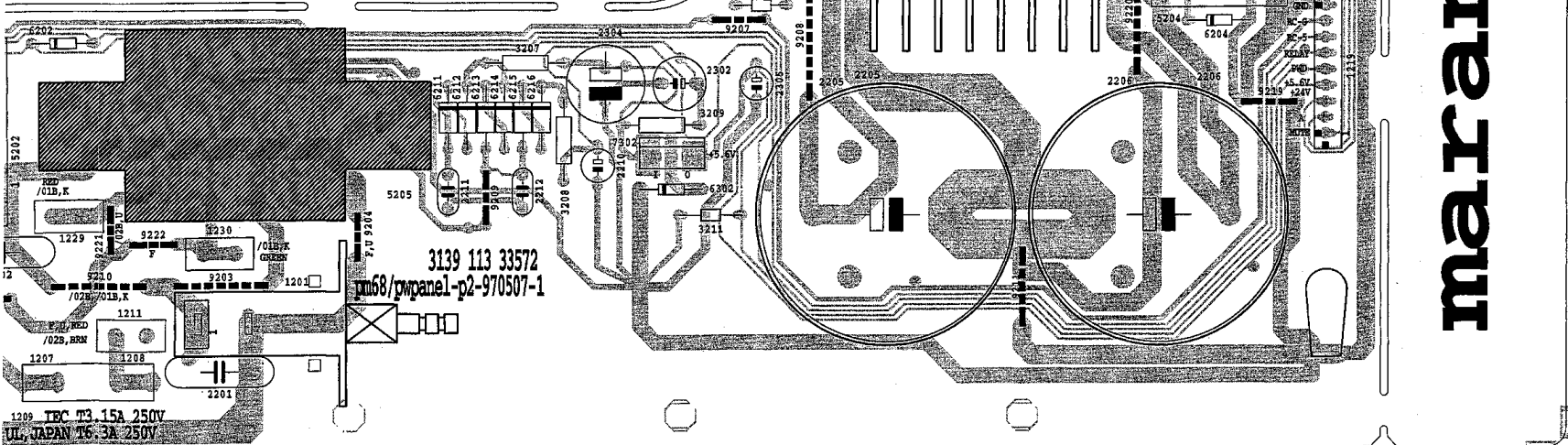


3 4 5 6 7 8 9

pm68/pwpanel-p2-970507-1 mpch  
3139 113 33572



DIRECTION

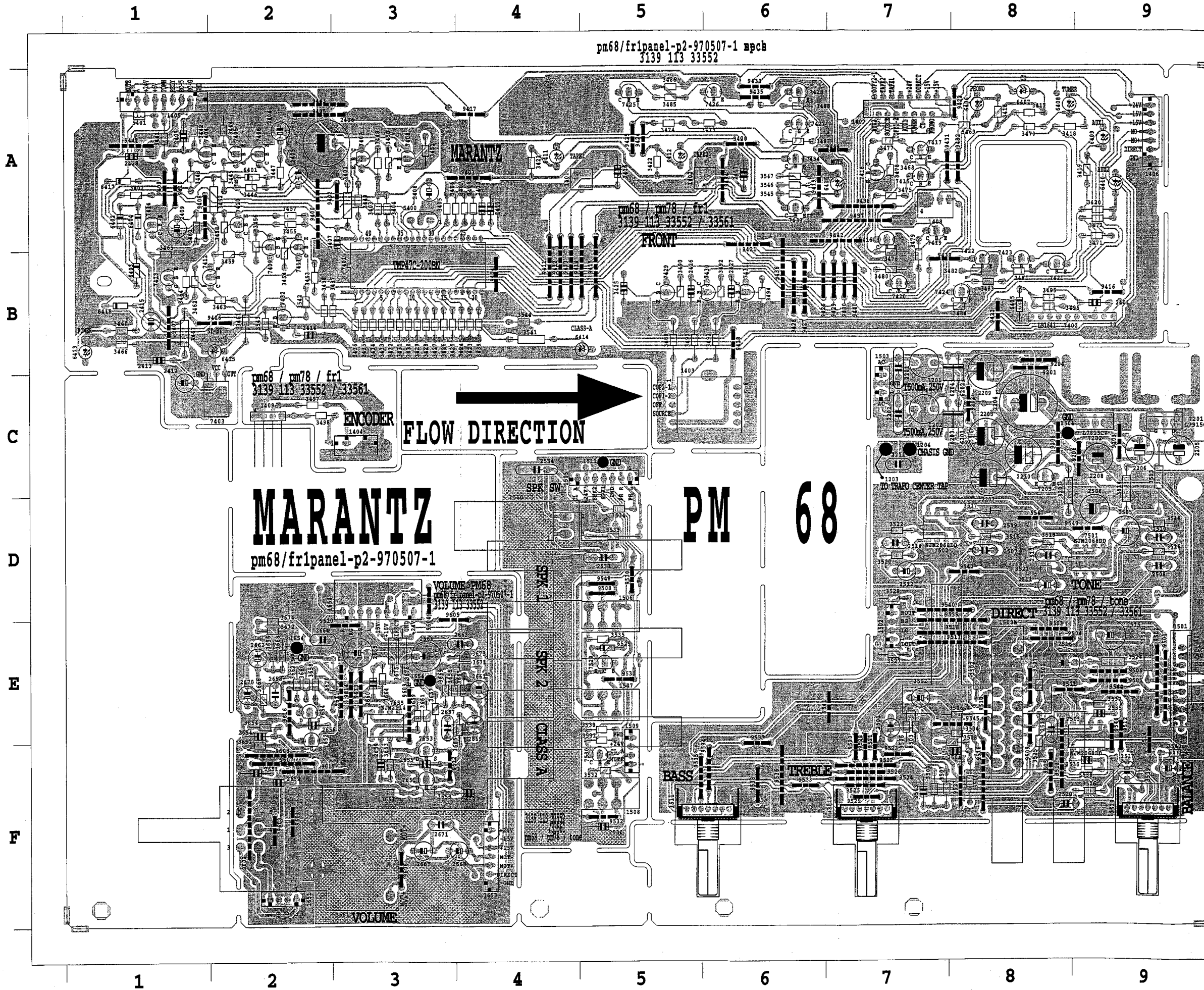


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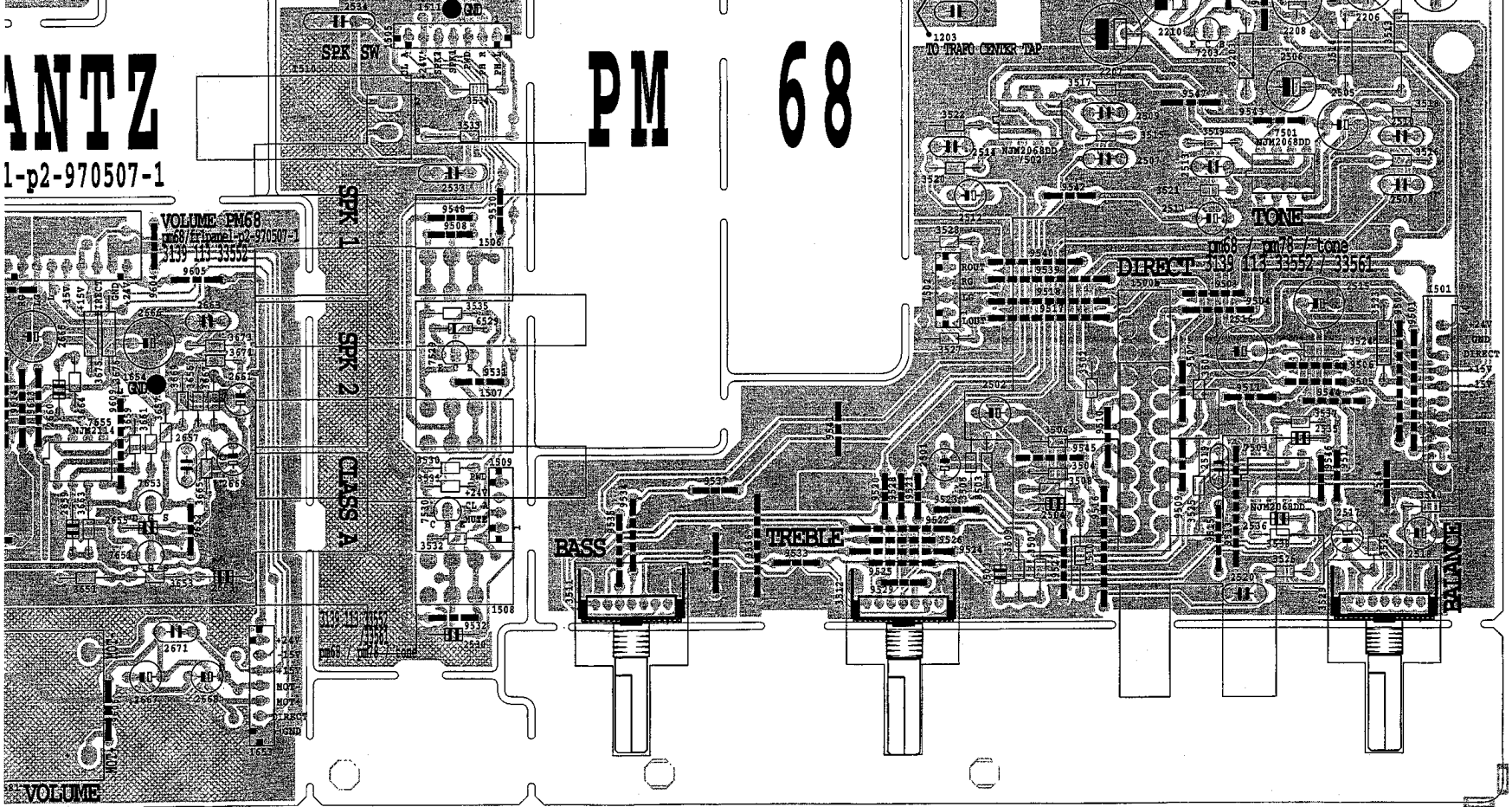
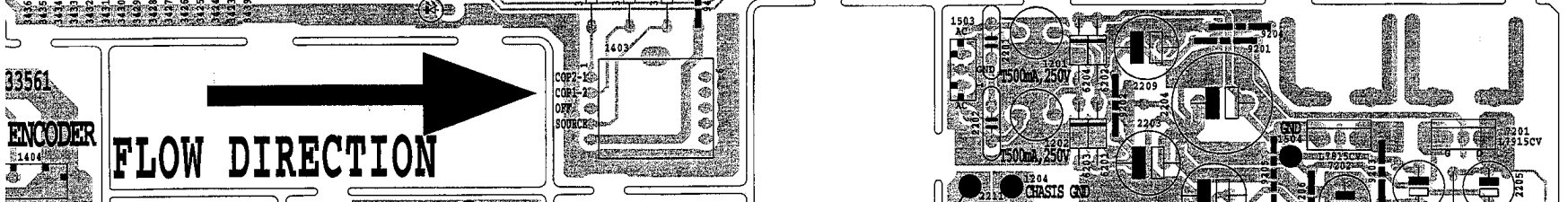
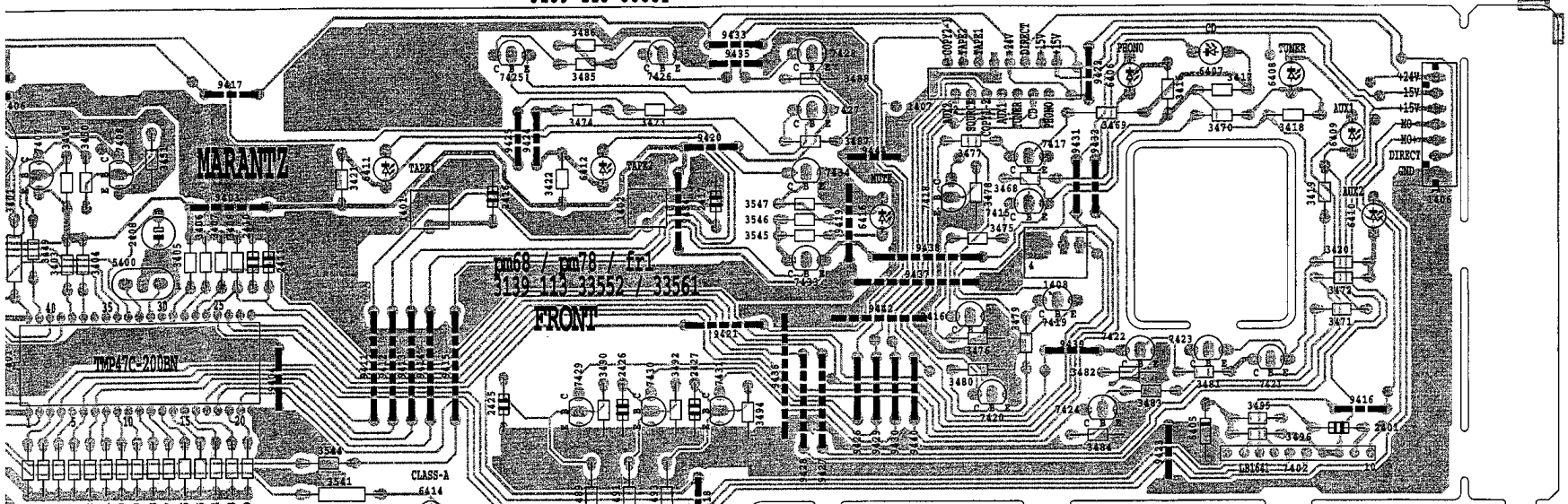
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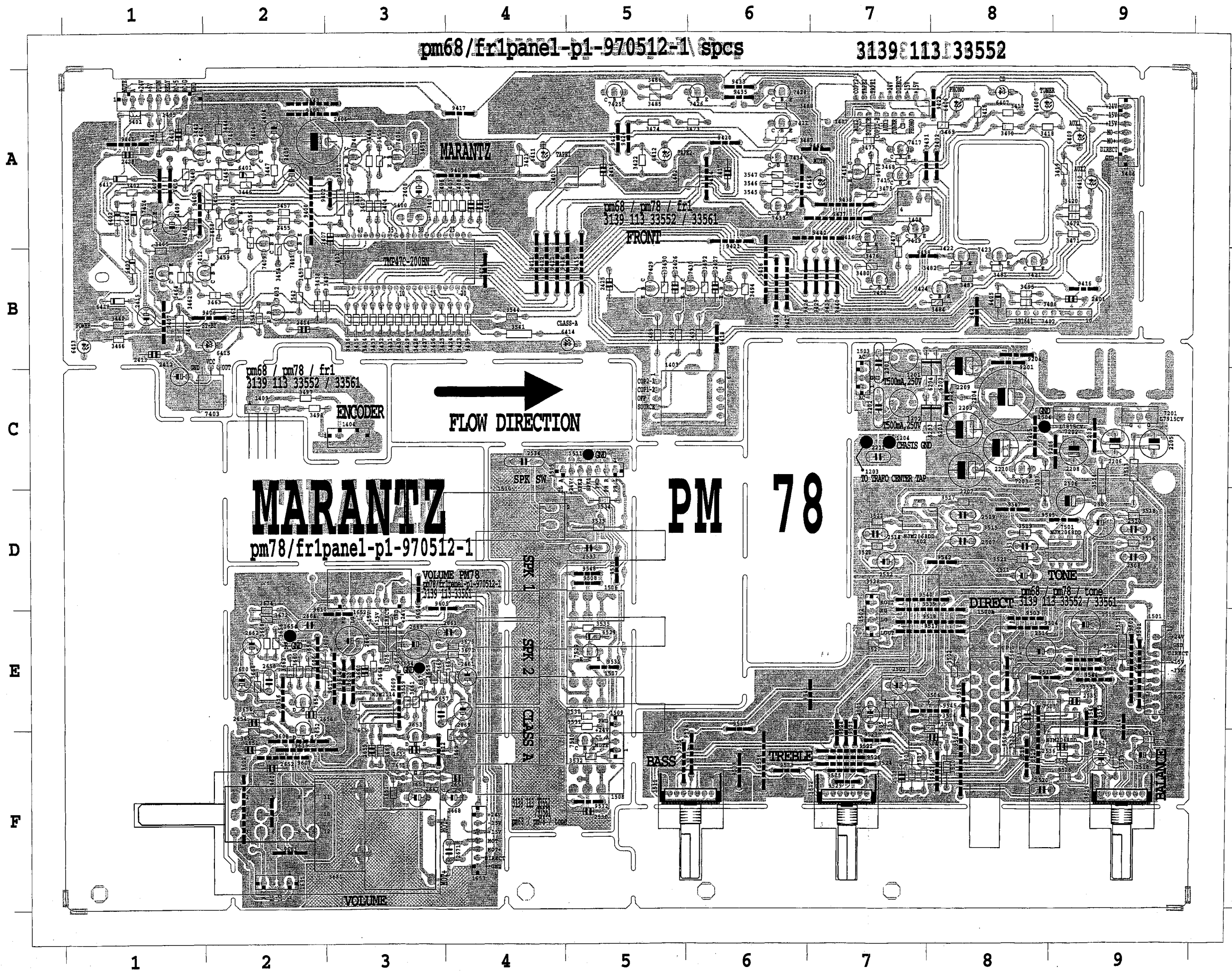


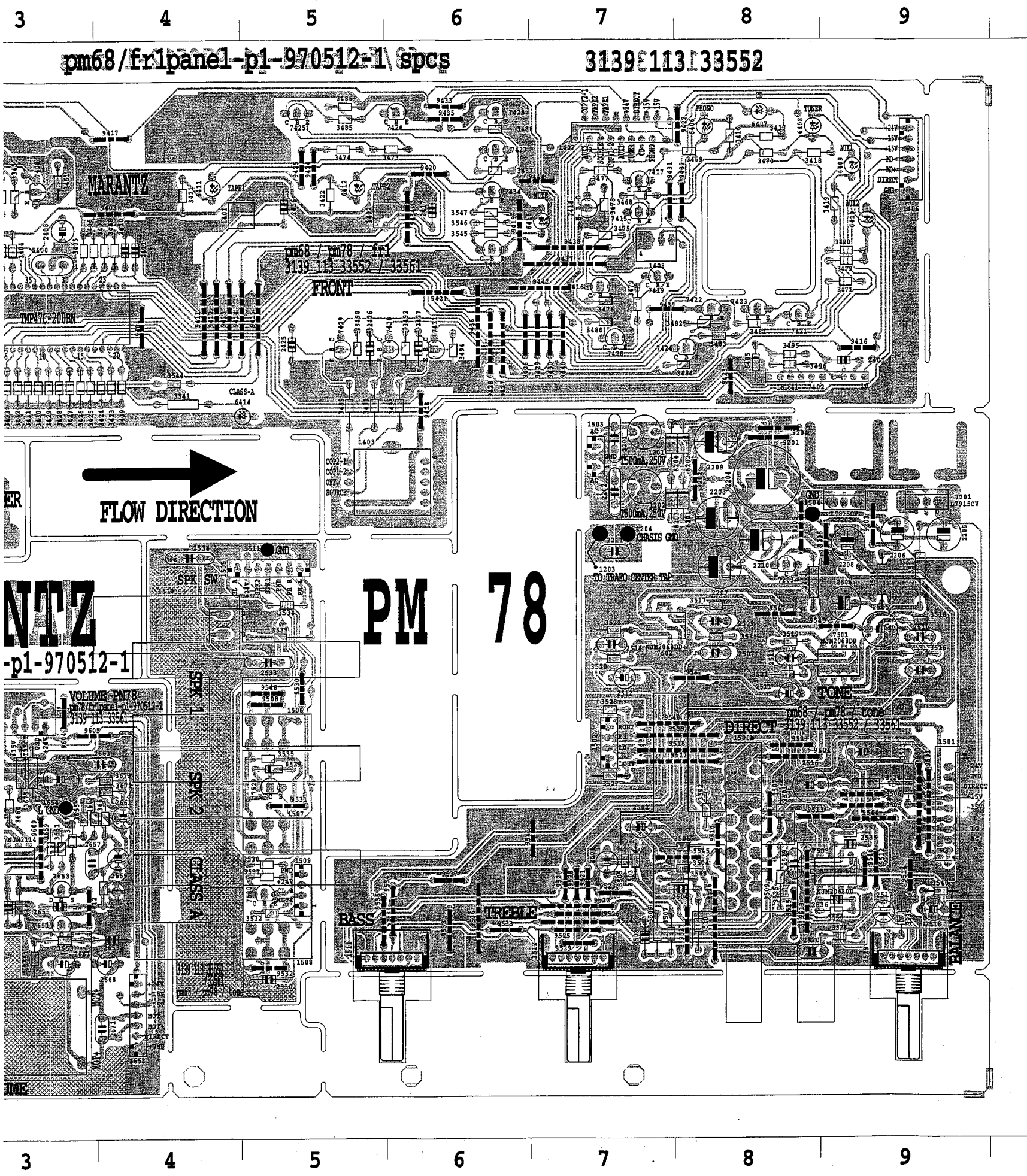
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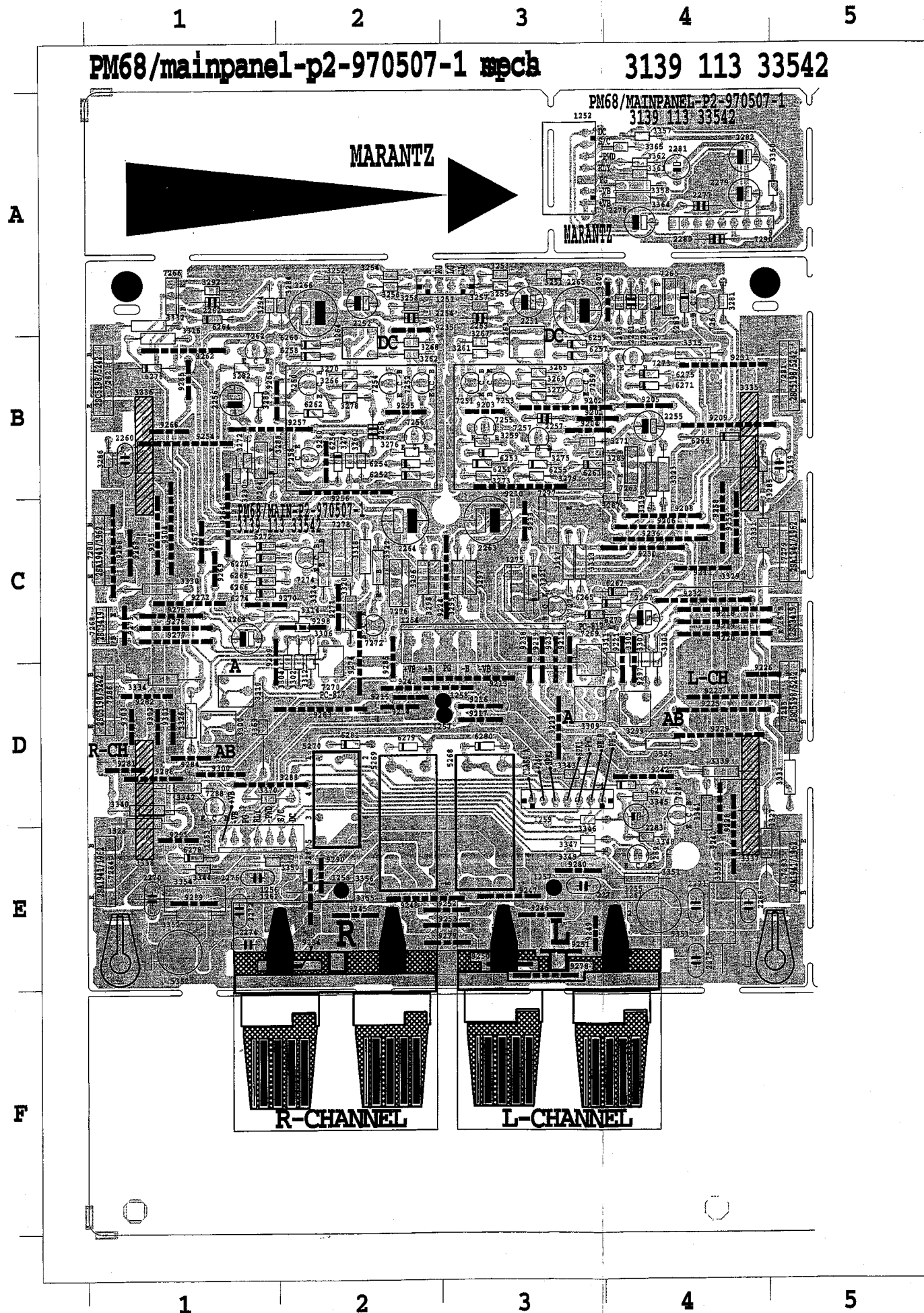






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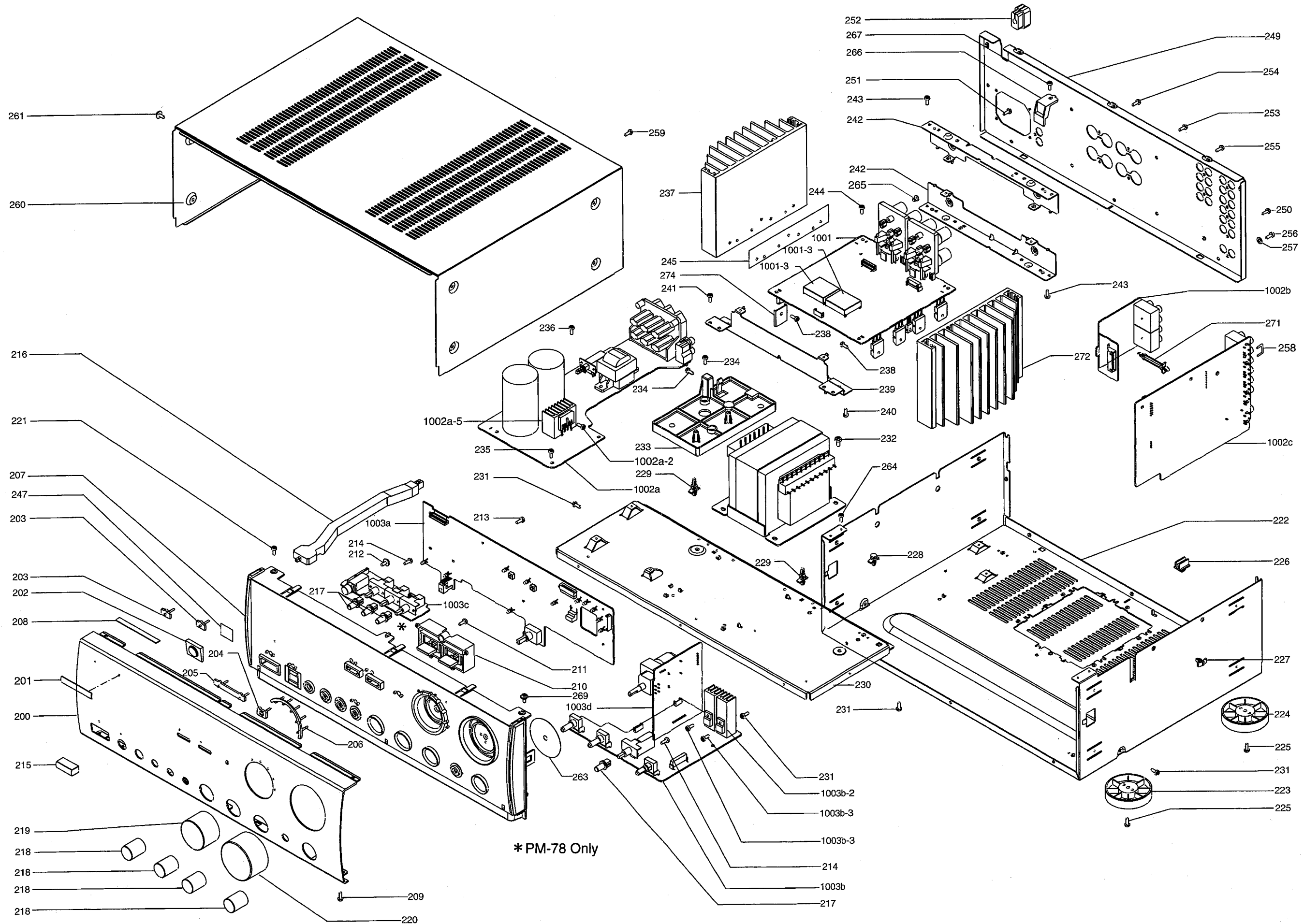


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2270 E 1	3334 D 1	7278 C 2	9284 D 1
2271 E 4	3335 B 4	7279 C 5	9285 C 2
2272 E 1	3336 B 1	7280 C 1	9286 D 1
2273 E 3	3337 D 4	7281 B 5	9287 E 2
2274 E 1	3338 D 1	7282 B 1	9288 D 1
2275 E 4	3339 D 4	7283 E 5	9289 E 1
2276 E 1	3340 D 1	7284 E 1	9290 E 2
2277 A 4	3341 D 4	7285 D 5	9291 E 1
2278 A 4	3342 D 1	7286 D 1	9297 D 4
2279 A 4	3343 D 3	7287 D 4	9298 C 2
2280 A 4	3344 E 1	7288 D 1	9299 D 1
2281 A 4	3345 D 4	7289 E 4	9300 D 1
2282 A 4	3346 D 3	7290 A 4	9301 D 1
2283 D 4	3347 E 3	9201 B 3	9302 D 1
3251 A 3	3348 E 4	9202 B 3	9303 D 1
3252 A 2	3349 E 3	9203 B 3	9304 C 1
3253 A 3	3350 E 1	9204 B 3	9305 C 1
3254 A 2	3351 E 4	9205 B 4	----
3255 A 3	3352 E 1	9206 C 4	
3256 A 2	3353 E 4	9207 A 4	
3257 A 3	3354 E 1	9208 C 4	
3258 A 2	3355 E 2	9209 B 4	
3259 B 3	3356 E 2	9210 B 3	
3260 B 2	3357 A 4	9211 C 4	
3261 B 3	3358 A 4	9212 D 3	
3262 B 2	3360 A 5	9213 D 3	
3263 B 3	3361 A 4	9214 D 2	
3264 B 2	3362 A 4	9215 D 2	
3265 B 3	3364 A 4	9216 D 3	
3266 B 2	3365 A 4	9217 D 3	
3267 B 3	3369 D 1	9218 C 4	
3268 B 2	3370 D 1	9219 C 4	
3269 B 3	5268 E 3	9220 C 4	
3270 B 2	5269 E 2	9221 D 4	
3271 B 3	5270 D 2	9223 D 3	
3272 B 1	5351 E 4	9224 C 3	
3273 B 3	5352 E 1	9225 D 4	
3274 B 2	6251 B 3	9226 D 4	
3275 B 3	6252 B 2	9227 D 4	
3276 B 2	6253 B 3	9228 E 4	
3277 B 3	6254 B 2	9229 D 4	
3278 B 2	6255 B 3	9230 C 4	
3279 B 3	6256 B 2	9231 B 4	
3280 B 1	6257 B 3	9232 C 4	
3281 A 4	6258 B 2	9233 C 3	
3282 B 1	6259 B 3	9234 E 2	
3283 A 4	6260 B 2	9235 A 2	
3284 A 2	6261 B 3	9236 C 4	
3285 B 4	6262 B 2	9237 D 3	
3286 B 1	6263 A 4	9238 D 3	
3287 C 4	6264 A 1	9239 D 3	
3288 B 1	6265 C 4	9240 D 4	
3289 B 3	6266 C 1	9241 D 2	
3290 B 1	6267 C 4	9242 D 4	
3291 A 4	6268 C 1	9243 D 3	
3292 A 1	6269 B 4	9244 D 3	
3293 A 4	6270 C 1	9245 E 2	
3294 A 1	6271 B 4	9246 E 3	
3295 C 3	6272 C 1	9247 E 3	
3296 C 2	6273 C 3	9248 E 2	
3297 C 3	6274 C 1	9249 E 3	
3298 C 2	6275 B 4	9250 E 3	
3299 D 4	6276 B 1	9251 E 3	
3300 D 1	6277 D 4	9252 E 3	
3301 D 4	6278 E 1	9253 E 3	
3302 D 2	6279 D 2	9254 B 1	
3303 D 4	6280 D 3	9255 B 2	



7. EXPLODED VIEW AND PARTS LIST

EXPLODED VIEW



(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, \*\*:EUROPE)

PM-68

(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, \*\*:EUROPE)

PM-78

POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
384		4822 219 10318	RC-HANDSET RC-68PM	QP21910318	384		4822 219 10318	RC-HANDSET RC-68PM	QP21910318
▲ 385	/02	4822 321 10809	MAINS CORD 250V 2.5A	QP32110809	▲ 385	/02	4822 321 10809	MAINS CORD 250V 2.5A	QP32110809
▲ 385	F	4822 321 11349	MAINS CORD 125V 12A	QP32111349	▲ 385	F	4822 321 11349	MAINS CORD 125V 12A	QP32111349
▲ 385	U	4822 321 10849	MAINS CORD 125V 10A	QP32110849	387	/02	4822 736 15481	DFU FOR /02	QP73615481
387	/02	4822 736 15481	DFU FOR /02	QP73615481	387	F	4822 736 15615	DFU FOR F	QP73615615
387	F	4822 736 15615	DFU FOR F	QP73615615	200	/02B,FB	4822 459 04702	FRONT PANEL BL	232W248010
387	U	4822 736 15602	DFU FOR U	QP73615602	200	/02G	4822 459 04704	FRONT PANEL GL	232W248020
200	/02B,FB	4822 459 04652	FRONT PANEL BL	214W248010		FN			
	UBL								
200	/02G	4822 459 04653	FRONT PANEL GL	214W248020	201	/02B,FB	4822 454 11825	MARANTZ BADGE BL	185J251012
	FN				201	/02G	4822 459 11211	MARANTZ BADGE GL	185J251112
						FN			
201	/02B,FB	4822 454 11825	MARANTZ BADGE BL	185J251012	202		4822 450 10372	IR LENS	QP45010372
	UBL				203		4822 380 10203	LENS STANDBY	QP38010203
201	/02G	4822 459 11211	MARANTZ BADGE GL	185J251112	204		4822 380 10204	LENS MUTE	QP38010204
	FN				205		4822 380 10205	LENS TAPE MONITOR	QP38010205
202		4822 450 10372	IR LENS	QP45010372	206		4822 380 10206	LENS FUNCTION	QP38010206
203		4822 380 10203	LENS STANDBY	QP38010203					
204		4822 380 10204	LENS MUTE	QP38010204	207	/02B,FB	4822 459 04703	FRONT CHASSIS BL	QP45904703
205		4822 380 10205	LENS TAPE MONITOR	QP38010205	207	/02G	4822 459 04705	FRONT CHASSIS GL	QP45904705
206		4822 380 10206	LENS FUNCTION	QP38010206		FN			
					210	/02B,FB	4822 410 11261	BUTTON TAPE MONITOR BL	QP41011261
207	/02B,FB	4822 459 04703	FRONT CHASSIS BL	QP45904703	210	/02G	4822 410 11262	BUTTON TAPE MONITOR GL	QP41011262
	UBL					FN			
207	/02G	4822 459 04705	FRONT CHASSIS GL	QP45904705	215	/02B,FB	4822 462 72053	POWER BUTTON BL	QP46272053
	FN				215	/02G	4822 462 72053	POWER BUTTON GL	QP46272053
210	/02B,FB	4822 410 11261	BUTTON TAPE MONITOR BL	QP41011261		FN			
	UBL								
210	/02G	4822 410 11262	BUTTON TAPE MONITOR GL	QP41011262	217	/02B,FB	4822 410 60343	SPK BUTTON BL	058J270030
	FN				217	/02G	4822 410 11263	SPK BUTTON GL	058J270230
215	/02B,FB	4822 462 72053	POWER BUTTON BL	QP46272053		FN			
	UBL				218	/02B,FB	4822 413 41678	TONE KNOB BL	025J154080
215	/02G	4822 462 72053	POWER BUTTON GL	QP46272053	218	/02G	4822 410 11264	TONE KNOB GL	025J154190
	FN					FN			
217	/02B,FB	4822 410 60343	SPK BUTTON BL	058J270030	219	/02B,FB	4822 413 41745	SELECTOR KNOB BL	064J154100
	UBL				219	/02G	4822 410 11265	SELECTOR KNOB GL	064J154150
217	/02G	4822 410 11263	SPK BUTTON GL	058J270230		FN			
	FN				220	/02B,FB	4822 410 10559	VOLUME KNOB BL	063J154080
218	/02B,FB	4822 413 41678	TONE KNOB BL	025J154080	220	/02G	4822 410 11266	VOLUME KNOB GL	063J154190
	UBL					FN			
218	/02G	4822 410 11264	TONE KNOB GL	025J154190	223		4822 462 42129	LEG FRONT	QP46242129
	FN				224		4822 462 42131	LEG REAR	QP46242131
219	/02B,FB	4822 413 41745	SELECTOR KNOB BL	064J154100	▲ 252		4822 532 60948	MAINS CORD BUSH	QP53260948
	UBL								
219	/02G	4822 410 11265	SELECTOR KNOB GL	064J154150					
	FN								
220	/02B,FB	4822 410 10559	VOLUME KNOB BL	063J154080	1605		4822 323 10406	FLEX CABLE 15P	QP32310406
	UBL				▲ 5011	/02	4822 146 10844	MAINS TRSF.EI96-60T	QP14610844
220	/02G	4822 410 11266	VOLUME KNOB GL	063J154190	▲ 5011	F	4822 146 10853	MAINS TRSF.EI96-60T	QP14610853
	FN								
223		4822 462 42129	LEG FRONT	QP46242129		/02B,FB		PACKING CASE	232W801010
224		4822 462 42131	LEG REAR	QP46242131				(3139 116 37770)	
▲ 252		4822 532 60948	MAINS CORD BUSH	QP53260948		/02G		PACKING CASE	232W801020
								(3139 116 38470)	
1605		4822 323 10406	FLEX CABLE 15P	QP32310406		FN		CUSHION	232W809010
▲ 5011	/02	4822 146 10823	MAINS TRSF.EI96-60T	QP14610823				(3139 116 24990)	
▲ 5011	F	4822 146 10859	MAINS TRSF.EI96-60T	QP14610859					
▲ 5011	U	4822 146 10854	MAINS TRSF.EI96-60T	QP14610854					
	/02B,FB		PACKING CASE	214W801010					
	UBL		(3139 116 37750)						
	/02G		PACKING CASE	214W801020					
	FN		(3139 116 38460)						
			CUSHION	232W809010					
			(3139 116 24990)						

## 8. IDLING CURRENT AND DC OFFSET VOLTAGE ALIGNMENT

### 8.1 Quiescent Current Adjustment for Class AB

-Set to CD mode with no input, minimum volume position & mains supply at 230 V  $\pm$  5 %.

-Power up the unit, adjust **SLOWLY** 3299 (L) & 3300 (R) until voltage across L-Channel -----3335 (T007 / T006) & 3337 (T009 / T010), R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltage
after 30 sec to 1 min*	$\geq 0.3$ mV to $< 0.4$ mV

- After 30 min, the voltage should settle down to 18 mV  $\pm$  3 mV.

\* Start from cold condition.

### 8.2 Quiescent Current Adjustment for Class A.

- Next, switch to Class A operation. Adjust **SLOWLY** 3309 (L) & 3310 (R) until voltage across L-Channel ----- 3335 (T007 / T006) & 3337 (T009 / T010), R-Channel ----- 3336 (T013 / T014) & 3338 (T015 / T016) is as per the table below.

Time	Voltage
after 0 sec to 30 sec**	$\geq 65$ mV to $< 70$ mV

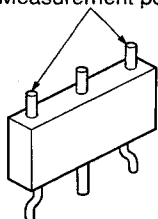
- After 30 min, the voltage should settle down to 90 mV  $\pm$  5 mV.

\*\* Continue immediately after 8.1

### REMARKS:

- Please take note that for both Class AB & A alignment, at all time during adjustment, refer to the higher reading of each channel.

Quiescent Current Measurement point



POS.No.  
3335  
3337  
3336  
3338

### 8.3 DC Offset.

- Adjust 3263 and 3264 until DC offset voltage is less than  $\pm 10$  mV at Speaker output terminal.

## 8. アイドリング電流および DC オフセット電圧調整

### 8.1 アイドリング電流調整 (Class AB)

1) 本体の電源スイッチを入れる前に、ボリュームを最小に、バランス及びトーンコントロールをセンターに合わせます。

2) CD モードにし、電源電圧を 100V にします。

3) セメント抵抗、3335 (T0007 / T0006)、3337 (T0009 / T0010) のLチャンネルと 3336 (T0013 / T0014)、3338(T0015/T0016)のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗 3299 (L) と 3300 (R) をゆっくり調整します。

時間	電圧
30 秒—1 分*	0.3mV 以上 0.4mV 以下

30 分後、電圧は 18mV  $\pm$  3mV に安定します。

\* 冷却状態からスタートします。

### 8.2 アイドリング電流調整 (Class A)

1) A クラス動作に切り換えます。

2) セメント抵抗 3335 (T0007 / T0006)、3337 (T0009 / T0010) のLチャンネルと 3336 (T0013 / T0014)、3338(T0015 / T0016)のRチャンネル各々の電圧が下記の値になるまで、半固定抵抗 3309 (L) と 3310 (R) ゆっくり調整します。

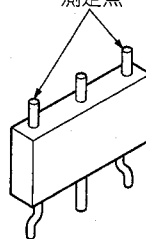
時間	電圧
0 秒—30 秒 **	65mV 以上 70mV 以下

30 分後、電圧は 90mV  $\pm$  5mV に安定します。

\*\* 切換え後、すぐに行ってください。

注意：A クラス動作及び AB クラス動作のアイドリング電流調整において、同チャンネル内の 2ヶ所の測定点で指示値に差異があった場合は、高い方の電圧値が調整範囲内となるようにします。

アイドリング電流測定点



POS.No.  
3335  
3337  
3336  
3338

### 8.3 DC オフセット電圧調整

DC オフセット電圧が、スピーカー出力端子で 10mV 以下になるまで半固定抵抗 3263 と 3264 を調整します。





(VERS.:VERSION, U:U.S.A., F:JAPAN, K:FAR EAST, \*:EUROPE)

POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJ)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJ)
2657		4822 126 11948	CER. 22pF ±5% 50V	QP12611948	▲ 2407		4822 126 12882	CER. 100nF+80%-20% 50V	QP12612882
2658		4822 126 11948	CER. 22pF ±5% 50V	QP12611948	2408		4822 124 81151	ELECT 22μF 50V	QP12481151
▲ 2659		4822 126 12339	CER. 2.2nF ±10% Y5R	QP12612339	2409		4822 124 81151	ELECT 22μF 50V	QP12481151
▲ 2660		4822 126 12339	CER. 2.2nF ±10% Y5R	QP12612339	▲ 2410		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
2661		4822 124 12026	ELECT 22μF ±20% 25V	QP12412026	▲ 2411		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
2662		4822 124 12026	ELECT 22μF ±20% 25V	QP12412026	2412		4822 124 81151	ELECT 22μF 50V	QP12481151
2663		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686	▲ 2413		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
2664		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686	▲ 2414		4822 126 12882	CER. 100nF+80%-20% 50V	QP12612882
2665		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022	2415		4822 124 81151	ELECT 22μF 50V	QP12481151
2666		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022	▲ 2416		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
▲ 2667		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246	▲ 2417		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
▲ 2668		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246	▲ 2425		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
2669		4822 124 12027	ELECT 2.2μF ±20% 50V	QP12412027	∫		4822 126 12882	CER. 100nF+80%-20% 50V	QP12612882
2670		4822 124 12027	ELECT 2.2μF ±20% 50V	QP12412027	▲ 2428				
2671		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141					
			<b>RESISTORS</b>		▲ 3401		4822 052 10101	100Ω ±5% 0.33W	QP05210101
3651	PM-68	4822 116 83874	220kΩ ±5% 0.5W	QP11683874	3402		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
3651	PM-78	4822 116 52244	15kΩ ±5% 0.5W	QP11652244	3403				
3652	PM-68	4822 116 83874	220kΩ ±5% 0.5W	QP11683874	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
3652	PM-78	4822 116 52244	15kΩ ±5% 0.5W	QP11652244	3407				
3653		4822 050 11002	1kΩ ±1% 0.4W	QP05011002	3408		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
3654		4822 050 11002	1kΩ ±1% 0.4W	QP05011002	3416				
3655	PM-68	4822 116 52206	120Ω ±5% 0.5W	QP11652206	∫		4822 116 52222	390Ω ±5% 0.5W	QP11652222
3655	PM-78	4822 116 83876	270Ω ±5% 0.5W	QP11683876	3422				
3656	PM-68	4822 116 52206	120Ω ±5% 0.5W	QP11652206	3423				
3656	PM-78	4822 116 83876	270Ω ±5% 0.5W	QP11683876	∫		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
					3426				
					3427				
3657		4822 116 52283	4.7kΩ ±5% 0.5W	QP11652283	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
3662					3436				
3663		4822 116 83872	220Ω ±5% 0.5W	QP11683872	3437		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
3664		4822 116 83872	220Ω ±5% 0.5W	QP11683872	3438		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
3665		4822 116 52235	1MΩ ±5% 0.5W	QP11652235	3439		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
3666		4822 116 52235	1MΩ ±5% 0.5W	QP11652235	3440		4822 116 83872	220Ω ±5% 0.5W	QP11683872
3667	PM-68	4822 050 11002	1kΩ ±1% 0.4W	QP05011002					
3667	PM-78	4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256	3441		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
3668	PM-68	4822 050 11002	1kΩ ±1% 0.4W	QP05011002	3442		4822 116 52271	33kΩ ±5% 0.5W	QP11652271
					3443		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
3668	PM-78	4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256	3444		4822 116 52283	4.7kΩ ±5% 0.5W	QP11652283
3669		4822 116 52175	100Ω ±5% 0.5W	QP11652175	3445		4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256
3670		4822 116 52175	100Ω ±5% 0.5W	QP11652175	3446		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
3671		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	3447		4822 116 52175	100Ω ±5% 0.5W	QP11652175
3672		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	3448				
3673		4822 116 83872	220Ω ±5% 0.5W	QP11683872	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
3674		4822 116 83872	220Ω ±5% 0.5W	QP11683872	3451				
▲ 3675		4822 052 10479	47Ω ±5% 0.33W	QP05210479	▲ 3452		4822 052 10101	100Ω ±5% 0.33W	QP05210101
▲ 3676		4822 052 10479	47Ω ±5% 0.33W	QP05210479	3453				
3681	PM-68	4822 101 11789	VARIABLE 50kΩ	QP10111789	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
3681	PM-78	4822 101 11803	VARIABLE 50kΩ	QP10111803	3459				
			<b>SEMICONDUCTORS</b>		3460		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
7651					3461		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
∫		4822 130 63122	TRS. 2SK369BL	QP13063122	3462		4822 116 83884	47kΩ ±5% 0.5W	QP11683884
7654					3463		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
7655		4822 209 31153	IC NJM2114D	QP20931153	3464		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
			<b>FRONT CIRCUIT BOARD</b>		3465		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
			<b>CAPACITORS</b>		3466		4822 116 52195	47Ω ±5% 0.5W	QP11652195
▲ 2401		4822 121 51387	FILM 10nF ±20% 16V	QP12151387	▲ 3467		4822 052 10101	100Ω ±5% 0.33W	QP05210101
▲ 2403		4822 121 51387	FILM 10nF ±20% 16V	QP12151387	3468				
2404		4822 124 81151	ELECT 22μF 50V	QP12481151	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
2405		4822 124 81151	ELECT 22μF 50V	QP12481151	3488				
2406		4822 124 80818	ELECT 22000μF 5.5V	QP12480818	3489		4822 116 83884	47kΩ ±5% 0.5W	QP11683884
					3490		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
					3491		4822 116 83884	47kΩ ±5% 0.5W	QP11683884

POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJJ)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJJ)
3492		4822 116 83864	10kΩ ±5% 0.5W	QP11683864	1403		4822 273 10336	ROTARY SWITCH REC.	QP27310336
3493		4822 116 83884	47kΩ ±5% 0.5W	QP11683884	1407		4822 267 51322	CONNECTOR 15P WIRE	QP26751322
3494		4822 116 83864	10kΩ ±5% 0.5W	QP11683864					
3495		4822 116 83872	220Ω ±5% 0.5W	QP11683872	5400		4822 242 72527	CER.RESONATOR 4.00MHZ	QP24272527
3496		4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256	5401		4822 156 21721	COIL 2.2μH ±10%	QP15621721
▲ 3541	PM-78	4822 053 10332	3.3kΩ ±5% 1W	QP05310332				<b>ENCODER CIRCUIT BOARD</b>	
3542		4822 116 83864	10kΩ ±5% 0.5W	QP11683864				<b>RESISTORS</b>	
3543		4822 116 52222	390Ω ±5% 0.5W	QP11652222				100Ω ±5% 0.5W	QP11652175
3544		4822 116 83864	10kΩ ±5% 0.5W	QP11683864	3497		4822 116 52175	100Ω ±5% 0.5W	QP11652175
3545		4822 116 52222	390Ω ±5% 0.5W	QP11652222	3498		4822 116 52175	100Ω ±5% 0.5W	QP11652175
3546		4822 116 83864	10kΩ ±5% 0.5W	QP11683864				<b>MISCELLANEOUS</b>	
3547		4822 116 83864	10kΩ ±5% 0.5W	QP11683864	1404		4822 273 10237	ROTARY SWITCH SOURCE	QP27310237
			<b>SEMICONDUCTORS</b>					<b>TONE CIRCUIT BOARD</b>	
▲ 6401		4822 130 30621	DIODE 1N4148	QP13030621				<b>CAPACITORS</b>	
∫					2201		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
▲ 6404		4822 130 34174	DIODE BZX79-B4V7	QP13034174	2202		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
6405					2203		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
6406		4822 130 10792	LED LTL-1CHPE	QP13010792	2204		4822 124 41329	ELECT 2200μF ±20% 35V	QP12441329
∫					2205		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
6413					2206		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
6414	PM-78	4822 130 10792	LED LTL-1CHPE	QP13010792	2207		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
6415		4822 130 10792	LED LTL-1CHPE	QP13010792	2208		4822 124 40257	ELECT 220μF ±20% 63V	QP12440257
6416		4822 130 10792	LED LTL-1CHPE	QP13010792	2209		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
▲ 6417		4822 130 30621	DIODE 1N4148	QP13030621	2210		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
▲ 6418		4822 130 30621	DIODE 1N4148	QP13030621					
7401		4822 209 15719	μ-PRO TMP47C200BN-G929	QP20915719	▲ 2211		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147
7402		4822 209 30193	IC LB1641	QP20930193	2501		4822 124 81151	ELECT 22μF 50V	QP12481151
7403		4822 130 10165	IR-EYE GP1U28XP	QP13010165	2502		4822 124 81151	ELECT 22μF 50V	QP12481151
7404		4822 130 40959	TRS. BC547B	QP13040959	2503		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849
7405		4822 130 40959	TRS. BC547B	QP13040959	2504		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849
7406		4822 130 40959	TRS. BC547B	QP13040959	2505		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7407		4822 130 44568	TRS. BC557B	QP13044568	2506		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7408		4822 130 40959	TRS. BC547B	QP13040959	2507		4822 121 41857	FILM 10nF ±5% 250V	QP12141857
7409					2508		4822 121 41857	FILM 10nF ±5% 250V	QP12141857
∫		4822 130 44568	TRS. BC557B	QP13044568	2509		4822 126 10777	CER. 100pF 50V	QP12610777
7412					2510		4822 126 10777	CER. 100pF 50V	QP12610777
7413		4822 130 40959	TRS. BC547B	QP13040959	▲ 2511		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246
7414		4822 130 40959	TRS. BC547B	QP13040959	▲ 2512		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246
7415		4822 130 44568	TRS. BC557B	QP13044568	2513		4822 121 51399	FILM 47nF ±10% 50V	QP12151399
7416		4822 130 40959	TRS. BC547B	QP13040959	2514		4822 121 51399	FILM 47nF ±10% 50V	QP12151399
7417		4822 130 44568	TRS. BC557B	QP13044568	2515		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7418		4822 130 40959	TRS. BC547B	QP13040959	2516		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7419		4822 130 44568	TRS. BC557B	QP13044568	2517		4822 124 40244	ELECT 2.2μF ±20% 63V	QP12440244
7420		4822 130 40959	TRS. BC547B	QP13040959	2518		4822 124 40244	ELECT 2.2μF ±20% 63V	QP12440244
7421		4822 130 44568	TRS. BC557B	QP13044568	2519		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686
7422		4822 130 40959	TRS. BC547B	QP13040959	2520		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686
7423		4822 130 44568	TRS. BC557B	QP13044568	▲ 2535		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
7424		4822 130 40959	TRS. BC547B	QP13040959	▲ 2536		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
7425		4822 130 44568	TRS. BC557B	QP13044568				<b>RESISTORS</b>	
7426		4822 130 40959	TRS. BC547B	QP13040959	▲ 3203		4822 052 10479	47Ω ±5% 0.33W	QP05210479
7427		4822 130 44568	TRS. BC557B	QP13044568	3501		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7428					3502		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
∫		4822 130 40959	TRS. BC547B	QP13040959	3503		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7431					3504		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7432		4822 130 44568	TRS. BC557B	QP13044568	3505		4822 116 83874	220kΩ ±5% 0.5W	QP11683874
7433		4822 130 44568	TRS. BC557B	QP13044568	3506		4822 116 83874	220kΩ ±5% 0.5W	QP11683874
7434		4822 130 40959	TRS. BC547B	QP13040959	3507		4822 116 83872	220Ω ±5% 0.5W	QP11683872
			<b>MISCELLANEOUS</b>		3508		4822 116 83872	220Ω ±5% 0.5W	QP11683872
1401		4822 276 13114	PUSH SWITCH TACT	QP27613114	3509		4822 116 52269	3.3kΩ ±5% 0.5W	QP11652269
1402		4822 276 13114	PUSH SWITCH TACT	QP27613114					





POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
▲ 3295	PM-78	4822 052 10109	10Ω ±5% 0.33W	QP05210109	6267				
▲ 3296	PM-68	4822 052 10479	47Ω ±5% 0.33W	QP05210479	f		5322 130 34834	DIODE BZX79-C3V6	QQ13034834
▲ 3296	PM-78	4822 052 10109	10Ω ±5% 0.33W	QP05210109	6270				
▲ 3297	PM-68	4822 052 10479	47Ω ±5% 0.33W	QP05210479	▲ 6271		4822 130 30621	DIODE 1N4148	QP13030621
▲ 3297	PM-78	4822 052 10109	10Ω ±5% 0.33W	QP05210109	▲ 6272		4822 130 30621	DIODE 1N4148	QP13030621
▲ 3298	PM-68	4822 052 10479	47Ω ±5% 0.33W	QP05210479	6273				
▲ 3298	PM-78	4822 052 10109	10Ω ±5% 0.33W	QP05210109	f		4822 130 30842	DIODE BAV21	QP13030842
3299		4822 101 11787	TRIMMING 100Ω ±30% 0.1W	QP10111787	6278				
3300		4822 101 11787	TRIMMING 100Ω ±30% 0.1W	QP10111787	▲ 6279		4822 130 30621	DIODE 1N4148	QP13030621
3301		4822 116 83876	270Ω ±5% 0.5W	QP11683876	▲ 6280		4822 130 30621	DIODE 1N4148	QP13030621
3302		4822 116 83876	270Ω ±5% 0.5W	QP11683876	▲ 6281		4822 130 30621	DIODE 1N4148	QP13030621
3303		4822 116 52207	1.2kΩ ±5% 0.5W	QP11652207	▲ 7251				
3304		4822 116 52207	1.2kΩ ±5% 0.5W	QP11652207	f		4822 130 43233	TRS. 2SC2240GR	QP13043233
3305		4822 116 80176	1Ω ±5% 0.5W	QP11680176	▲ 7256				
3306		4822 116 80176	1Ω ±5% 0.5W	QP11680176	7257				
▲ 3309	PM-78	4822 100 20166	TRIMMING 10kΩ ±30% 0.1W	QP10020166	f		4822 130 42949	TRS. 2SA970GR	QP13042949
▲ 3310	PM-78	4822 100 20166	TRIMMING 10kΩ ±30% 0.1W	QP10020166	7260				
3311	PM-78	4822 050 11002	1kΩ ±1% 0.4W	QP05011002	▲ 7261		4822 130 43233	TRS. 2SC2240GR	QP13043233
3312	PM-78	4822 050 11002	1kΩ ±1% 0.4W	QP05011002	▲ 7262		4822 130 43233	TRS. 2SC2240GR	QP13043233
▲ 3313					7263		4822 130 61009	TRS. 2SC3423 O	QP13061009
f		4822 052 10101	100Ω ±5% 0.33W	QP05210101	7264		4822 130 61009	TRS. 2SC3423 O	QP13061009
▲ 3316					7265		5322 130 61728	TRS. 2SA1360-Y	QQ13061728
▲ 3317					7266		5322 130 61728	TRS. 2SA1360-Y	QQ13061728
f		4822 052 10681	680Ω ±5% 0.33W	QP05210681	▲ 7267		4822 130 60117	TRS. 2SC3419	QP13060117
▲ 3320					▲ 7268		4822 130 60117	TRS. 2SC3419	QP13060117
▲ 3321					▲ 7269	PM-78	4822 130 90347	OPT. UNIT PC817	HW10006320
f		4822 052 10479	47Ω ±5% 0.33W	QP05210479	▲ 7270	PM-78	4822 130 90347	OPT. UNIT PC817	HW10006320
▲ 3324		4822 052 10479	47Ω ±5% 0.33W	QP05210479	7271		4822 130 41646	TRS. BF423	QP13041646
▲ 3325		4822 052 10151	150Ω ±5% 0.33W	QP05210151	7272		4822 130 41646	TRS. BF423	QP13041646
▲ 3326		4822 052 10151	150Ω ±5% 0.33W	QP05210151	7273		4822 130 41782	TRS. BF422	QP13041782
▲ 3327					7274		4822 130 41782	TRS. BF422	QP13041782
f		4822 052 10109	10Ω ±5% 0.33W	QP05210109	▲ 7275		4822 130 63634	TRS. 2SA1837Y	QP13063634
▲ 3334					▲ 7276		4822 130 63634	TRS. 2SA1837Y	QP13063634
▲ 3335					▲ 7277		4822 130 10941	TRS. 2SC4793	QP13010941
f		4822 117 12344	0.18Ω x2 ±10% 3W	QP11712344	▲ 7278		4822 130 10941	TRS. 2SC4793	QP13010941
▲ 3338					▲ 7279	PM-68	4822 130 10942	TRS. 2SA1941	QP13010942
▲ 3339					▲ 7279	PM-78	4822 130 10983	TRS. 2SA1962	QP13010983
f		4822 050 21002	1kΩ ±1% 0.6W	QP05021002	▲ 7280	PM-68	4822 130 10942	TRS. 2SA1941	QP13010942
▲ 3342					▲ 7280	PM-78	4822 130 10983	TRS. 2SA1962	QP13010983
3343		4822 116 52257	22kΩ ±5% 0.5W	QP11652257	▲ 7281	PM-68	4822 130 10943	TRS. 2SC5198	QP13010943
3344		4822 116 52257	22kΩ ±5% 0.5W	QP11652257	▲ 7281	PM-78	4822 130 10984	TRS. 2SC5242	QP13010984
3345		4822 116 52289	5.6kΩ ±5% 0.5W	QP11652289	▲ 7282	PM-68	4822 130 10943	TRS. 2SC5198	QP13010943
3346		4822 116 52257	22kΩ ±5% 0.5W	QP11652257	▲ 7282	PM-78	4822 130 10984	TRS. 2SC5242	QP13010984
3347	PM-68	4822 116 52297	68kΩ ±5% 0.5W	QP11652297	▲ 7283	PM-68	4822 130 10942	TRS. 2SA1941	QP13010942
3347	PM-78	4822 116 83882	39kΩ ±5% 0.5W	QP11683882	▲ 7283	PM-78	4822 130 10983	TRS. 2SA1962	QP13010983
3348		4822 116 52257	22kΩ ±5% 0.5W	QP11652257	▲ 7284	PM-68	4822 130 10942	TRS. 2SA1941	QP13010942
3349		4822 116 52297	68kΩ ±5% 0.5W	QP11652297	▲ 7284	PM-78	4822 130 10983	TRS. 2SA1962	QP13010983
3350		4822 116 52297	68kΩ ±5% 0.5W	QP11652297	▲ 7285	PM-68	4822 130 10943	TRS. 2SC5198	QP13010943
▲ 3351		4822 052 10221	220Ω ±5% 0.33W	QP05210221	▲ 7285	PM-78	4822 130 10984	TRS. 2SC5242	QP13010984
▲ 3352		4822 052 10221	220Ω ±5% 0.33W	QP05210221	▲ 7286	PM-68	4822 130 10943	TRS. 2SC5198	QP13010943
3353		4822 117 10814	10Ω ±5% 3W	QP11710814	▲ 7286	PM-78	4822 130 10984	TRS. 2SC5242	QP13010984
3354		4822 117 10814	10Ω ±5% 3W	QP11710814	▲ 7287		4822 130 43233	TRS. 2SC2240GR	QP13043233
▲ 3355		4822 053 11331	330Ω ±5% 2W	QP05311331	▲ 7288		4822 130 43233	TRS. 2SC2240GR	QP13043233
▲ 3356		4822 053 11331	330Ω ±5% 2W	QP05311331	7289		4822 130 42949	TRS. 2SA970GR	QP13042949
3369	PM-78	4822 050 11002	1kΩ ±1% 0.4W	QP05011002					
3370	PM-78	4822 050 11002	1kΩ ±1% 0.4W	QP05011002					
<b>SEMICONDUCTORS</b>									
▲ 6251					1255		4822 265 11068	TERMINAL SPEAKER LEFT	QP26511068
f		4822 130 30621	DIODE 1N4148	QP13030621	1266		4822 265 11069	TERMINAL SPEAKER RIGHT	QP26511069
▲ 6266					▲ 5268		4822 280 70354	RELAY VB-24MBU-510	QP28070354
					▲ 5269		4822 280 70354	RELAY VB-24MBU-510	QP28070354
					▲ 5270		4822 280 20501	RELAY MR62-24SR	QP28020501

POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJ)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJ)
5351		4822 157 70599	COIL SPK.OUTPUT	QP15770599	2209		4822 121 51319	FILM 1μF ±10% 63V	QP12151319
5352		4822 157 70599	COIL SPK.OUTPUT	QP15770599	2210		4822 124 40242	ELECT 1μF ±20% 63V	QP12440242
▲ 2277		4822 121 51387	FILM 10nF ±20% 16V	QP12151387	2211		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
▲ 2278		4822 124 40433	ELECT 47μF ±20% 25V	QP12440433	2212		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
▲ 2279		4822 124 40433	ELECT 47μF ±20% 25V	QP12440433	2214		5322 121 42498	FILM 680nF ±5% 63V	QQ12142498
2281		4822 124 40242	ELECT 1μF ±20% 63V	QP12440242	2302		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
▲ 2282		4822 124 40433	ELECT 47μF ±20% 25V	QP12440433	2304		5322 124 22229	ELECT 1000μF ±20% 35V	QQ12422229
3357		4822 116 83884	47kΩ ±5% 0.5W	QP11683884	▲ 2305		4822 124 40433	ELECT 47μF ±20% 25V	QP12440433
▲ 3358		4822 053 10103	10kΩ ±5% 1W	QP05310103	2401		4822 126 13325	CER. 100nF ±10% 16V	QP12613325
3360		4822 116 83874	220kΩ ±5% 0.5W	QP11683874	▲ 9211		4822 121 51387	FILM 10nF ±20% 16V	QP12151387
3361		4822 116 52271	33kΩ ±5% 0.5W	QP11652271	3204		4822 050 26808	6.8Ω ±1% 0.6W	QP05026808
3362		4822 116 52291	56kΩ ±5% 0.5W	QP11652291	▲ 3207		4822 052 10108	1Ω ±5% 0.33W	QP05210108
3364		4822 053 10223	22kΩ ±5% 1W	QP05310223	▲ 3208		4822 052 10479	47Ω ±5% 0.33W	QP05210479
3365		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	▲ 3209		4822 052 10479	47Ω ±5% 0.33W	QP05210479
▲ 7290		4822 209 83312	IC TA7317P	QP20983312	3210		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
2533		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141	3211		4822 116 52234	100kΩ ±5% 0.5W	QP11652234
2534		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141	3217	PM-78	4822 053 10229	22Ω ±5% 1W	QP05310229
3530		4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256	3218	PM-78	4822 053 10229	22Ω ±5% 1W	QP05310229
3531		4822 116 52256	2.2kΩ ±5% 0.5W	QP11652256	▲ 6202		4822 130 30621	DIODE 1N4148	QP13030621
3532		4822 116 52257	22kΩ ±5% 0.5W	QP11652257	▲ 6204		4822 130 30621	DIODE 1N4148	QP13030621
3533		4822 116 52176	10Ω ±5% 0.5W	QP11652176	▲ 6205		4822 130 10944	DIODE BRIDGE GBU6D	QP13010944
3534		4822 116 52176	10Ω ±5% 0.5W	QP11652176	6206				
3535		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	∫	PM-78	4822 130 31878	DIODE 1N4003G	QP13031878
▲ 6529		4822 130 30621	DIODE 1N4148	QP13030621	6209				
7529		4822 130 44283	TRS. BC636	QP13044283	6210				
7530		4822 130 44568	TRS. BC557B	QP13044568	∫		4822 130 31878	DIODE 1N4003G	QP13031878
1506	PM-68	4822 276 13883	PUSH SWITCH SPESKERS	QP27613883	6216				
1507	PM-68	4822 276 13883	PUSH SWITCH SPESKERS	QP27613883	▲ 6302		4822 130 30621	DIODE 1N4148	QP13030621
1506					▲ 7302		4822 209 80817	IC L7805CV	QP20980817
∫	PM-78	4822 276 13894	PUSH SWITCH SPEAKERS	QP27613894	▲ 1201		4822 276 12924	PUSH SWITCH,POWER	QP27612924
1508					▲ 1205		4822 070 32502	FUSE T2.5A 250V	QP07032502
1510	/02B,FB	4822 267 31453	JACK HEADPHONE	QP26731453	▲ 1206	/02	4822 265 11009	MAINS OUTLET	QP26511009
1510	UBL				▲ 1206	F,U	4822 265 11081	MAINS OUTLET	QP26511081
1510	/02G	4822 265 11062	JACK HEADPHONE	QP26511062	▲ 1209	/02	4822 070 33152	FUSE T3.15A 250V	QP07033152
	FN				▲ 1209	F,U	4822 070 36302	FUSE T6.3A 250V	QP07036302
					▲ 1213	PM-78	4822 071 54002	FUSE T4A 250V	QP07154002
					▲ 1214	PM-78	4822 071 54002	FUSE T4A 250V	QP07154002
					▲ 1215		4822 071 55001	FUSE T500MA 250V	QP07155001
					▲ 1216	PM-78	4822 071 55001	FUSE T500MA 250V	QP07155001
					1401		4822 265 10651	TERMINAL 2P RCA JACK	QP26510651
					5202		4822 280 10337	RELAY VS-12MB-NR 1P-12V	QP28010337
					5204	PM-78	4822 280 10344	RELAY LY2-0-DC24	QP28010344
					▲ 5205	/02	4822 146 10828	TRANSF.EI35-20T	QP14610828
					▲ 5205	F,U	4822 146 10861	TRANSF.EI35-20T	QP14610861
▲ 2201		4822 126 13332	CER. 10nF ±20% 400V	QP12613332					
▲ 2202		4822 126 13332	CER. 10nF ±20% 400V	QP12613332					
2204		5322 121 42498	FILM 680nF ±5% 63V	QQ12142498					
2205		4822 124 12028	ELECT 12000μF ±20% 63V	QP12412028					
2206		4822 124 12028	ELECT 12000μF ±20% 63V	QP12412028					
2207	PM-78	4822 124 42391	ELECT 470μF ±20% 63V	QP12442391					
2208	PM-78	4822 124 42391	ELECT 470μF ±20% 63V	QP12442391					