

Service Manual

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

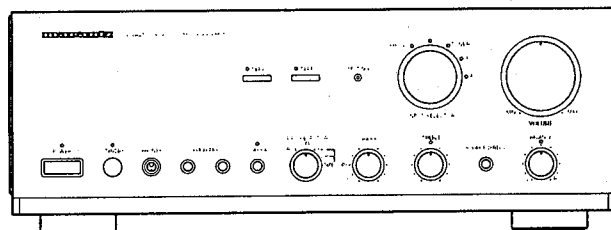
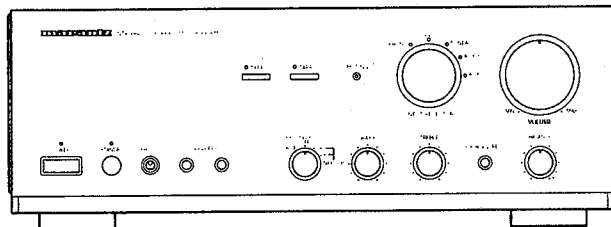


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Please use this service manual with referring to the user guide (D.F.U) without fail.
 修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

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.

<p>USA MARANTZ AMERICA, INC. 440 MEDINAH ROAD ROSELLE, ILLINOIS 60172- 2330 USA PHONE : 630 - 307 - 3100 FAX : 630 - 307 - 2687</p>	<p>CANADA LENBROOK INDUSTRIES LIMITED 633 GRANITE COURT, PICKERING, ONTARIO L1W 3K1 CANADA PHONE : 416-831-6333 FAX : 416-831-6936</p>	<p>EUROPE MARANTZ EUROPE B.V. P.O.BOX 80002 BUILDING SFF2 5600 JB EINDHOVEN THE NETHERLANDS PHONE : +31 - 40 - 2732241 FAX : +31 - 40 - 2735578</p>
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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
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IHF dynamic power (PM-78 class A operation)

8 ohms/4 ohms/2 ohms	35 / 45 / 50 W
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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
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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)	10 Hz - 80 kHz
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周波数特性

(CD, ソースダイレクト)	10 Hz - 50 kHz + 0 dB -1 dB
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ダンピングファクター (8 Ω 負荷, 100 Hz - 10 kHz)	130
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入力感度/入力インピーダンス

PHONO (MM)	2.5 mV/47 k Ω
HIGH LEVEL	150 mV/40 k Ω

PHONO 最大許容入力 (1 kHz)

(MM)	150 mV
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RIAA 偏差 (20 Hz)	- 2 dB
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(40 Hz - 20 kHz)	± 0.5 dB
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S/N比 (IHF、Aネットワーク、入力ショート)

PHONO (MM)	85 dB
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HIGH LEVEL	109 dB
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トーンコントロール

BASS (100 Hz)	± 8 dB
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TREBLE (10 kHz)	± 8 dB
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電源電圧	AC 100 V, 50 Hz/60 Hz
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消費電力 (電気用品取締法)	160 W
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最大外形寸法

幅	439 mm
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高さ	156 mm
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奥行き	375 mm
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質量	12.3 kg
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付属品

リモートコントロール送信機 (RC-68PM)	1 台
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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。

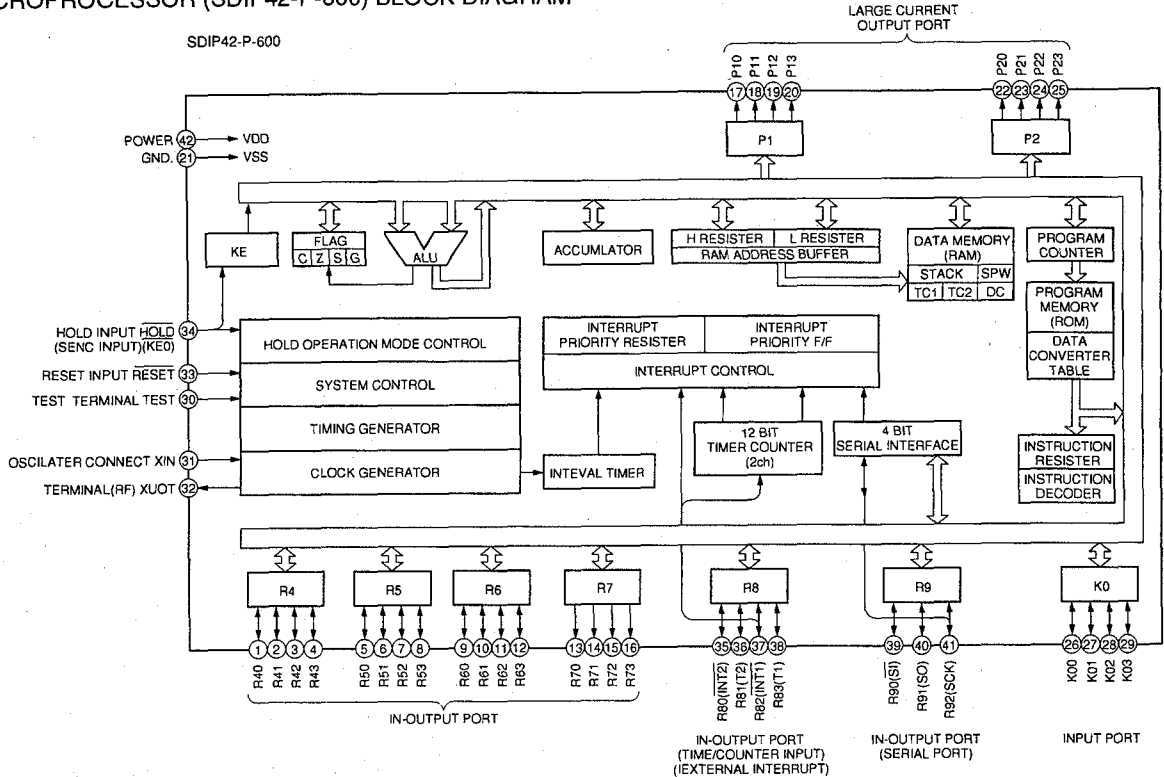
2. TEST EQUIPMENT REQUIRED SERVICING

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

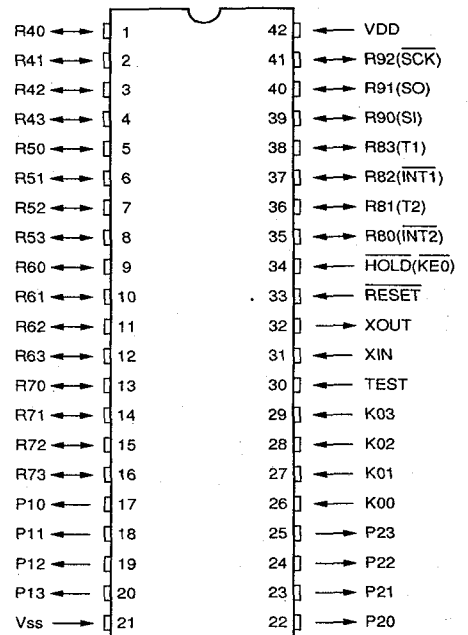
MICROPROCESSOR (SDIP42-P-600) BLOCK DIAGRAM



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

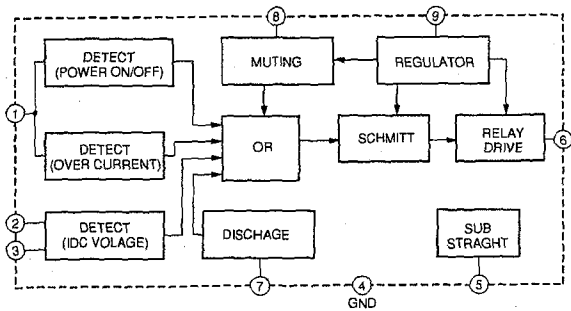
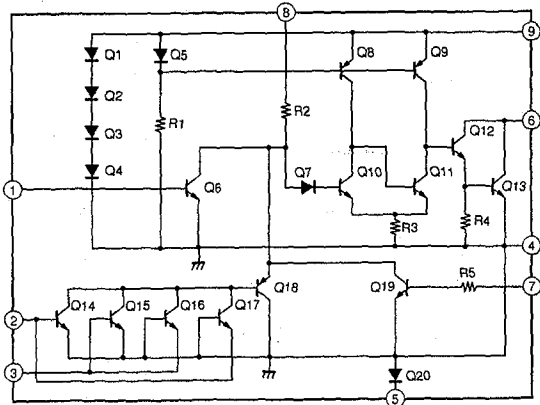
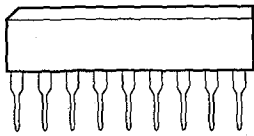
MICROPROCESSOR (SDIP42-P-600) Position NO.7401

SDIP42-P-600



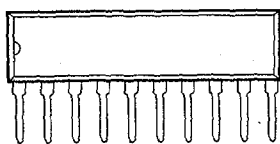
TA7317P (Position NO.7290)

TA7317P

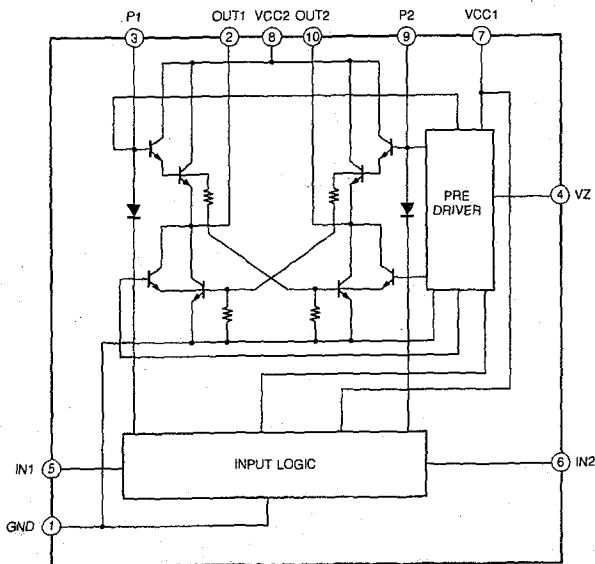


LB1641(Position NO.7402)

LB1641

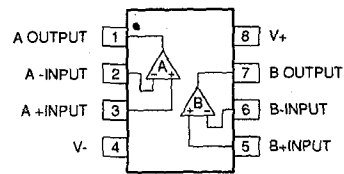


LB1641

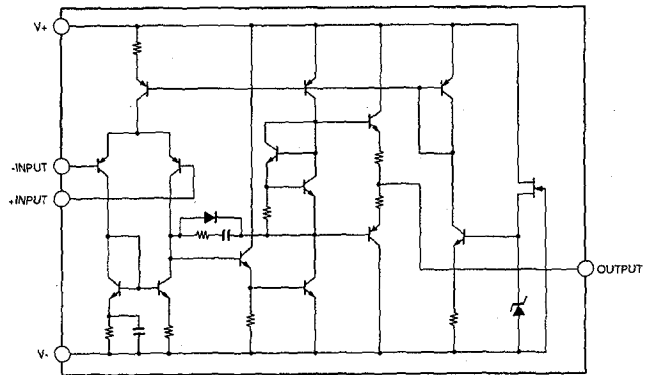


NJM2068 (Position NO.7501,7502,7503)

NJM2068

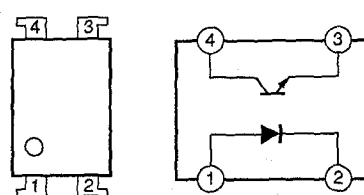


NJM2068



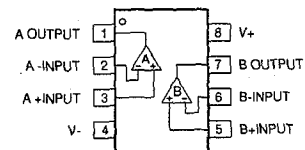
PC817 (Position NO.7269,7270)

PC817

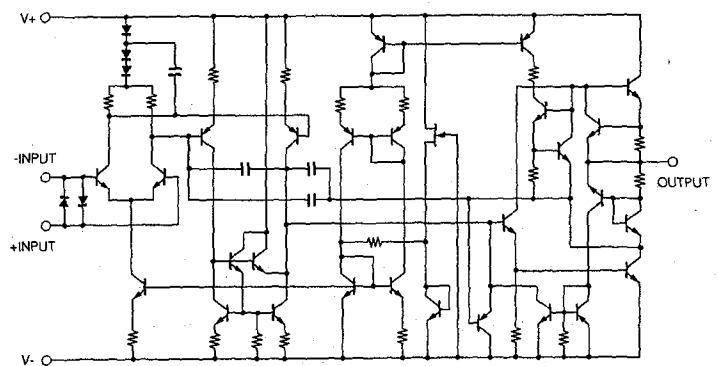


NJM2114(Position NO.7555,7655)

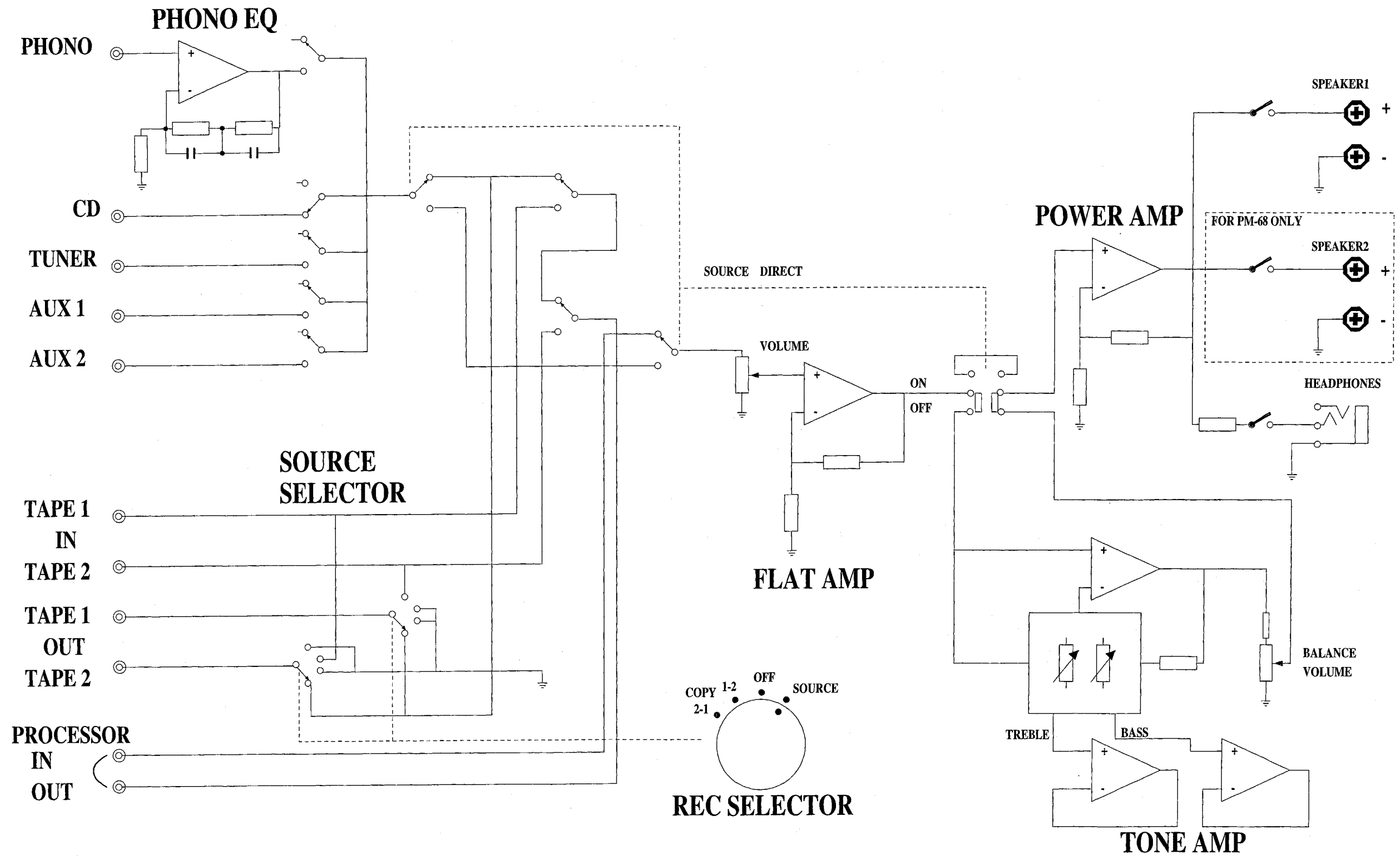
NJM2114



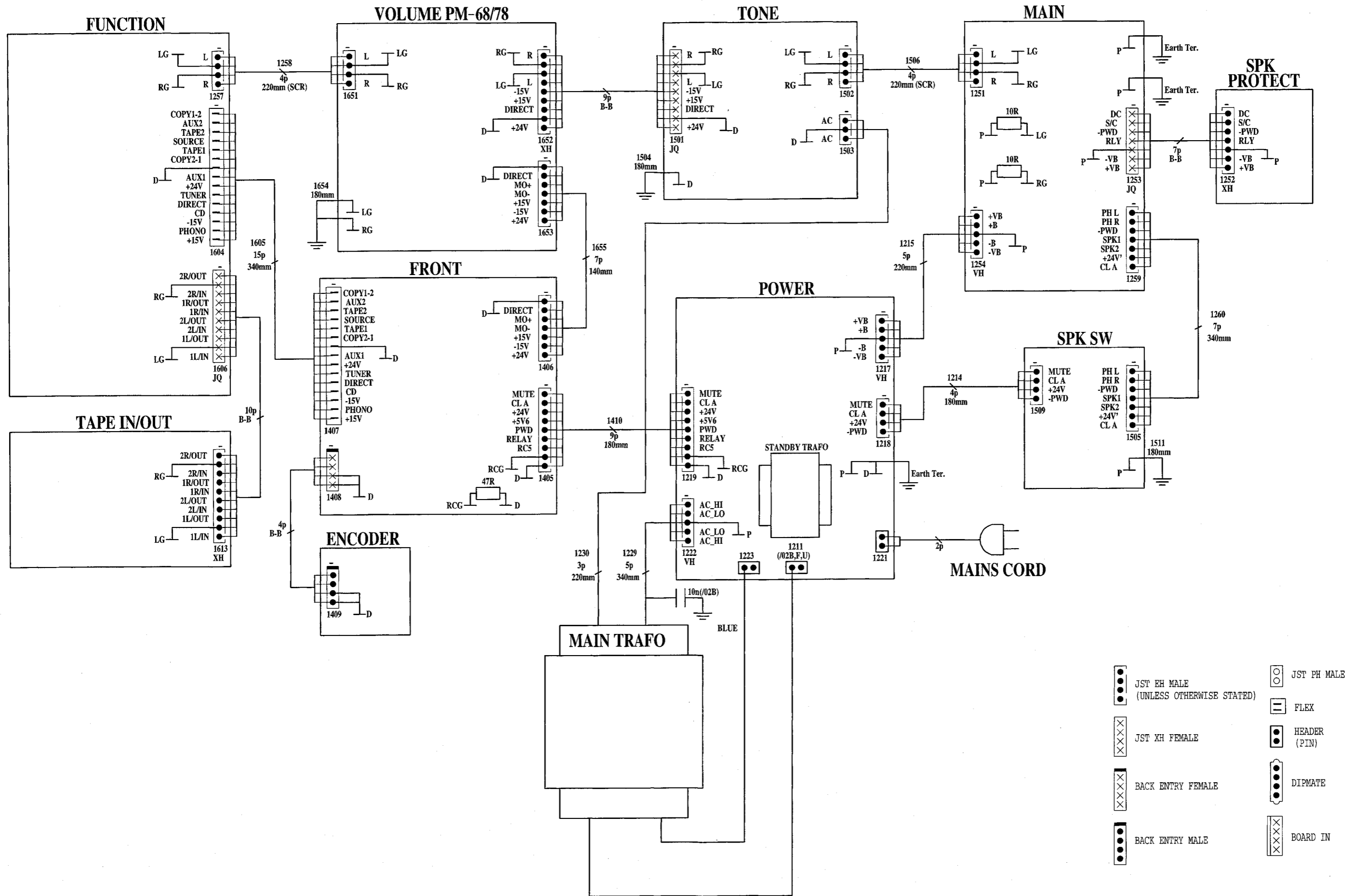
NJM2114



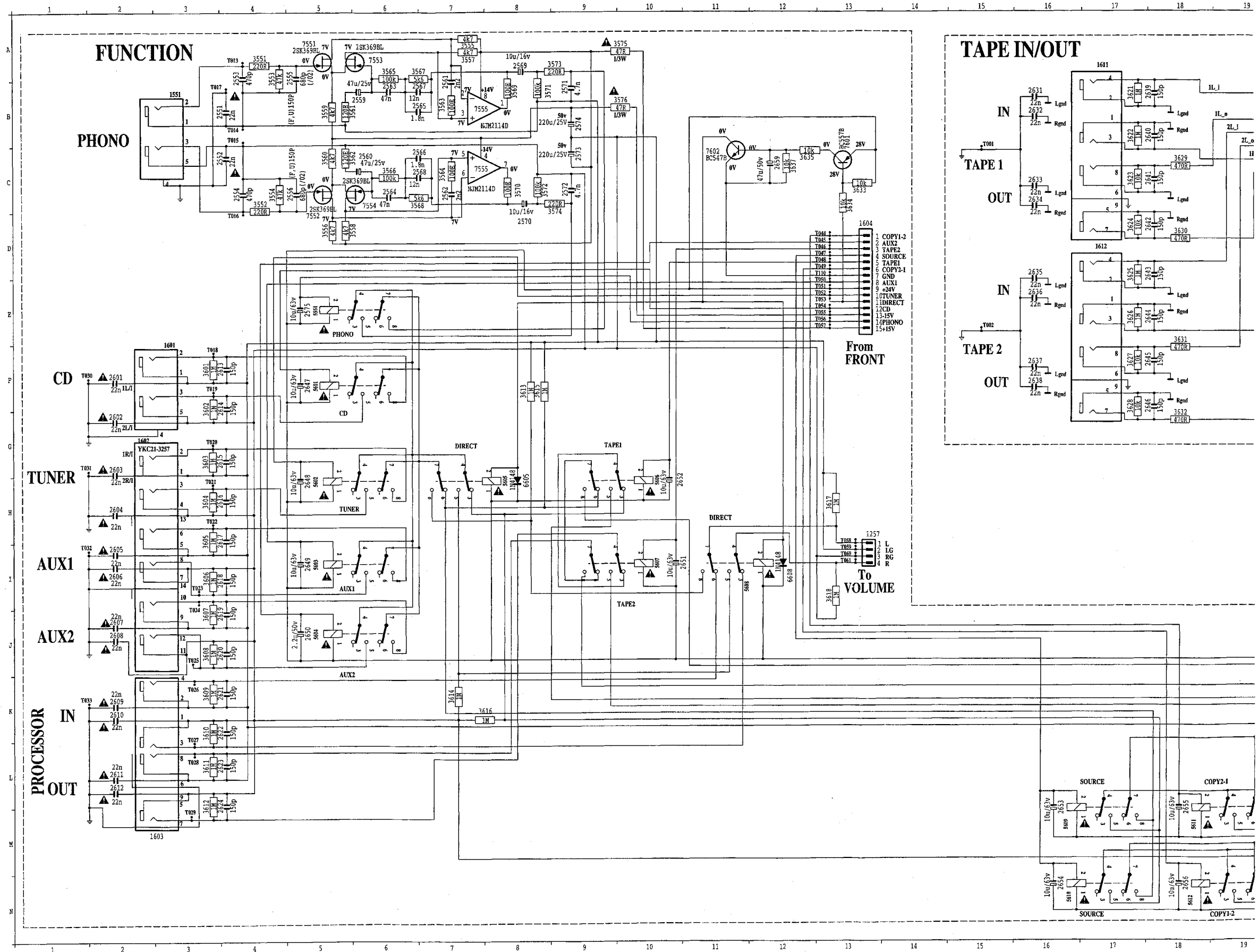
4. BLOCK DIAGRAM

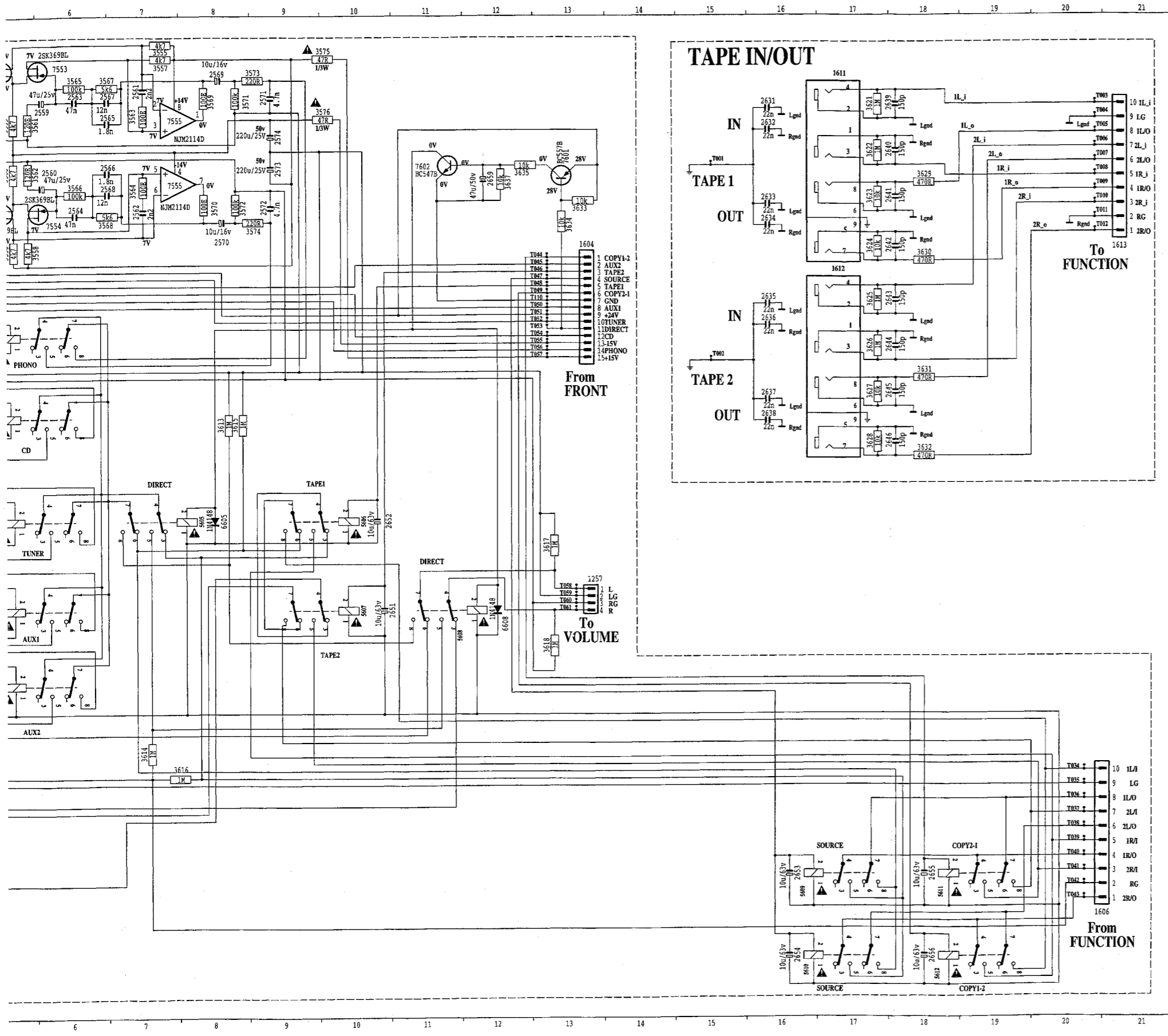


5. WIRING DIAGRAM



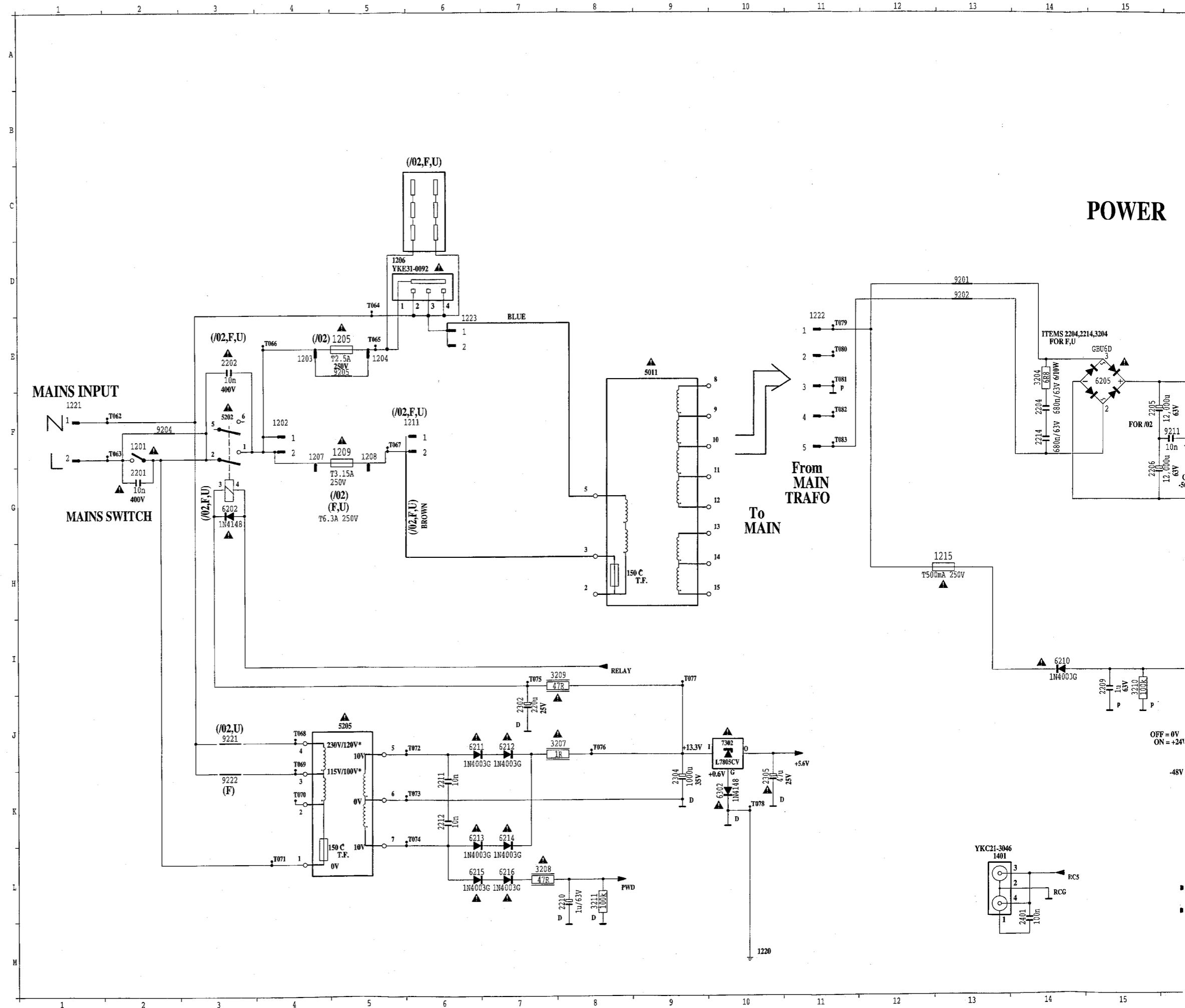
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE)
POWER CIRCUIT II





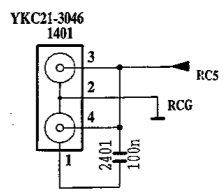
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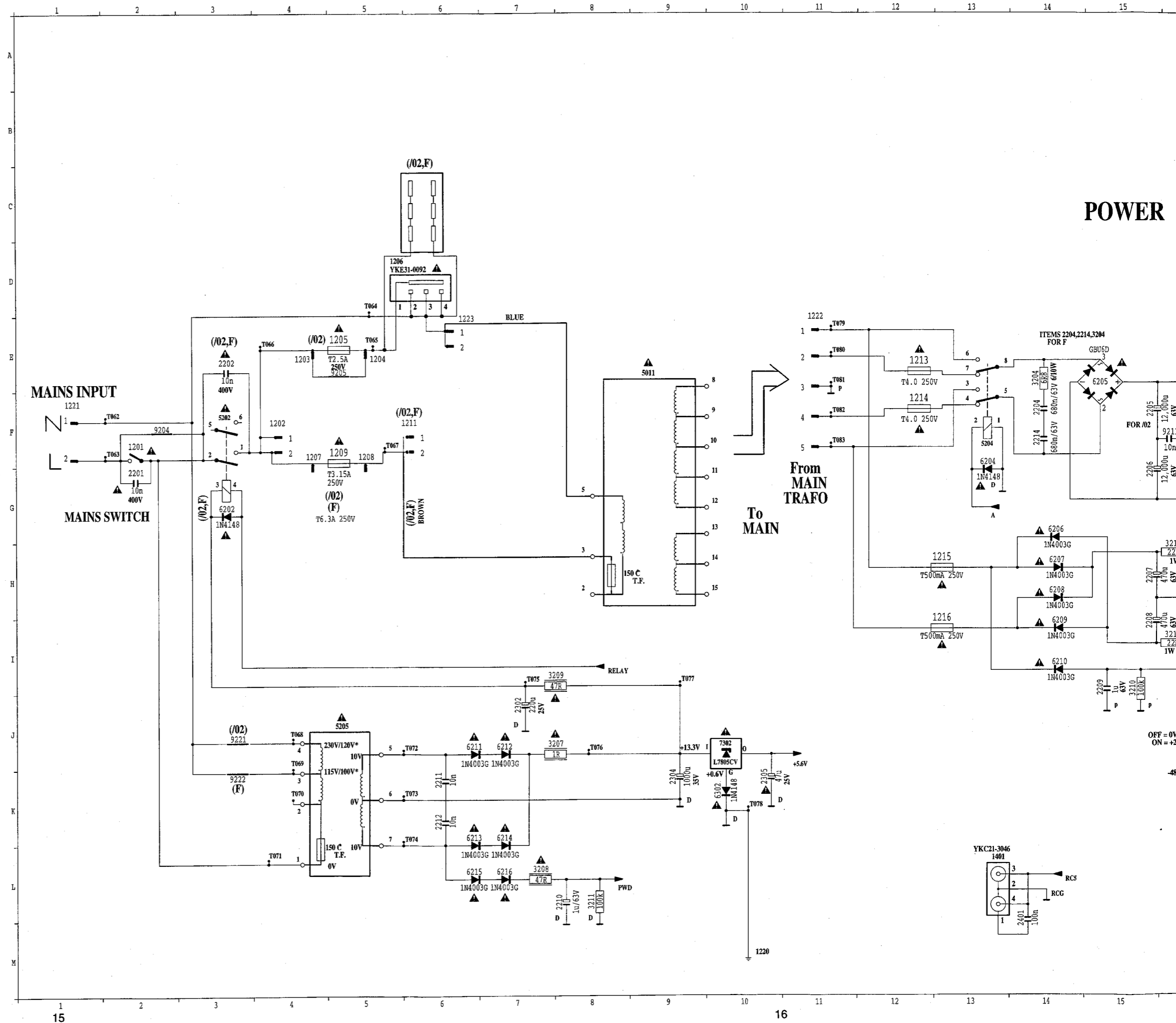
POWER CIRCUIT I (PM-68)



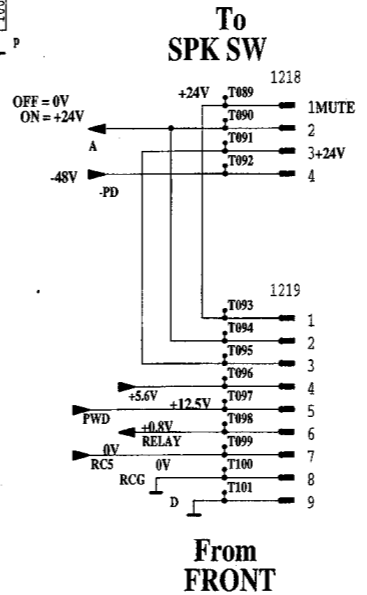
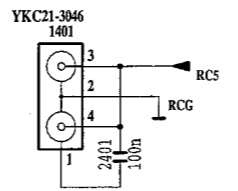
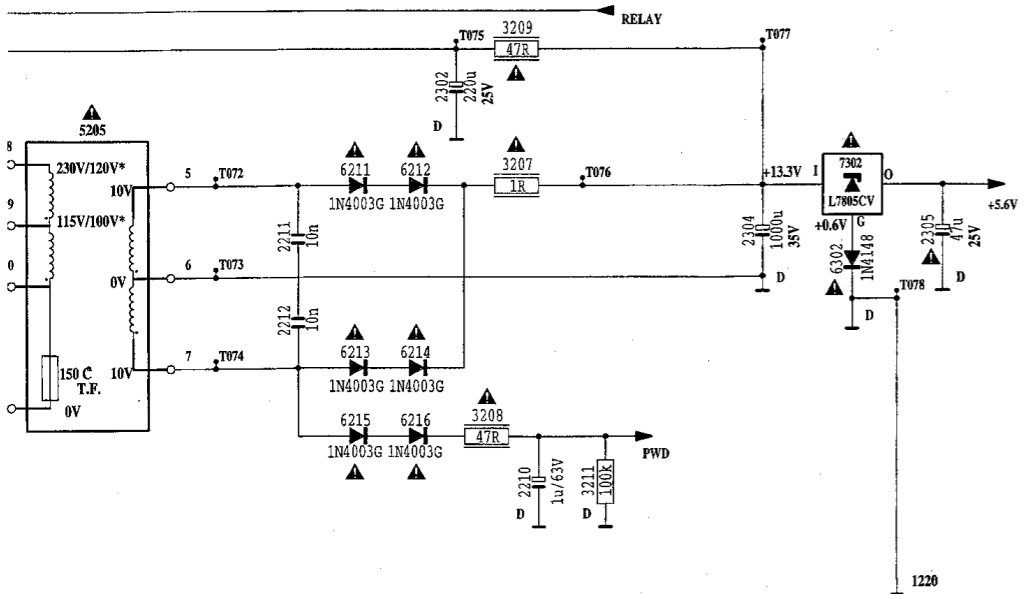
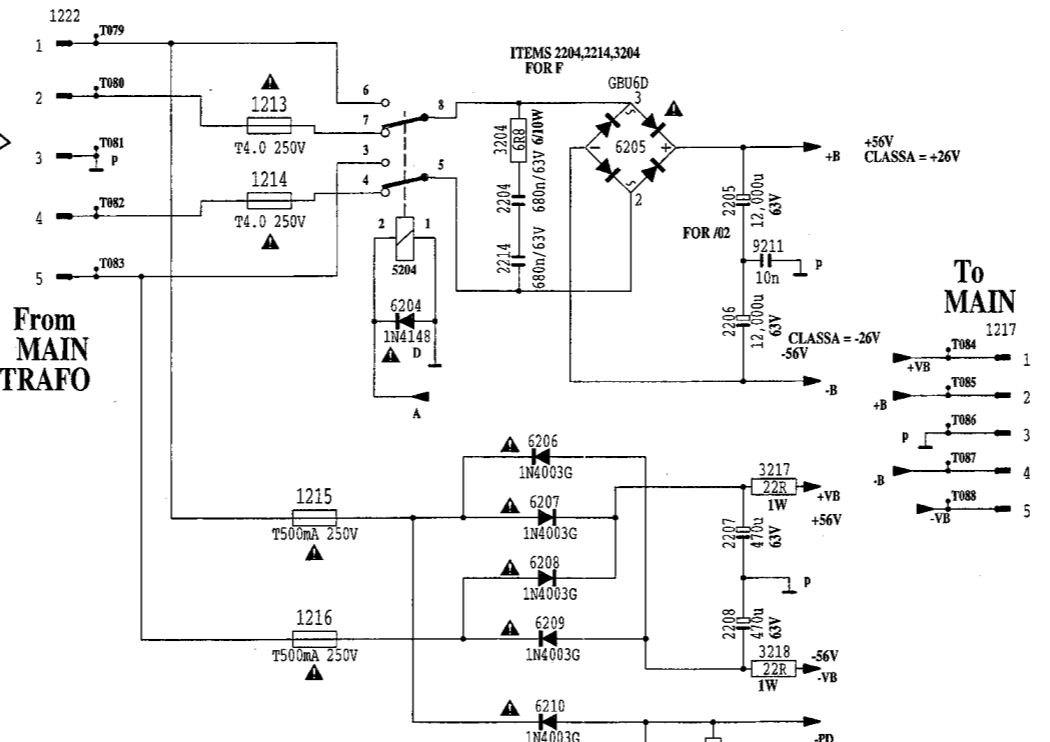
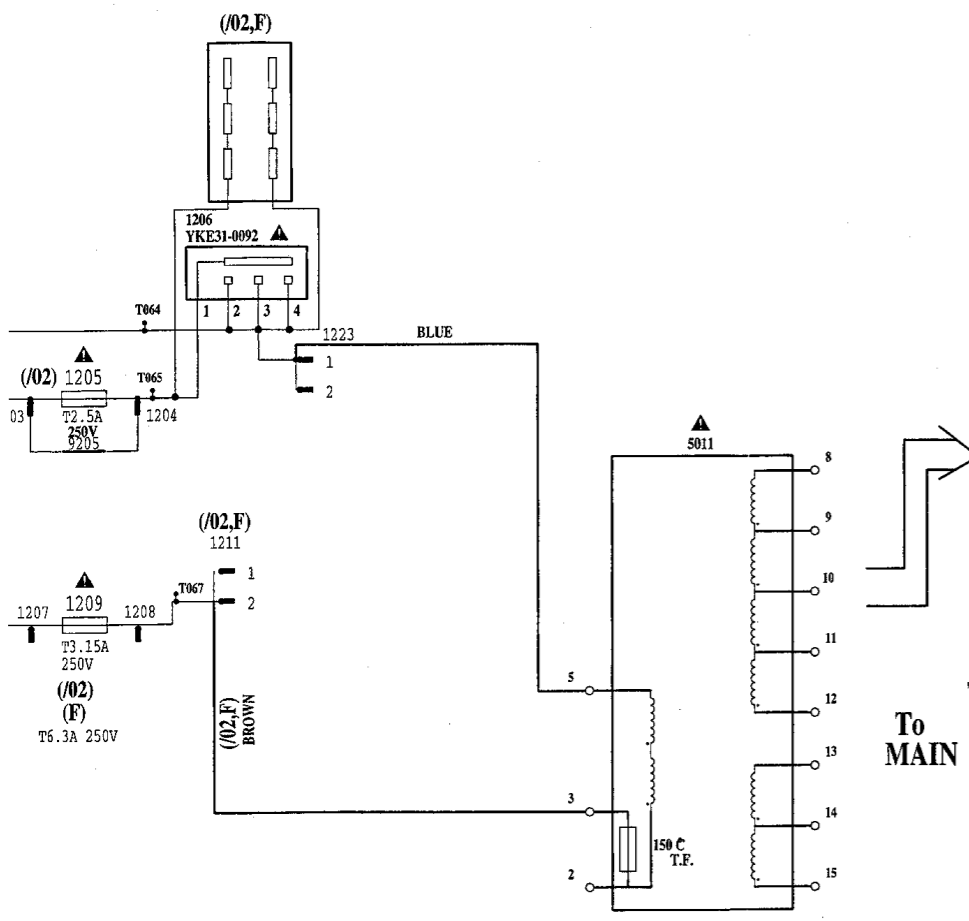
POWER

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



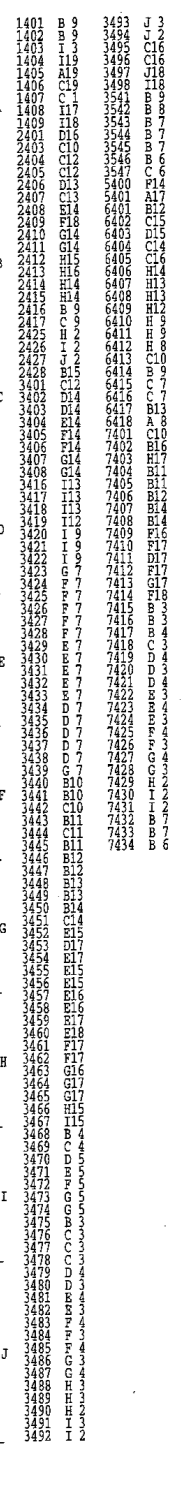
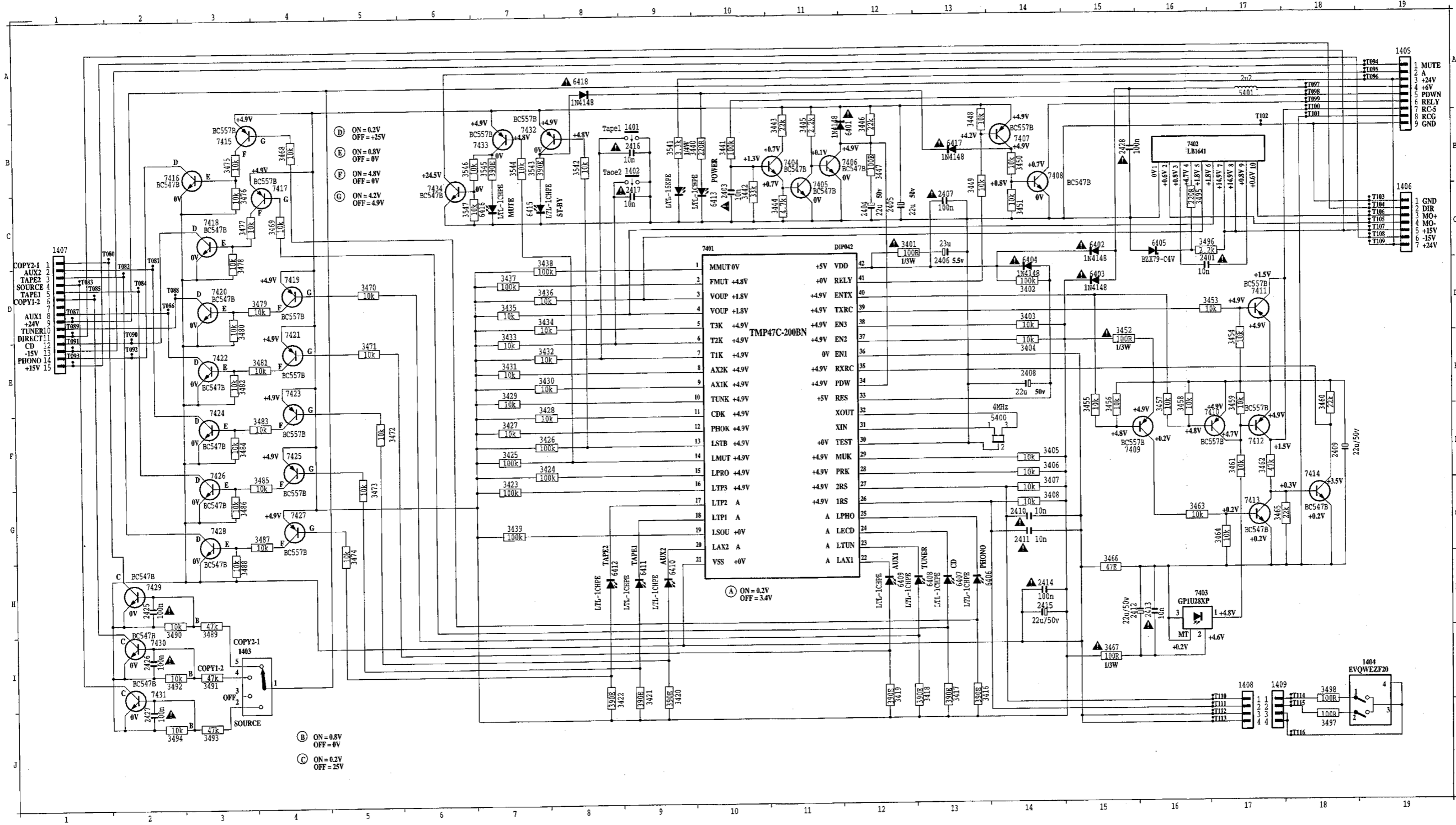


POWER

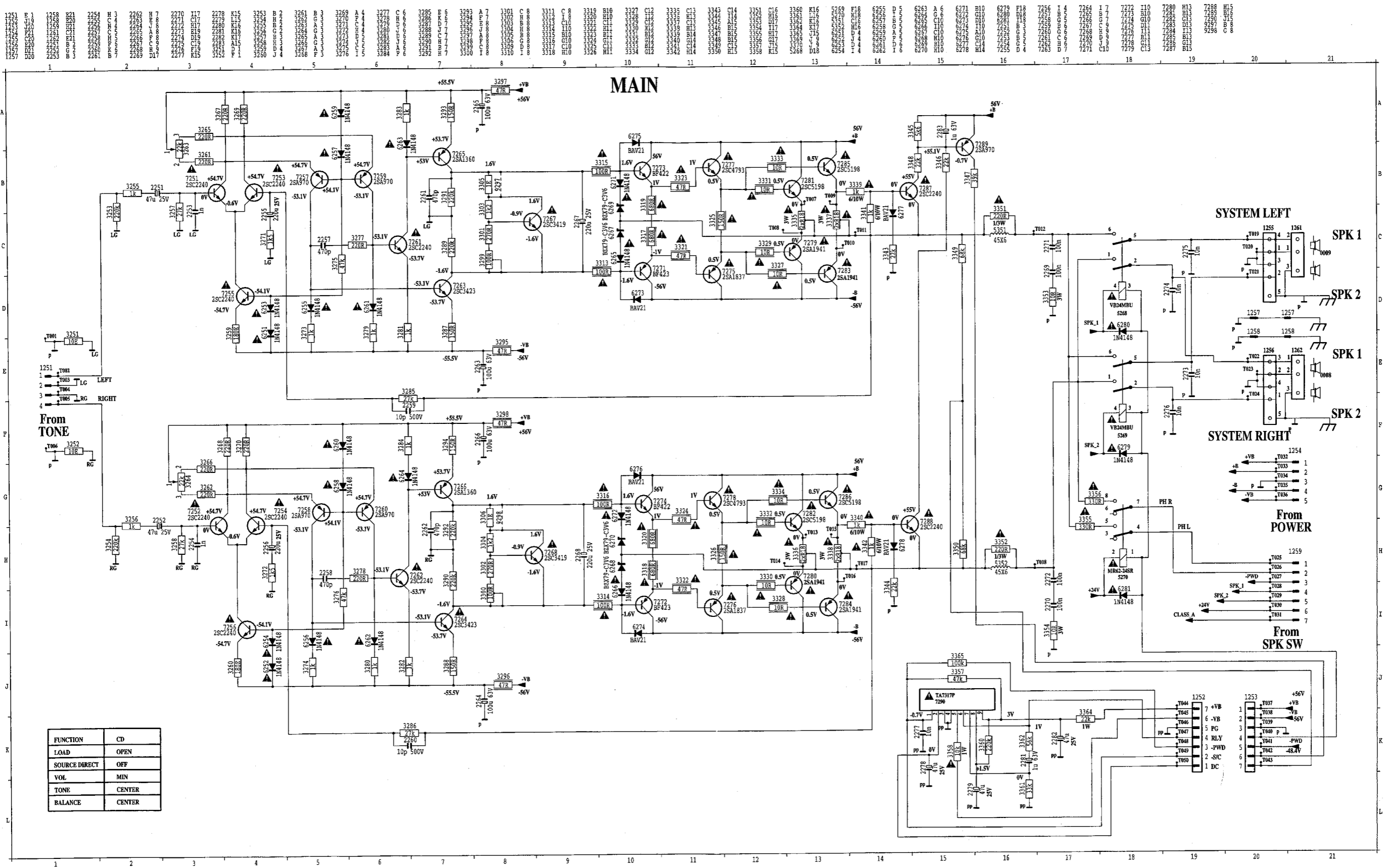


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 1203 F 2
 1204 F 2
 1205 F 2
 1206 F 2
 1207 F 2
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 1209 F 2
 1211 F 2
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 1213 F 2
 1214 F 2
 1215 F 2
 1216 F 2
 1217 F 2
 1218 F 2
 1219 F 2
 1221 F 1
 1222 E 11
 1223 C 2
 1224 A 4
 1225 B 5
 1226 B 5
 1227 B 5
 1228 C 3
 1229 C 3
 1230 K 3
 1231 C 3
 1232 C 3
 1233 C 3
 1234 K 3
 1401 L 13
 2201 C 2
 2202 C 2
 2203 F 14
 2204 F 14
 2205 F 15
 2206 G 15
 2207 H 15
 2208 H 15
 2209 L 15
 2210 L 15
 2211 R 6
 2212 K 6
 2213 F 4
 2214 K 9
 2215 H 12
 2216 F 2
 2302 J 7
 2303 K 9
 2304 K 10
 2305 K 10
 2401 L 14
 3204 E 14
 3207 J 8
 3208 L 7
 3209 L 7
 3210 T 1
 3211 L 1
 3212 H 8
 3213 H 8
 3214 F 3
 5202 F 3
 5204 F 13
 6202 G 3
 6204 F 13
 6205 E 15
 6206 G 14
 6207 H 14
 6208 H 14
 6209 H 14
 6210 H 14
 6211 C 5
 6212 K 6
 6213 K 6
 6214 K 7
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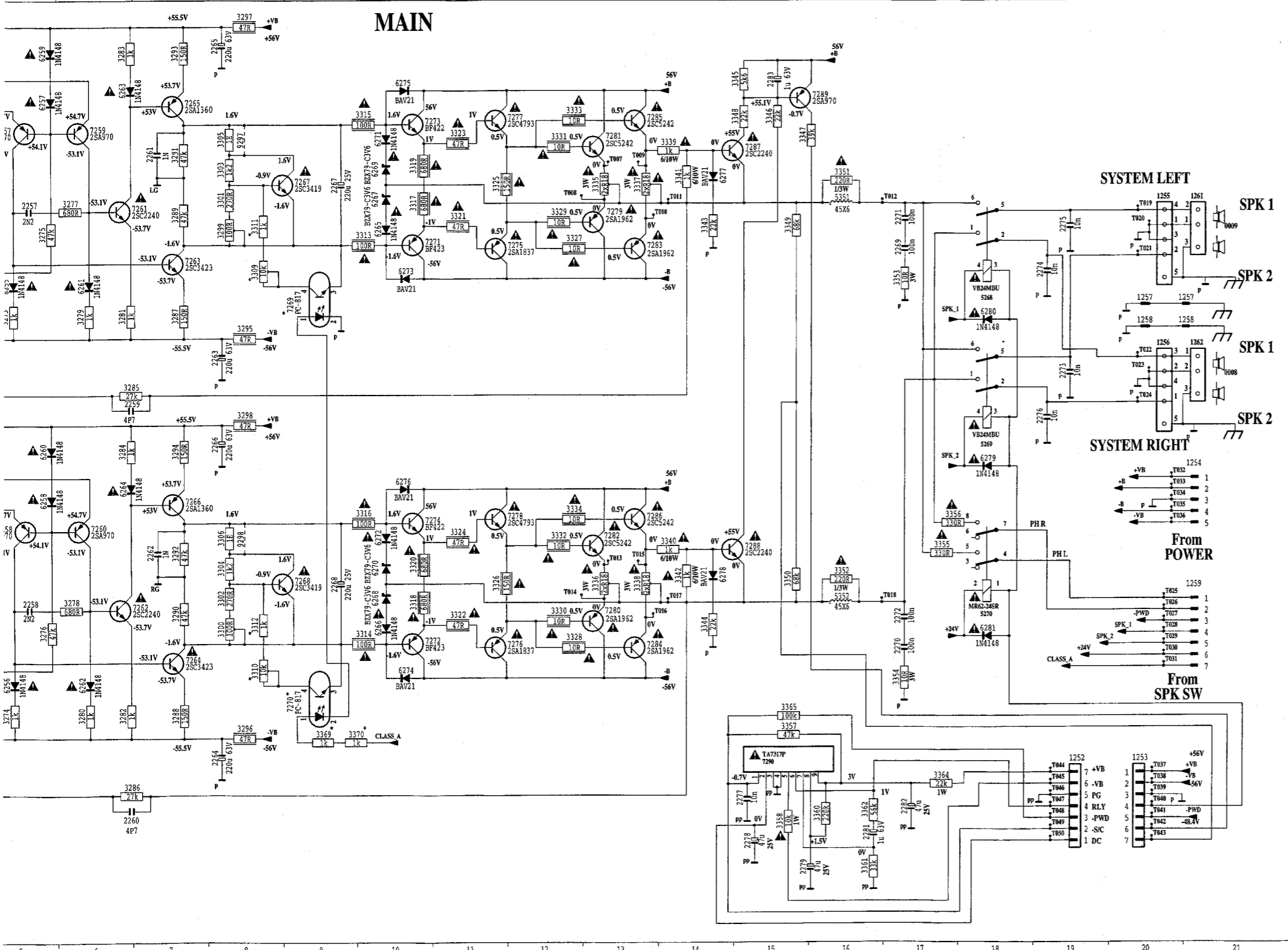
CONTROL CIRCUIT I (PM-78)



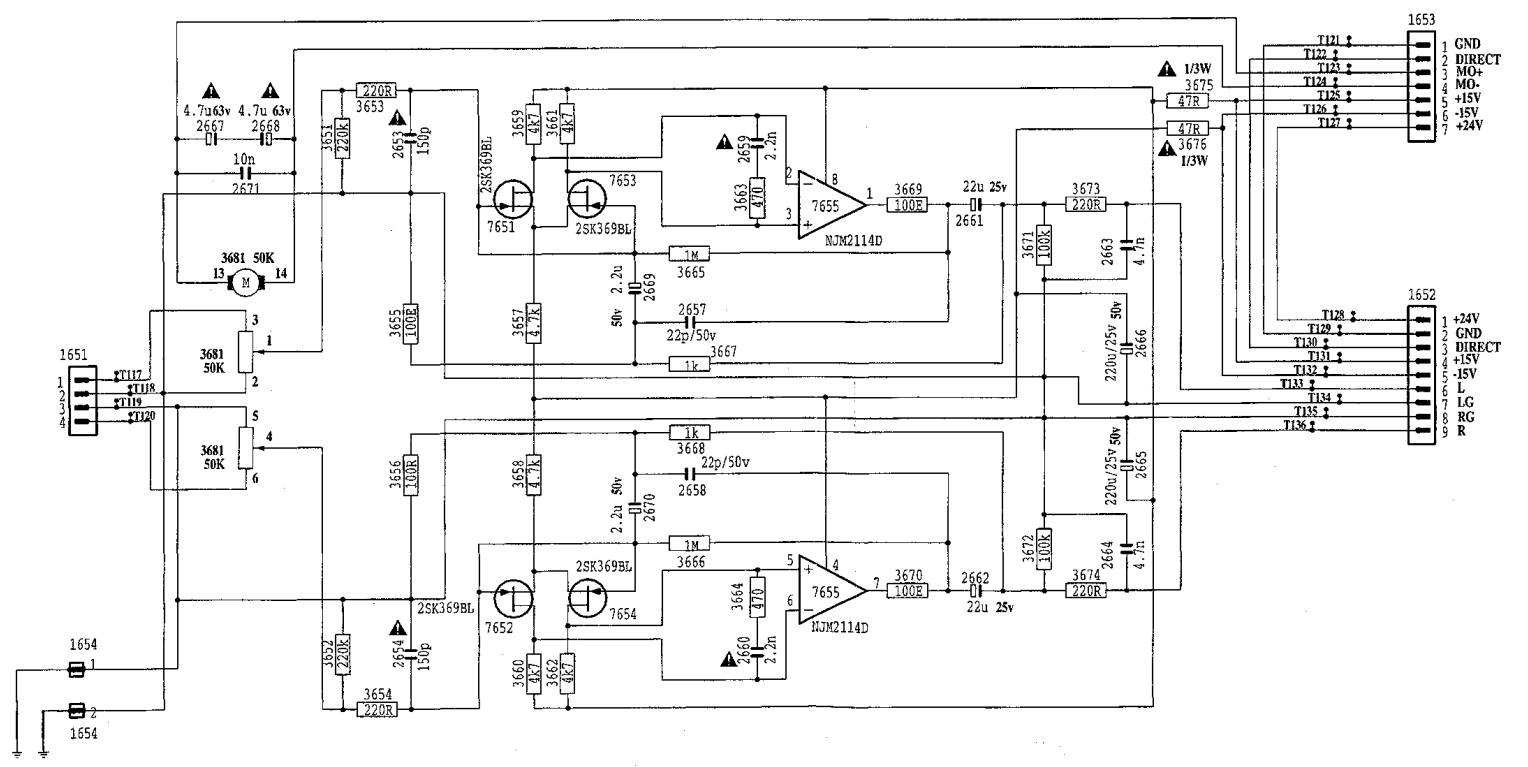
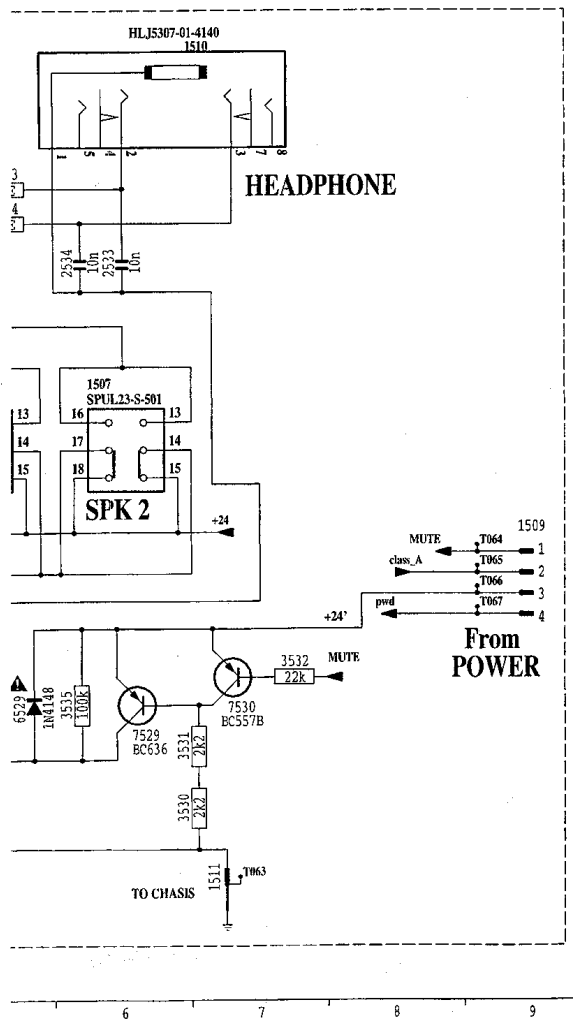
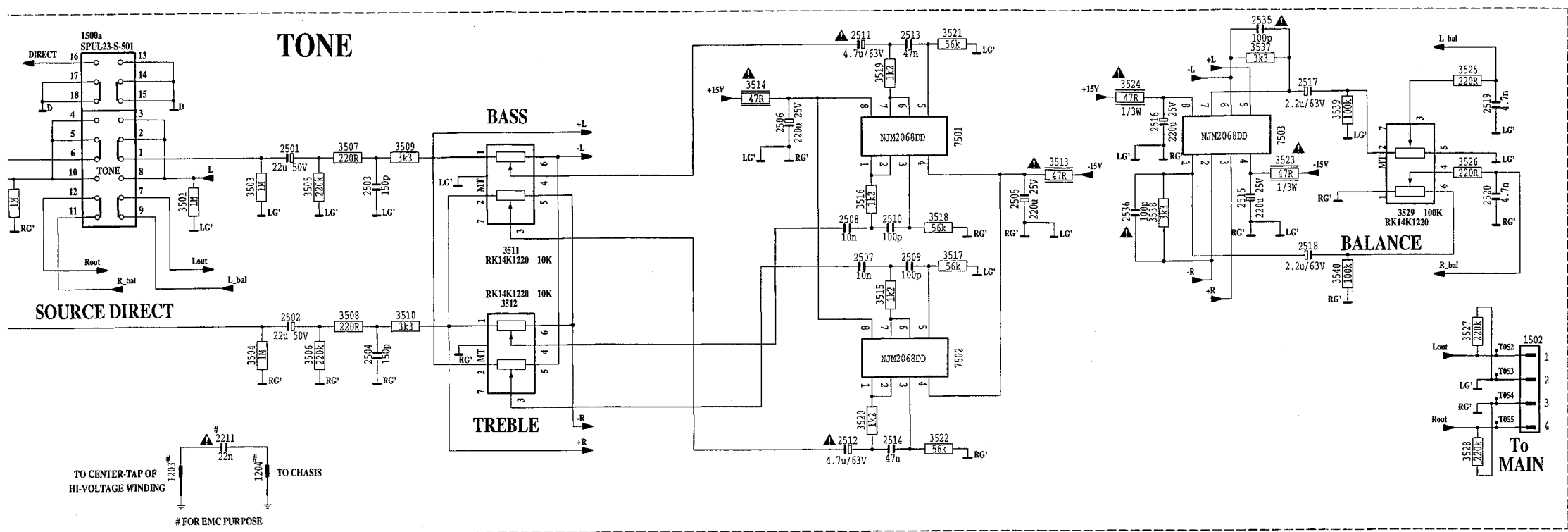
MAIN CIRCUIT (PM-68)



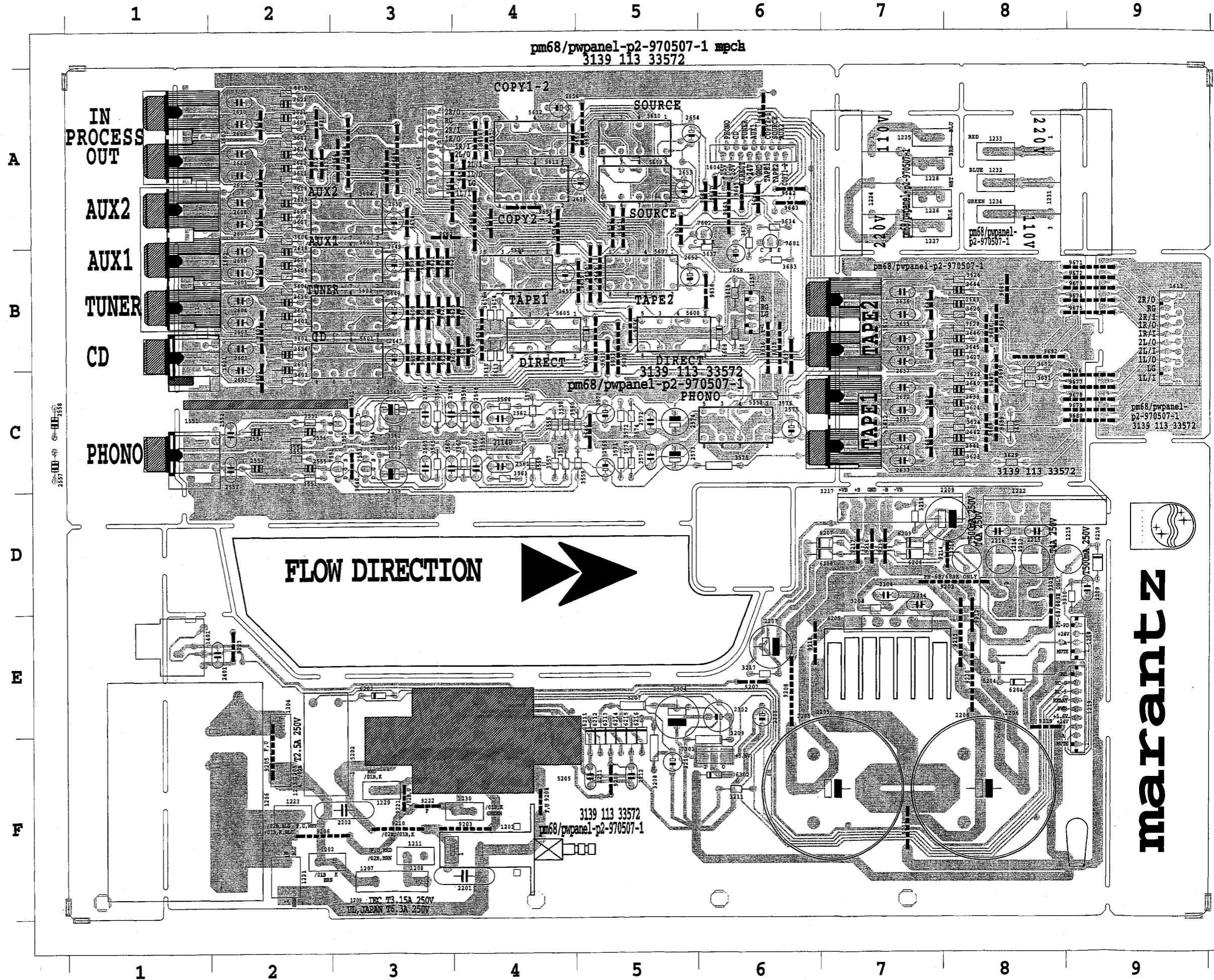
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2516	B17	2533	H 6	2653	H13	2659	H16	2665	K19	2671	I12	3505	C 8	3511	C11	3517	C15	3523	B19	3529	C20	3535	F 6	3555	L13	3658	K14	3664	L14	3670	K17	3676	H19	6203	D 3	7501	H15	7502	H15	7503	H18	7504	H18	7505	H18	7506	H18	7507	H18	7508	H18	7509	H18	7510	H18	7511	H18	7512	H18	7513	H18	7514	H18	7515	H18	7516	H18	7517	H18	7518	H18	7519	H18	7520	H18	7521	H18	7522	H18	7523	H18	7524	H18	7525	H18	7526	H18	7527	H18	7528	H18	7529	H18	7530	H18	7531	H18	7532	H18	7533	H18	7534	H18	7535	H18	7536	H18	7537	H18	7538	H18	7539	H18	7540	H18	7541	H18	7542	H18	7543	H18	7544	H18	7545	H18	7546	H18	7547	H18	7548	H18	7549	H18	7550	H18	7551	H18	7552	H18	7553	H18	7554	H18	7555	H18	7556	H18	7557	H18	7558	H18	7559	H18	7560	H18	7561	H18	7562	H18	7563	H18	7564	H18	7565	H18	7566	H18	7567	H18	7568	H18	7569	H18	7570	H18	7571	H18	7572	H18	7573	H18	7574	H18	7575	H18	7576	H18	7577	H18	7578	H18	7579	H18	7580	H18	7581	H18	7582	H18	7583	H18	7584	H18	7585	H18	7586	H18	7587	H18	7588	H18	7589	H18	7590	H18	7591	H18	7592	H18	7593	H18	7594	H18	7595	H18	7596	H18	7597	H18	7598	H18	7599	H18	7600	H18	7601	H18	7602	H18	7603	H18	7604	H18	7605	H18	7606	H18	7607	H18	7608	H18	7609	H18	7610	H18	7611	H18	7612	H18	7613	H18	7614	H18	7615	H18	7616	H18	7617	H18	7618	H18	7619	H18	7620	H18	7621	H18	7622	H18	7623	H18	7624	H18	7625	H18	7626	H18	7627	H18	7628	H18	7629	H18	7630	H18	7631	H18	7632	H18	7633	H18	7634	H18	7635	H18	7636	H18	7637	H18	7638	H18	7639	H18	7640	H18	7641	H18	7642	H18	7643	H18	7644	H18	7645	H18	7646	H18	7647	H18	7648	H18	7649	H18	7650	H18	7651	H18	7652	H18	7653	H18	7654	H18	7655	H18	7656	H18	7657	H18	7658	H18	7659	H18	7660	H18	7661	H18	7662	H18	7663	H18	7664	H18	7665	H18	7666	H18	7667	H18	7668	H18	7669	H18	7670	H18	7671	H18	7672	H18	7673	H18	7674	H18	7675	H18	7676	H18	7677	H18	7678	H18	7679	H18	7680	H18	7681	H18	7682	H18	7683	H18	7684	H18	7685	H18	7686	H18	7687	H18	7688	H18	7689	H18	7690	H18	7691	H18	7692	H18	7693	H18	7694	H18	7695	H18	7696	H18	7697	H18	7698	H18	7699	H18	7700	H18
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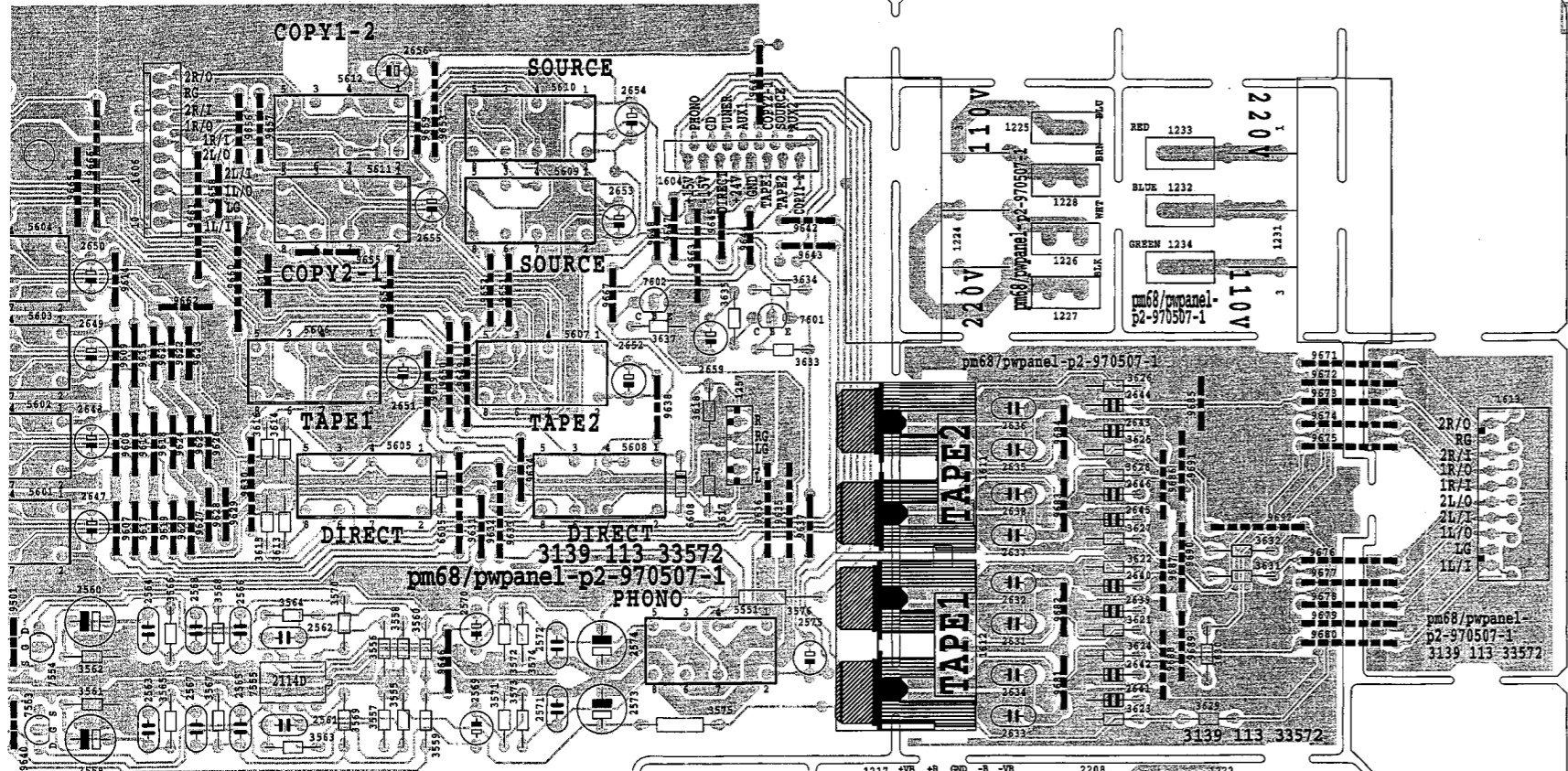


POWER BOARD

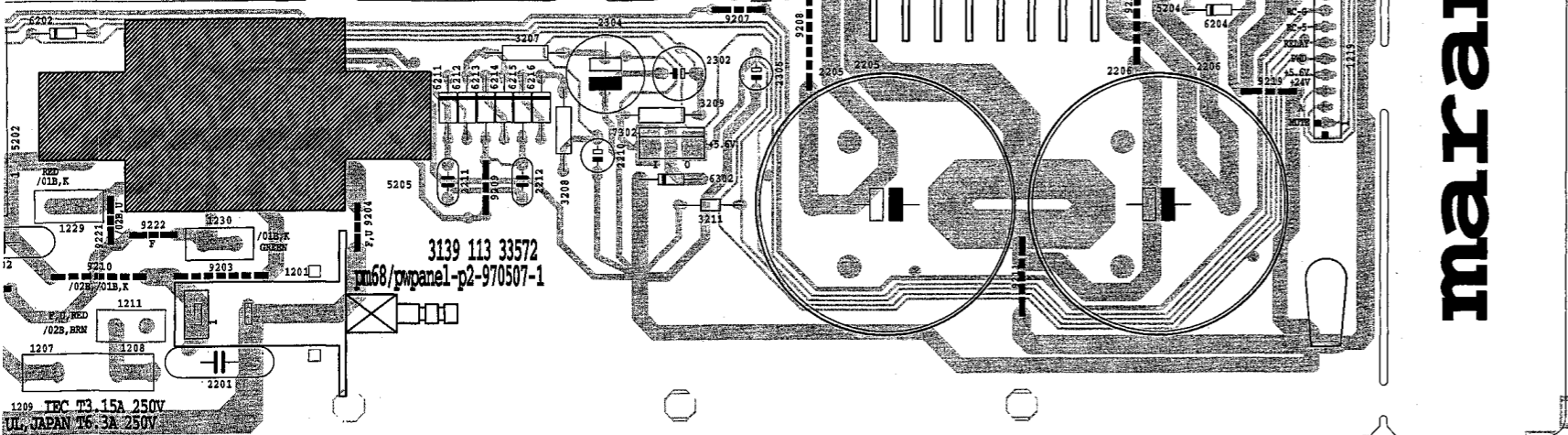


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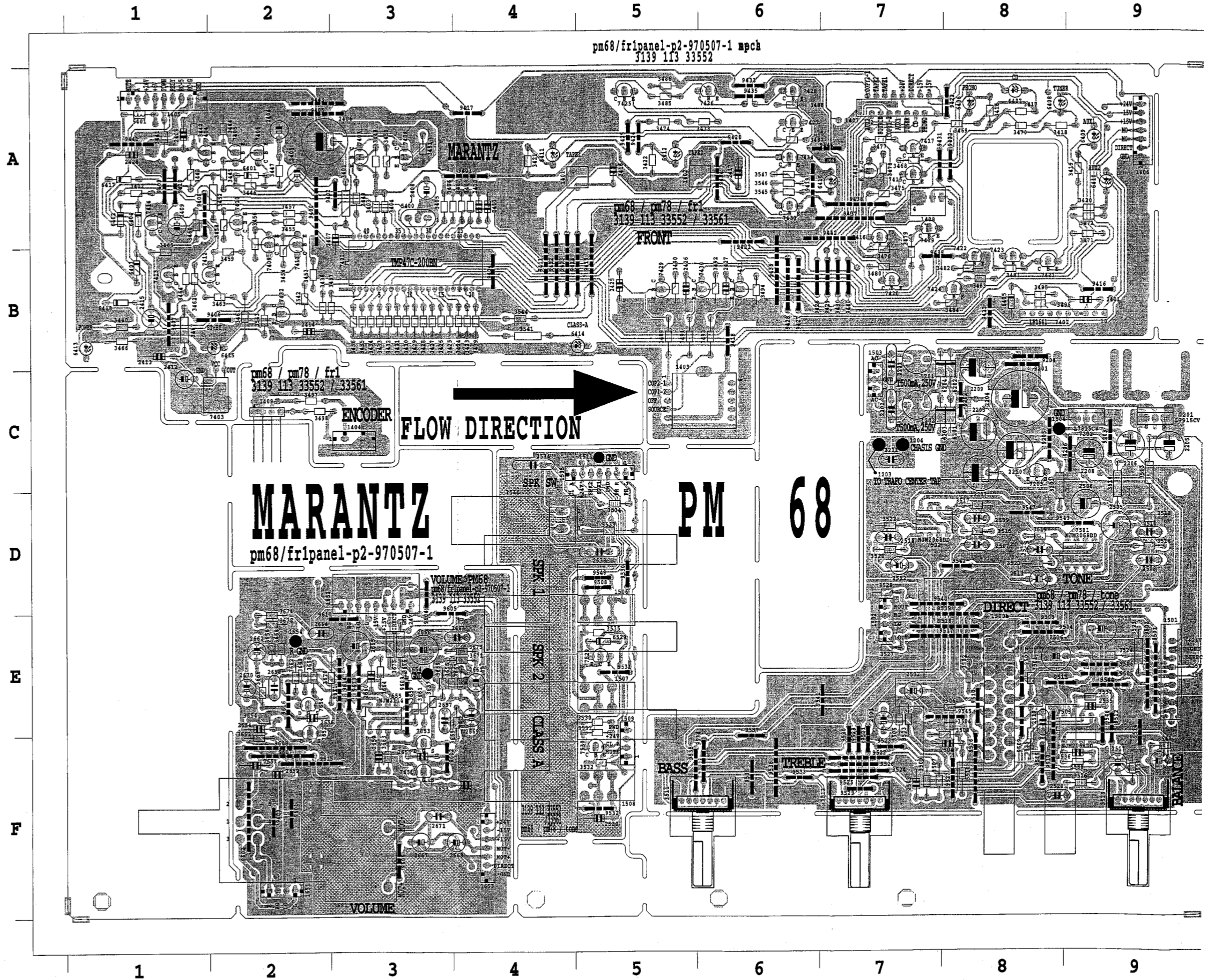
DIRECTION



1200 IBC T3 15A 250V
UL, JAPAN T6 3A 250V

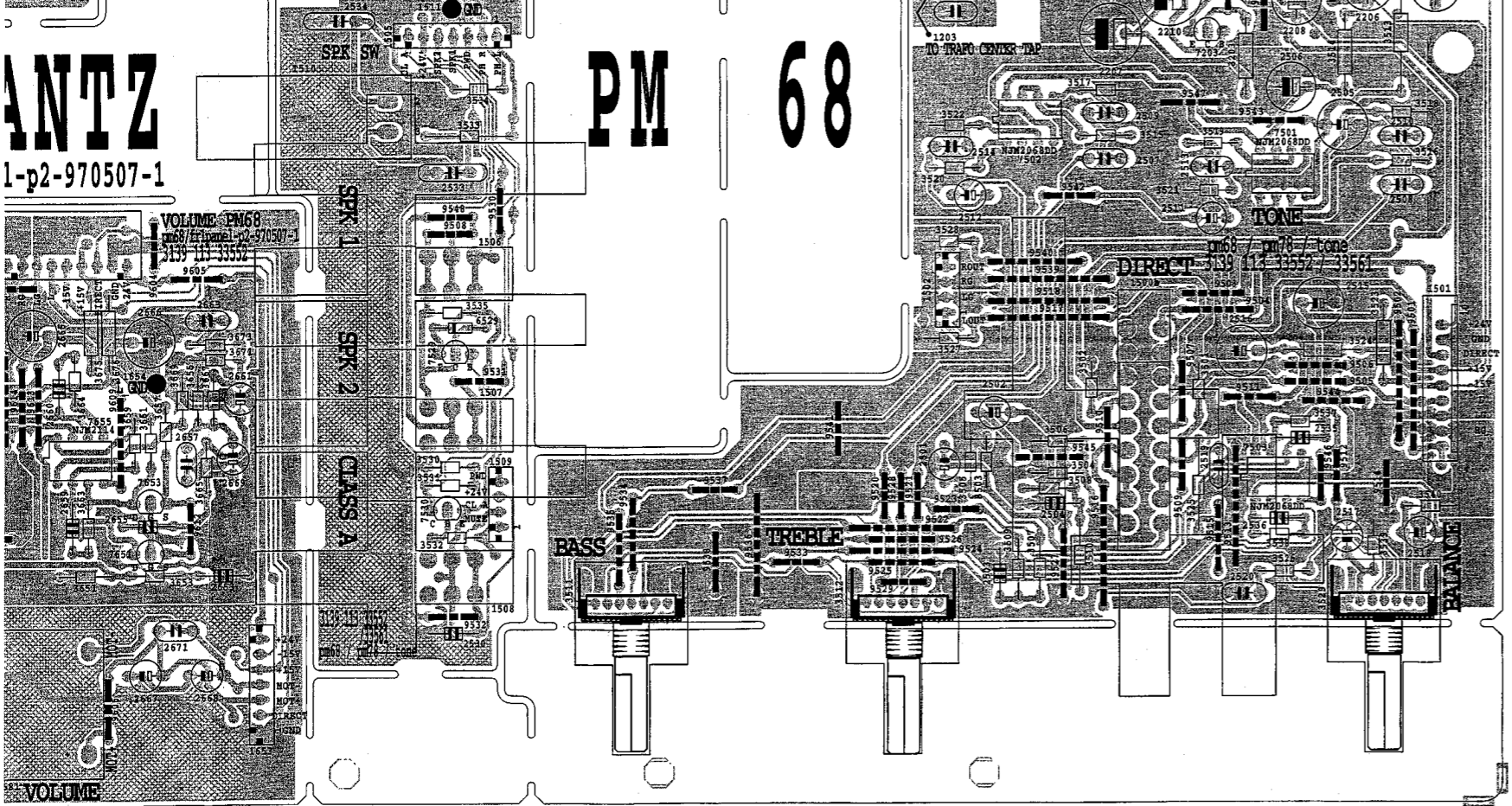
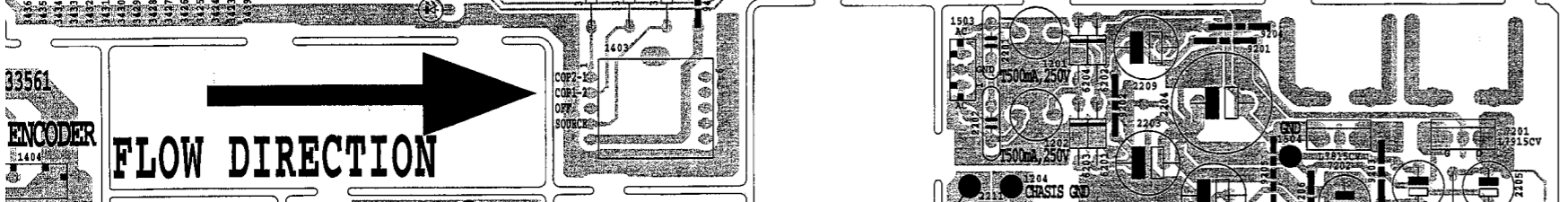
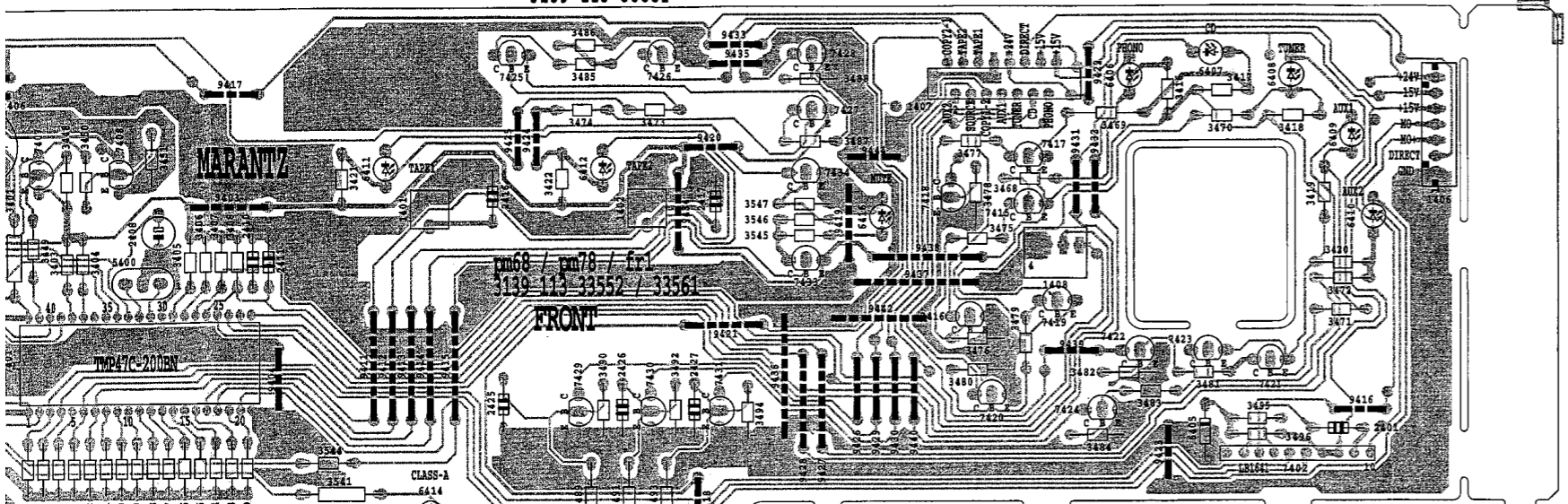
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	1601 B 1	3562 C 3	9624 B 3	1232 A 8
	1602 B 1	3563 C 4	9625 B 3	1233 A 8
	1603 A 1	3564 C 4	9626 B 4	1234 A 8
	1604 A 6	3565 C 3	9627 B 3	1401 E 1
	1606 A 3	3566 C 3	9628 B 4	2201 F 4
	1611 B 7	3567 C 4	9629 B 4	2202 F 3
	1612 C 7	3568 C 4	9630 B 4	2204 D 7
	1613 B 9	3569 C 4	9631 B 5	2205 F 7
	2551 C 2	3570 C 4	9632 B 5	2206 F 8
	2552 C 2	3571 C 5	9633 B 5	2207 E 6
	2553 C 2	3572 C 5	9634 B 5	2208 D 8
	2554 C 2	3573 C 5	9635 B 6	2209 D 9
	2555 C 2	3574 C 5	9636 B 6	2210 F 5
	2556 C 2	3575 C 6	9637 B 6	2211 F 5
	2557 C 3	3576 C 6	9638 B 6	2212 F 5
	2558 C 3	3601 C 2	9639 B 5	2214 D 7
	2559 C 3	3602 B 2	9640 C 2	2215 D 8
	2560 C 3	3603 B 2	9641 A 6	2216 D 8
	2561 C 4	3604 B 2	9642 A 6	2302 E 6
	2562 C 4	3605 B 2	9643 A 6	2304 E 5
	2563 C 3	3606 A 2	9644 A 6	2305 E 6
	2564 C 3	3607 A 2	9645 A 6	2401 E 2
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	2575 C 6	3618 B 6	9656 A 4	6205 E 7
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	2606 B 2	3626 B 8	9662 A 3	6211 F 5
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	2636 B 7	6605 B 5	9688 C 8	9217 D 7
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	2639 C 8	7552 C 3	9691 B 8	9220 E 8
	2640 C 8	7553 C 3	9692 B 8	9221 F 3
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	2642 C 8	7555 C 4	---	9223 E 2
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	2644 B 8	7602 A 6	1202 F 2	
	2645 B 8	9501 C 2	1203 F 2	
	2646 B 8	9601 C 2	1204 F 2	
	2647 B 3	9602 B 2	1206 F 2	
	2648 B 3	9603 B 2	1207 F 3	
	2649 B 3	9604 A 2	1208 F 3	
	2650 A 3	9605 A 2	1211 F 3	
	2651 B 4	9606 A 2	1213 D 8	
	2652 B 5	9607 B 3	1214 D 8	
	2653 A 5	9608 B 3	1215 D 9	
	2654 A 5	9609 B 3	1216 D 8	
	2655 A 5	9610 A 4	1217 D 7	
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1202 C 7	6204 C 7	3656 E 2	3430 B 3	6418 B 1
1203 C 7	6529 E 5	3657 E 3	3431 B 3	7401 B 3
1204 C 7	7201 C 9	3658 E 2	3432 B 3	7402 B 8
1500a E 8	7202 C 9	3659 E 3	3433 B 3	7403 C 2
1500b E 8	7203 C 8	3660 E 2	3434 B 3	7404 A 1
1501 E 9	7501 D 9	3661 E 3	3435 B 3	7405 A 2
1502 E 7	7502 D 7	3662 E 2	3436 B 3	7406 A 2
1503 C 7	7503 E 9	3663 F 3	3437 B 3	7407 A 3
1504 C 8	7529 E 5	3664 E 3	3438 B 2	7408 A 3
1505 C 5	7530 F 5	3665 E 4	3439 B 4	7409 A 2
1506 D 5	9201 B 8	3666 E 2	3440 B 1	7410 A 2
1507 E 5	9202 C 8	3667 E 4	3441 A 1	7411 A 2
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2207 C 8	9507 E 8	7651 F 3	3452 A 2	7422 B 8
2208 C 9	9508 D 5	7652 E 2	3453 B 2	7423 B 8
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2504 F 8	9515 F 8	9604 D 3	3460 A 1	7430 B 6
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2512 D 7	9524 F 7	9612 F 3	3468 A 7	9404 B 4
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3531 E 5	2665 E 3	3418 A 8	6406 A 8	
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3533 D 5	2667 F 3	3420 A 9	6408 A 8	
3534 D 5	2668 F 4	3421 A 4	6409 A 9	
3535 E 5	2669 E 4	3422 A 5	6410 A 9	
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3539 F 9	3651 F 3	3425 B 3	6413 B 1	
3540 F 9	3652 F 2	3426 B 3	6414 B 5	
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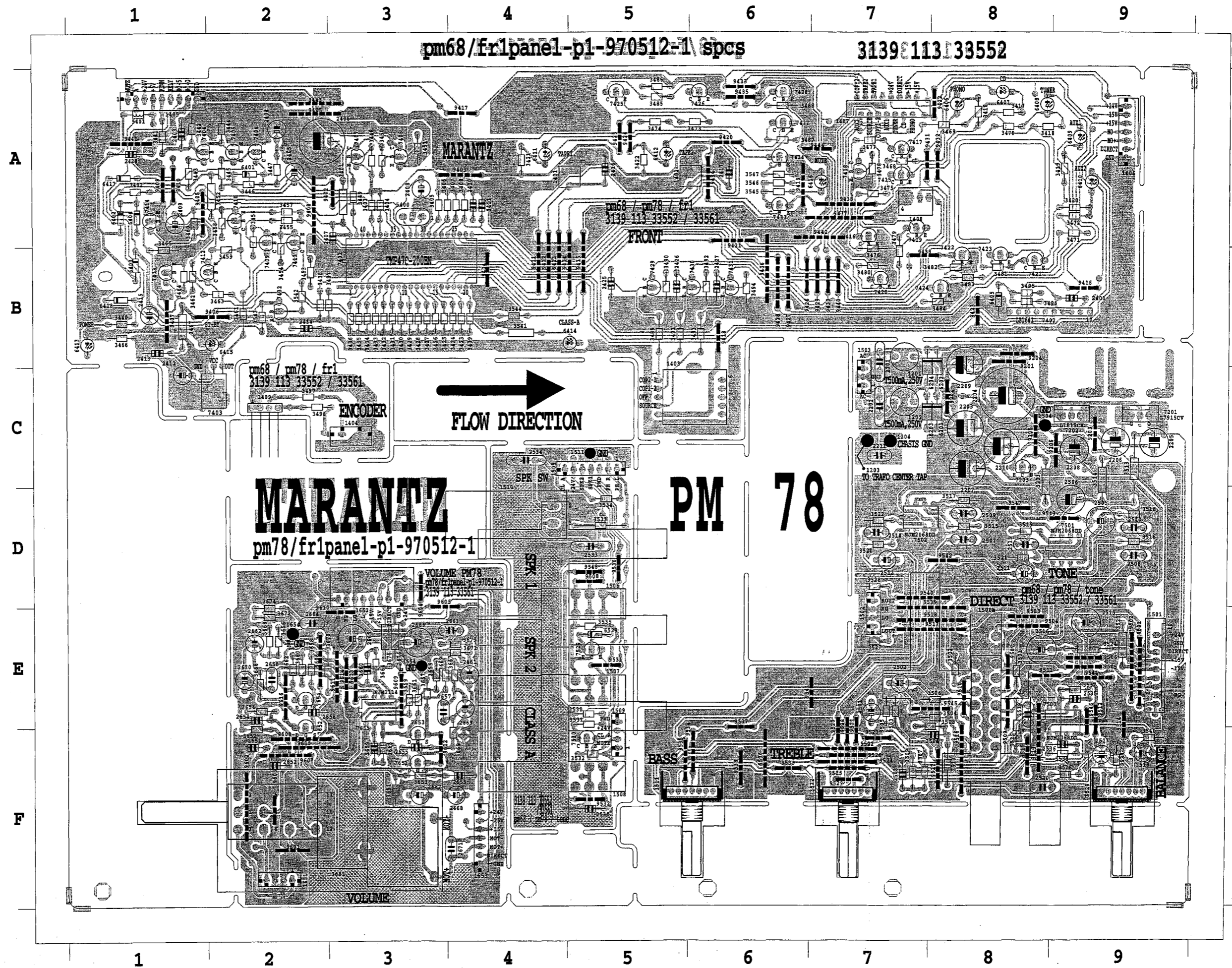
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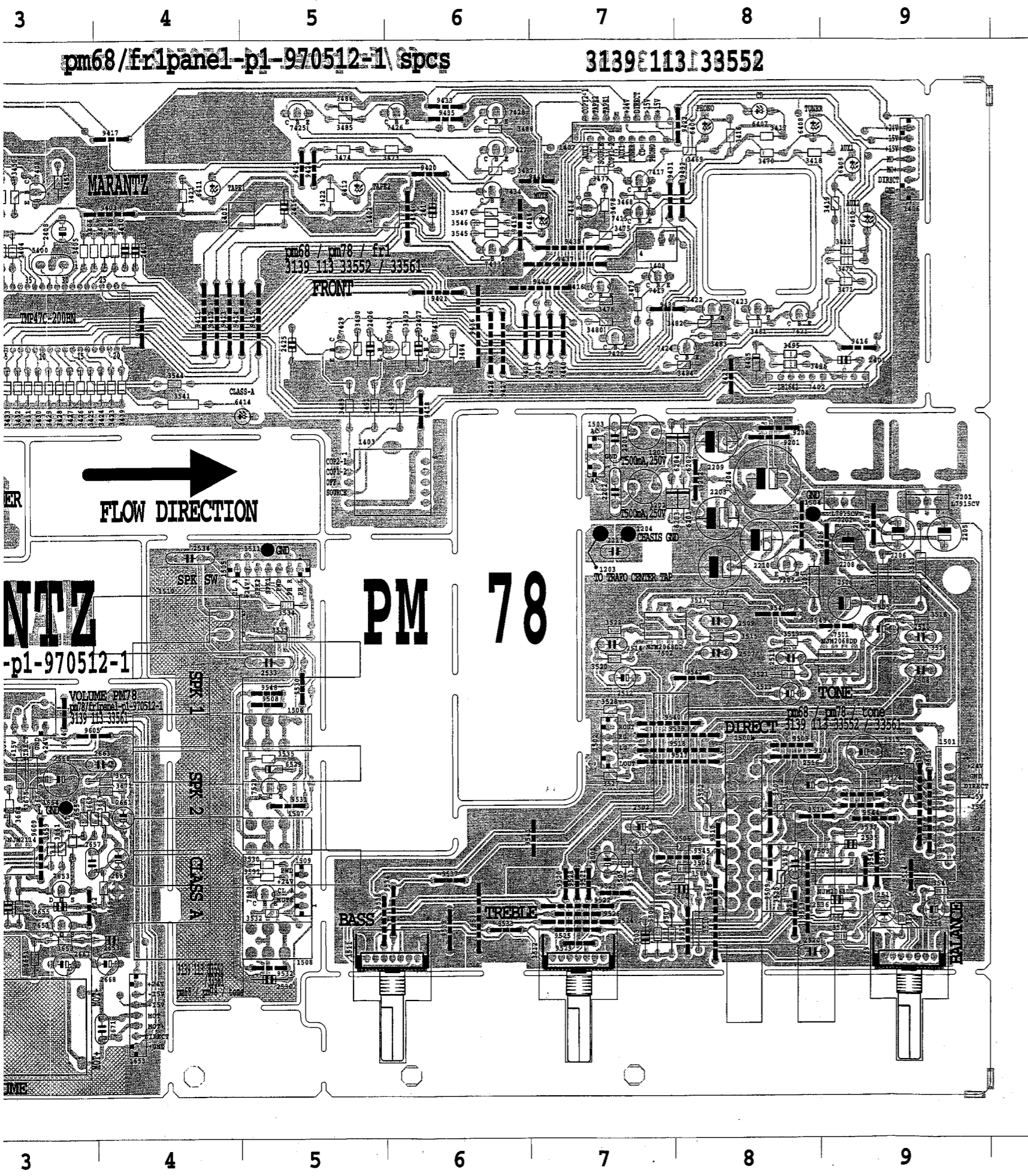
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D

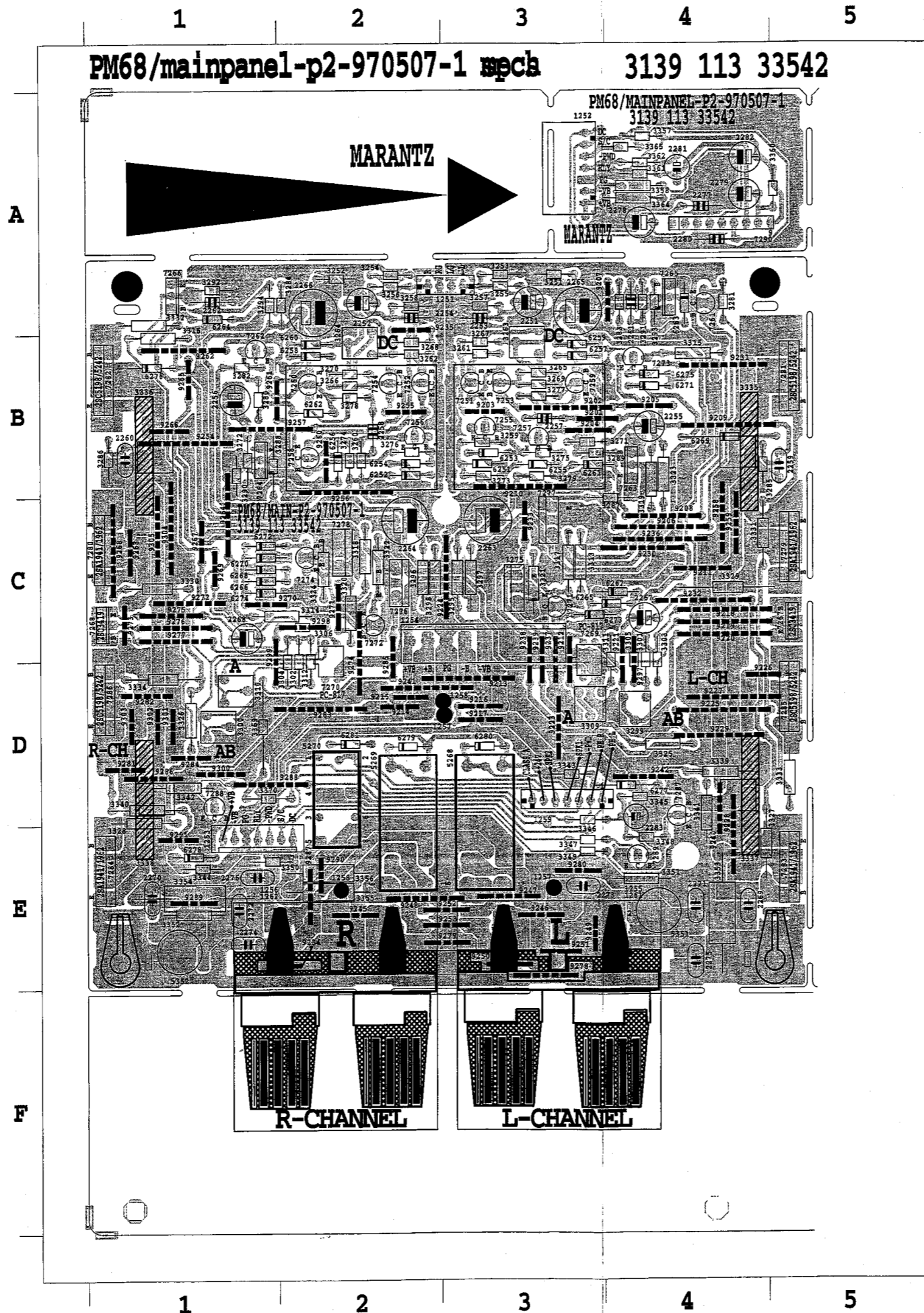
E

F





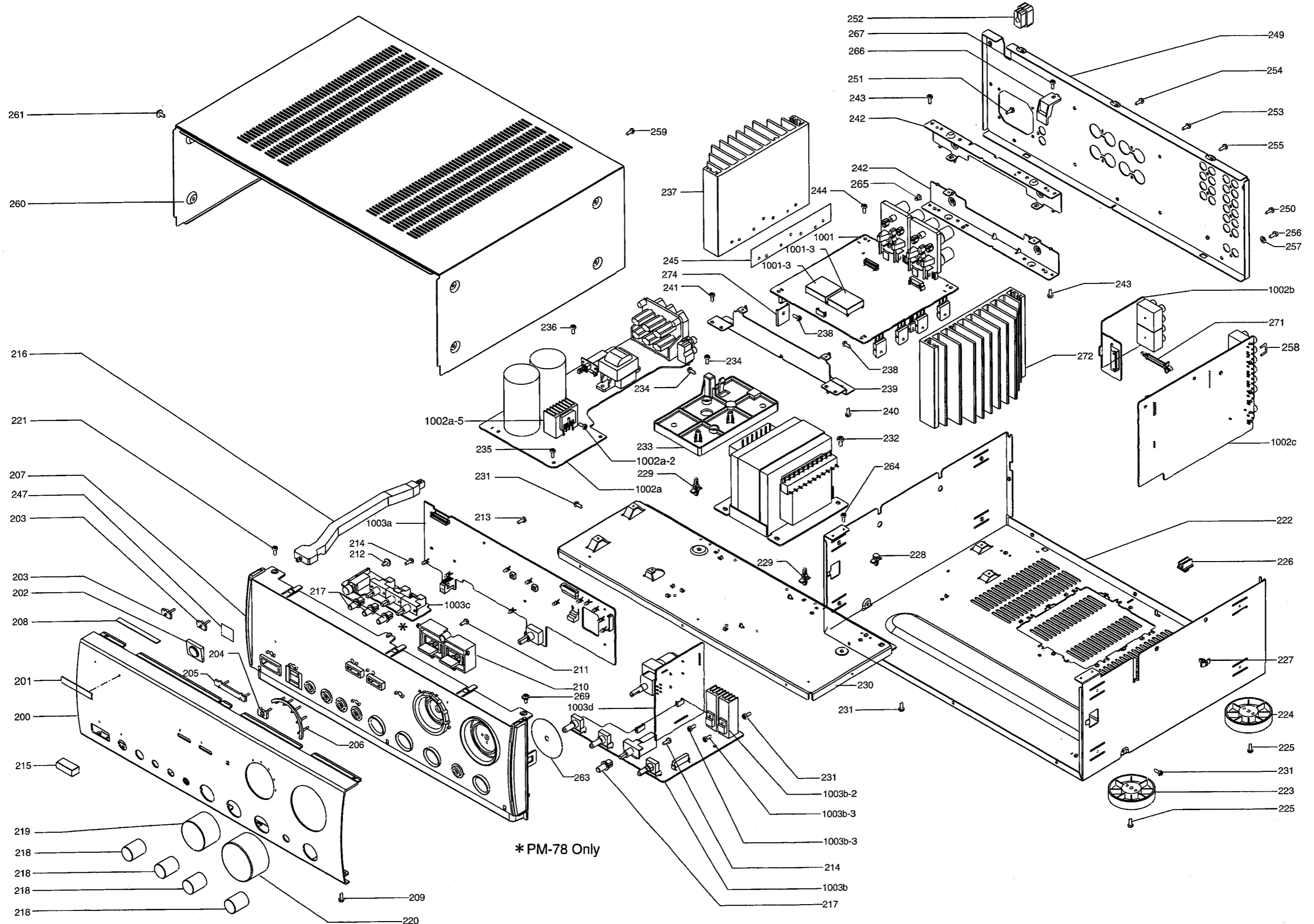
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1504 C 8	3526 F 9	9532 F 5	3439 B 4	7411 A 2
1505 C 5	3527 E 7	9533 F 6	3440 B 1	7412 B 2
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2652 F 2	7501 D 9	2407 A 3	3488 A 6	9426 B 6
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2654 E 2	7503 E 9	2409 A 1	3490 B 5	9428 B 6
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2666 E 3	9205 C 8	2428 A 1	3544 B 4	9440 B 7
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2670 E 2	9503 E 8	3404 A 3	5400 A 3	9444 A 7
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3516 D 9	9522 F 7	3429 B 3	7401 B 3	



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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*	≥ 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**	≥ 65 mV to < 70 mV

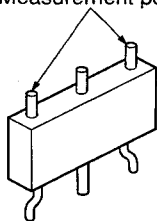
- After 30 min, the voltage should settle down to 90 mV \pm 5 mV.

** 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 ± 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。

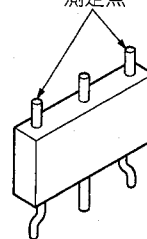
時間	電圧
0 秒—30 秒 **	65mV 以上 70mV 以下

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。

POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MJI)
			FUNCTION CIRCUIT BOARD						
			CAPACITORS						
▲ 2551		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147	▲ 3575		4822 052 10479	47Ω ±5% 0.33W	QP05210479
▲ 2552		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147	▲ 3576		4822 052 10479	47Ω ±5% 0.33W	QP05210479
2553		4822 122 33519	CER. 470pF ±10% 50V	QP12233519	3601				
2554		4822 122 33519	CER. 470pF ±10% 50V	QP12233519	∫		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
▲ 2555	/02	4822 122 33169	CER. 680pF ±10% 50V	QP12233169	3618		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
2555	F,U	4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849	3633		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
▲ 2556	/02	4822 122 33169	CER. 680pF ±10% 50V	QP12233169	3634		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
2556	F,U	4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849	3635		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
2559		4822 124 12023	ELECT 47μF ±20% 25V	QP12412023	3637		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
2560		4822 124 12023	ELECT 47μF ±20% 25V	QP12412023					
								SEMICONDUCTORS	
2561		4822 121 70654	FILM 2.2nF ±10% 50V	QP12170654	▲ 6605		4822 130 30621	DIODE 1N4148	QP13030621
2562		4822 121 70654	FILM 2.2nF ±10% 50V	QP12170654	▲ 6608		4822 130 30621	DIODE 1N4148	QP13030621
2563		4822 121 51399	FILM 47nF ±10% 50V	QP12151399	7551		4822 130 63122	TRS. 2SK369BL	QP13063122
2564		4822 121 51399	FILM 47nF ±10% 50V	QP12151399	7552		4822 130 63122	TRS. 2SK369BL	QP13063122
2565		4822 121 10685	FILM 1.8nF ±10% 50V	QP12110685	7553		4822 130 63122	TRS. 2SK369BL	QP13063122
2566		4822 121 10685	FILM 1.8nF ±10% 50V	QP12110685	7554		4822 130 63122	TRS. 2SK369BL	QP13063122
2567		4822 121 41935	FILM 12nF ±5% 250V	QP12141935	7555		4822 209 31153	IC NJM2114D	QP20931153
2568		4822 121 41935	FILM 12nF ±5% 250V	QP12141935	7601		4822 130 44568	TRS. BC557B	QP13044568
2569		4822 124 12024	ELECT 10μF ±20% 16V	QP12412024	7602		4822 130 40959	TRS. BC547B	QP13040959
2570		4822 124 12024	ELECT 10μF ±20% 16V	QP12412024					
								MISCELLANEOUS	
2571		4822 121 10696	FILM 4.7nF ±2% 50V	QP12110696	1551		4822 265 10311	TERMINAL 2P RCA JACK	QP26510311
2572		4822 121 10696	FILM 4.7nF ±2% 50V	QP12110696	1601		4822 265 10311	TERMINAL 2P RCA JACK	QP26510311
2573		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022	1602	PM-68	4822 267 20453	TERMINAL 6P RCA JACK	QP26720453
2574		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022	1602	PM-78	4822 265 11061	TERMINAL 6P RCA JACK	QP26511061
2575		4822 124 40248	ELECT 10μF ±20% 63V	QP12440248	1603	PM-68	4822 267 31452	TERMINAL 4P RCA JACK	QP26731452
▲ 2601					1603	PM-78	4822 265 30996	TERMINAL 4P RCA JACK	QP26530996
∫		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147	1604		4822 267 50915	CONNECTOR,15P WIRE	QP26750915
▲ 2612					▲ 5551		4822 280 20501	RELAY MR62-24SR	QP28020501
2613					▲ 5601				
∫		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849	∫		4822 280 20501	RELAY MR62-24SR	QP28020501
2624					▲ 5612				
								TAPE IN / OUT	
2647								CIRCUIT BOARD	
∫		4822 124 40248	ELECT 10μF ±20% 63V	QP12440248				CAPACITORS	
2656					▲ 2631				
2659		4822 124 80196	ELECT 47μF ±20% 50V	QP12480196	∫		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147
					▲ 2638				
			RESISTORS		2639				
3551		4822 116 83872	220Ω ±5% 0.5W	QP11683872	∫		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849
3552		4822 116 83872	220Ω ±5% 0.5W	QP11683872	2646				
3553		4822 116 83884	47kΩ ±5% 0.5W	QP11683884					
3554		4822 116 83884	47kΩ ±5% 0.5W	QP11683884					
3555								RESISTORS	
∫		4822 116 52283	4.7kΩ ±5% 0.5W	QP11652283	3621				
3560					∫		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
3561		4822 116 52206	120Ω ±5% 0.5W	QP11652206	3628				
3562		4822 116 52206	120Ω ±5% 0.5W	QP11652206	3629				
3563		4822 116 52175	100Ω ±5% 0.5W	QP11652175	∫		4822 116 83883	470Ω ±5% 0.5W	QP11683883
					3632				
3564		4822 116 52175	100Ω ±5% 0.5W	QP11652175				MISCELLANEOUS	
3565		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	1611	PM-68	4822 267 31452	TERMINAL 4P RCA JACK	QP26731452
3566		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	1611	PM-78	4822 265 30996	TERMINAL 4P RCA JACK	QP26530996
3567		4822 116 52289	5.6kΩ ±5% 0.5W	QP11652289	1612	PM-68	4822 267 31452	TERMINAL 4P RCA JACK	QP26731452
3568		4822 116 52289	5.6kΩ ±5% 0.5W	QP11652289	1612	PM-78	4822 265 30996	TERMINAL 4P RCA JACK	QP26530996
3569		4822 116 52175	100Ω ±5% 0.5W	QP11652175					
3570		4822 116 52175	100Ω ±5% 0.5W	QP11652175				VOLUME CIRCUIT BOARD	
3571		4822 116 52234	100kΩ ±5% 0.5W	QP11652234				CAPACITORS	
3572		4822 116 52234	100kΩ ±5% 0.5W	QP11652234	▲ 2653		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
3573		4822 116 83872	220Ω ±5% 0.5W	QP11683872	▲ 2654		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
3574		4822 116 83872	220Ω ±5% 0.5W	QP11683872					

(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					
			RESISTORS		▲ 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				
					3460		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
			SEMICONDUCTORS						
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
					3465		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
			FRONT CIRCUIT BOARD		3466		4822 116 52195	47Ω ±5% 0.5W	QP11652195
					▲ 3467		4822 052 10101	100Ω ±5% 0.33W	QP05210101
			CAPACITORS		3468				
▲ 2401		4822 121 51387	FILM 10nF ±20% 16V	QP12151387	∫		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
▲ 2403		4822 121 51387	FILM 10nF ±20% 16V	QP12151387	3488				
2404		4822 124 81151	ELECT 22μF 50V	QP12481151	3489		4822 116 83884	47kΩ ±5% 0.5W	QP11683884
2405		4822 124 81151	ELECT 22μF 50V	QP12481151	3490		4822 116 83864	10kΩ ±5% 0.5W	QP11683864
2406		4822 124 80818	ELECT 22000μF 5.5V	QP12480818	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				ENCODER CIRCUIT BOARD	
3542		4822 116 83864	10kΩ ±5% 0.5W	QP11683864				RESISTORS	
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		
3546		4822 116 83864	10kΩ ±5% 0.5W	QP11683864				MISCELLANEOUS	
3547		4822 116 83864	10kΩ ±5% 0.5W	QP11683864	1404		4822 273 10237	ROTARY SWITCH SOURCE	QP27310237
			SEMICONDUCTORS					ROTARY SWITCH SOURCE	
▲ 6401								TONE CIRCUIT BOARD	
f		4822 130 30621	DIODE 1N4148	QP13030621				CAPACITORS	
▲ 6404								ELECT 10nF ±10% 50V	QP12480141
6405		4822 130 34174	DIODE BZX79-B4V7	QP13034174	2201		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
6406					2202		4822 124 80141	ELECT 10nF ±10% 50V	QP12480141
f		4822 130 10792	LED LTL-1CHPE	QP13010792	2203		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
6413					2204		4822 124 41329	ELECT 2200μF ±20% 35V	QP12441329
6414	PM-78	4822 130 10792	LED LTL-1CHPE	QP13010792	2205		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
6415		4822 130 10792	LED LTL-1CHPE	QP13010792	2206		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
6416		4822 130 10792	LED LTL-1CHPE	QP13010792	2207		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
▲ 6417		4822 130 30621	DIODE 1N4148	QP13030621	2208		4822 124 40257	ELECT 220μF ±20% 63V	QP12440257
▲ 6418		4822 130 30621	DIODE 1N4148	QP13030621	2209		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
					2210		4822 124 12025	ELECT 470μF ±20% 35V	QP12412025
7401		4822 209 15719	μ-PRO TMP47C200BN-G929	QP20915719					
7402		4822 209 30193	IC LB1641	QP20930193	▲ 2211		4822 126 12147	CER. 22nF ±10% Y5R 25V	QP12612147
7403		4822 130 10165	IR-EYE GP1U28XP	QP13010165	2501		4822 124 81151	ELECT 22μF 50V	QP12481151
7404		4822 130 40959	TRS. BC547B	QP13040959	2502		4822 124 81151	ELECT 22μF 50V	QP12481151
7405		4822 130 40959	TRS. BC547B	QP13040959	2503		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849
7406		4822 130 40959	TRS. BC547B	QP13040959	2504		4822 122 33849	CER. 150pF ±10% Y5P 50V	QP12233849
7407		4822 130 44568	TRS. BC557B	QP13044568	2505		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7408		4822 130 40959	TRS. BC547B	QP13040959	2506		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7409					2507		4822 121 41857	FILM 10nF ±5% 250V	QP12141857
f		4822 130 44568	TRS. BC557B	QP13044568	2508		4822 121 41857	FILM 10nF ±5% 250V	QP12141857
7412					2509		4822 126 10777	CER. 100pF 50V	QP12610777
7413		4822 130 40959	TRS. BC547B	QP13040959	2510		4822 126 10777	CER. 100pF 50V	QP12610777
7414		4822 130 40959	TRS. BC547B	QP13040959	▲ 2511		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246
7415		4822 130 44568	TRS. BC557B	QP13044568	▲ 2512		4822 124 40246	ELECT 4.7μF ±20% 63V	QP12440246
7416		4822 130 40959	TRS. BC547B	QP13040959	2513		4822 121 51399	FILM 47nF ±10% 50V	QP12151399
7417		4822 130 44568	TRS. BC557B	QP13044568	2514		4822 121 51399	FILM 47nF ±10% 50V	QP12151399
7418		4822 130 40959	TRS. BC547B	QP13040959	2515		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7419		4822 130 44568	TRS. BC557B	QP13044568	2516		4822 124 12022	ELECT 220μF ±20% 25V	QP12412022
7420		4822 130 40959	TRS. BC547B	QP13040959	2517		4822 124 40244	ELECT 2.2μF ±20% 63V	QP12440244
7421		4822 130 44568	TRS. BC557B	QP13044568	2518		4822 124 40244	ELECT 2.2μF ±20% 63V	QP12440244
7422		4822 130 40959	TRS. BC547B	QP13040959	2519		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686
7423		4822 130 44568	TRS. BC557B	QP13044568	2520		4822 121 10686	FILM 4.7nF ±10% 50V	QP12110686
7424		4822 130 40959	TRS. BC547B	QP13040959	▲ 2535		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
7425		4822 130 44568	TRS. BC557B	QP13044568	▲ 2536		4822 122 33195	CER. 100pF ±10% 50V	QP12233195
7426		4822 130 40959	TRS. BC547B	QP13040959				RESISTORS	
7427		4822 130 44568	TRS. BC557B	QP13044568	▲ 3203		4822 052 10479	47Ω ±5% 0.33W	QP05210479
7428					3501		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
f		4822 130 40959	TRS. BC547B	QP13040959	3502		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7431					3503		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7432		4822 130 44568	TRS. BC557B	QP13044568	3504		4822 116 52235	1MΩ ±5% 0.5W	QP11652235
7433		4822 130 44568	TRS. BC557B	QP13044568	3505		4822 116 83874	220kΩ ±5% 0.5W	QP11683874
7434		4822 130 40959	TRS. BC547B	QP13040959	3506		4822 116 83874	220kΩ ±5% 0.5W	QP11683874
			MISCELLANEOUS		3507		4822 116 83872	220Ω ±5% 0.5W	QP11683872
1401		4822 276 13114	PUSH SWITCH TACT	QP27613114	3508		4822 116 83872	220Ω ±5% 0.5W	QP11683872
1402		4822 276 13114	PUSH SWITCH TACT	QP27613114	3509		4822 116 52269	3.3kΩ ±5% 0.5W	QP11652269

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	∫		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	∫		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	∫		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	∫		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
∫		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
∫		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
∫		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
∫		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
∫		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
∫		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					
SEMICONDUCTORS									
▲ 6251					1255		4822 265 11068	TERMINAL SPEAKER LEFT	QP26511068
∫		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 1 μ F \pm 10% 63V	QP12151319
5352		4822 157 70599	COIL SPK.OUTPUT	QP15770599	2210		4822 124 40242	ELECT 1 μ F \pm 20% 63V	QP12440242
			SPK PROTECT CIRCUIT BOARD		2211		4822 124 80141	ELECT 10nF \pm 10% 50V	QP12480141
			CAPACITORS		2212		4822 124 80141	ELECT 10nF \pm 10% 50V	QP12480141
▲ 2277		4822 121 51387	FILM 10nF \pm 20% 16V	QP12151387	2214		5322 121 42498	FILM 680nF \pm 5% 63V	QQ12142498
▲ 2278		4822 124 40433	ELECT 47 μ F \pm 20% 25V	QP12440433	2302		4822 124 12022	ELECT 220 μ F \pm 20% 25V	QP12412022
▲ 2279		4822 124 40433	ELECT 47 μ F \pm 20% 25V	QP12440433	2304		5322 124 22229	ELECT 1000 μ F \pm 20% 35V	QQ12422229
2281		4822 124 40242	ELECT 1 μ F \pm 20% 63V	QP12440242	▲ 2305		4822 124 40433	ELECT 47 μ F \pm 20% 25V	QP12440433
▲ 2282		4822 124 40433	ELECT 47 μ F \pm 20% 25V	QP12440433	2401		4822 126 13325	CER. 100nF \pm 10% 16V	QP12613325
			RESISTORS		▲ 9211		4822 121 51387	FILM 10nF \pm 20% 16V	QP12151387
3357		4822 116 83884	47k Ω \pm 5% 0.5W	QP11683884	3204		4822 050 26808	6.8 Ω \pm 1% 0.6W	QP05026808
▲ 3358		4822 053 10103	10k Ω \pm 5% 1W	QP05310103	▲ 3207		4822 052 10108	1 Ω \pm 5% 0.33W	QP05210108
3360		4822 116 83874	220k Ω \pm 5% 0.5W	QP11683874	▲ 3208		4822 052 10479	47 Ω \pm 5% 0.33W	QP05210479
3361		4822 116 52271	33k Ω \pm 5% 0.5W	QP11652271	▲ 3209		4822 052 10479	47 Ω \pm 5% 0.33W	QP05210479
3362		4822 116 52291	56k Ω \pm 5% 0.5W	QP11652291	3210		4822 116 52234	100k Ω \pm 5% 0.5W	QP11652234
3364		4822 053 10223	22k Ω \pm 5% 1W	QP05310223	3211		4822 116 52234	100k Ω \pm 5% 0.5W	QP11652234
3365		4822 116 52234	100k Ω \pm 5% 0.5W	QP11652234	3217	PM-78	4822 053 10229	22 Ω \pm 5% 1W	QP05310229
			SEMICONDUCTOR		3218	PM-78	4822 053 10229	22 Ω \pm 5% 1W	QP05310229
▲ 7290		4822 209 83312	IC TA7317P	QP20983312	▲ 6202		4822 130 30621	DIODE 1N4148	QP13030621
			SPK SW CIRCUIT BOARD		▲ 6204		4822 130 30621	DIODE 1N4148	QP13030621
			CAPACITORS		▲ 6205		4822 130 10944	DIODE BRIDGE GBU6D	QP13010944
2533		4822 124 80141	ELECT 10nF \pm 10% 50V	QP12480141	6206				
2534		4822 124 80141	ELECT 10nF \pm 10% 50V	QP12480141	∫	PM-78	4822 130 31878	DIODE 1N4003G	QP13031878
			RESISTORS		6209				
3530		4822 116 52256	2.2k Ω \pm 5% 0.5W	QP11652256	6210				
3531		4822 116 52256	2.2k Ω \pm 5% 0.5W	QP11652256	∫		4822 130 31878	DIODE 1N4003G	QP13031878
3532		4822 116 52257	22k Ω \pm 5% 0.5W	QP11652257	6216				
3533		4822 116 52176	10 Ω \pm 5% 0.5W	QP11652176	▲ 6302		4822 130 30621	DIODE 1N4148	QP13030621
3534		4822 116 52176	10 Ω \pm 5% 0.5W	QP11652176	▲ 7302		4822 209 80817	IC L7805CV	QP20980817
3535		4822 116 52234	100k Ω \pm 5% 0.5W	QP11652234					
			SEMICONDUCTORS		▲ 1201		4822 276 12924	PUSH SWITCH,POWER	QP27612924
▲ 6529		4822 130 30621	DIODE 1N4148	QP13030621	▲ 1205		4822 070 32502	FUSE T2.5A 250V	QP07032502
7529		4822 130 44283	TRS. BC636	QP13044283	▲ 1206	/02	4822 265 11009	MAINS OUTLET	QP26511009
7530		4822 130 44568	TRS. BC557B	QP13044568	▲ 1206	F,U	4822 265 11081	MAINS OUTLET	QP26511081
			MISCELLANEOUS		▲ 1209	/02	4822 070 33152	FUSE T3.15A 250V	QP07033152
1506	PM-68	4822 276 13883	PUSH SWITCH SPESKERS	QP27613883	▲ 1209	F,U	4822 070 36302	FUSE T6.3A 250V	QP07036302
1507	PM-68	4822 276 13883	PUSH SWITCH SPESKERS	QP27613883	▲ 1213	PM-78	4822 071 54002	FUSE T4A 250V	QP07154002
1506					▲ 1214	PM-78	4822 071 54002	FUSE T4A 250V	QP07154002
∫	PM-78	4822 276 13894	PUSH SWITCH SPEAKERS	QP27613894	▲ 1215		4822 071 55001	FUSE T500MA 250V	QP07155001
1508					▲ 1216	PM-78	4822 071 55001	FUSE T500MA 250V	QP07155001
1510	/02B,FB UBL	4822 267 31453	JACK HEADPHONE	QP26731453	1401		4822 265 10651	TERMINAL 2P RCA JACK	QP26510651
1510	/02G FN	4822 265 11062	JACK HEADPHONE	QP26511062	5202		4822 280 10337	RELAY VS-12MB-NR 1P-12V	QP28010337
			POWER CIRCUIT BOARD		5204	PM-78	4822 280 10344	RELAY LY2-0-DC24	QP28010344
			CAPACITORS		▲ 5205	/02	4822 146 10828	TRANSF.EI35-20T	QP14610828
▲ 2201		4822 126 13332	CER. 10nF \pm 20% 400V	QP12613332	▲ 5205	F,U	4822 146 10861	TRANSF.EI35-20T	QP14610861
▲ 2202		4822 126 13332	CER. 10nF \pm 20% 400V	QP12613332					
2204		5322 121 42498	FILM 680nF \pm 5% 63V	QQ12142498					
2205		4822 124 12028	ELECT 12000 μ F \pm 20% 63V	QP12412028					
2206		4822 124 12028	ELECT 12000 μ F \pm 20% 63V	QP12412028					
2207	PM-78	4822 124 42391	ELECT 470 μ F \pm 20% 63V	QP12442391					
2208	PM-78	4822 124 42391	ELECT 470 μ F \pm 20% 63V	QP12442391					