

Service Manual

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

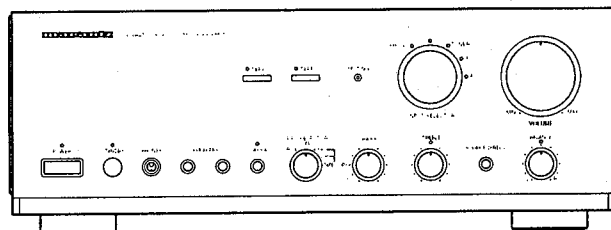
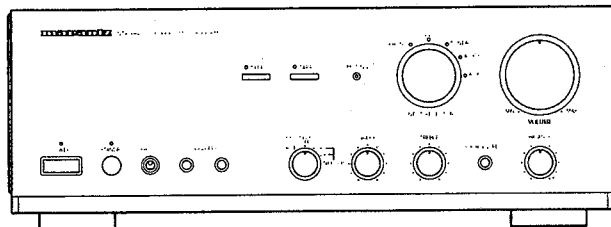


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Please use this service manual with referring to the user guide (D.F.U) without fail.
 修理の際は、必ず取扱説明書を準備し操作方法を確認の上作業を行ってください。

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
BUILDING SFF2
5600 JB EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2732241
FAX : +31 - 40 - 2735578

PROFESSIONAL USA

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

MARANTZ EUROPE B.V.
P.O.BOX 80002
BUILDING SFF2
5600 JB EINDHOVEN
THE NETHERLANDS
PHONE : +31 - 40 - 2732241
FAX : +31 - 40 - 2735578

BRAZIL

MARANTZ BRAZIL
Caixa Postal 21462
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
FAX : +60 3 - 7173828

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

本社 〒228
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
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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)

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。

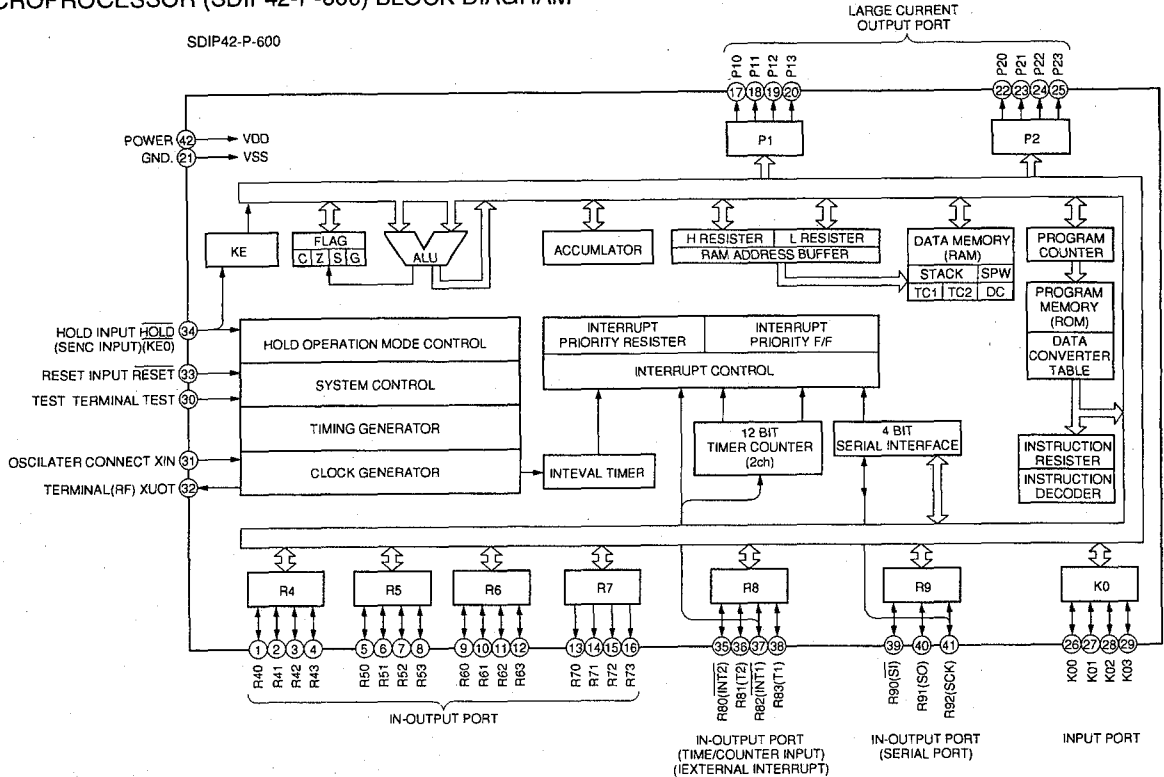
2. TEST EQUIPMENT REQUIRED SERVICING

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
AC VTVM	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
DC VTVM	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

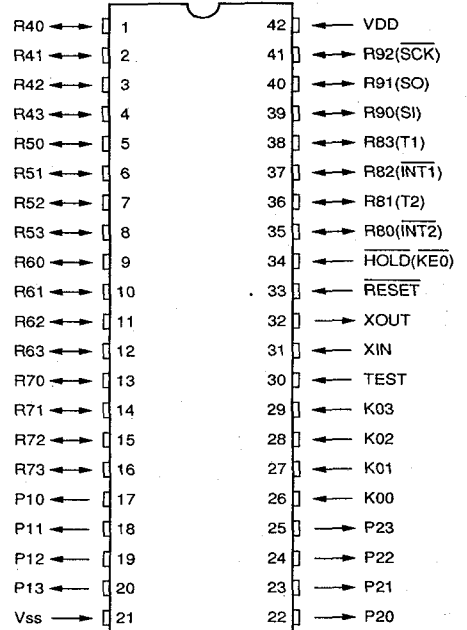
MICROPROCESSOR (SDIP42-P-600) BLOCK DIAGRAM



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

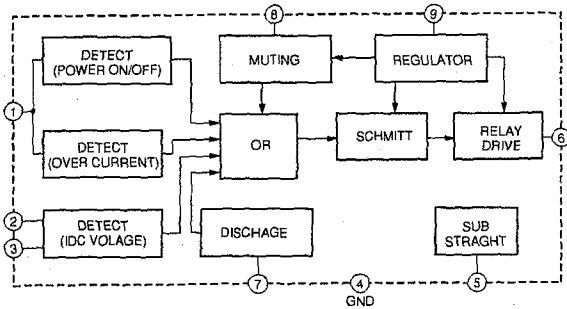
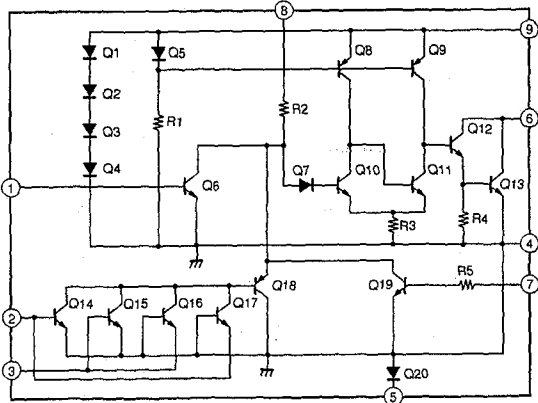
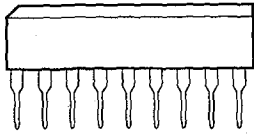
MICROPROCESSOR (SDIP42-P-600) Position NO.7401

SDIP42-P-600



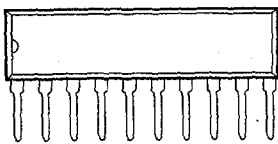
TA7317P (Position NO.7290)

TA7317P

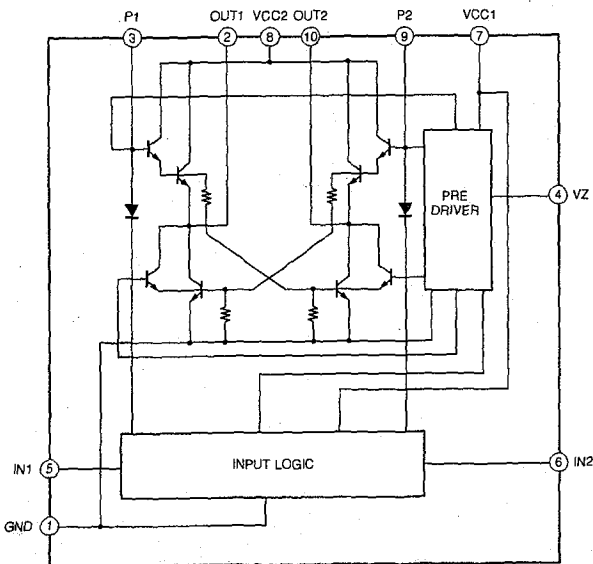


LB1641 (Position NO.7402)

LB1641

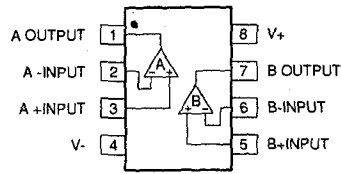


LB1641

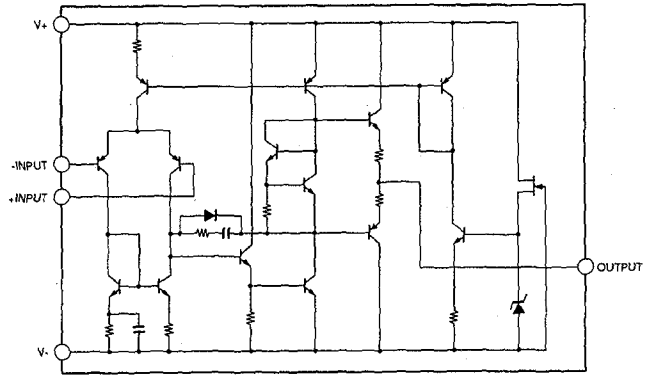


NJM2068 (Position NO.7501,7502,7503)

NJM2068

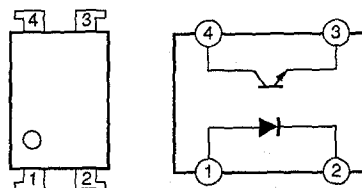


NJM2068



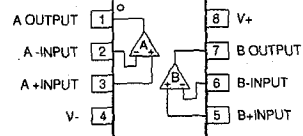
PC817 (Position NO.7269,7270)

PC817

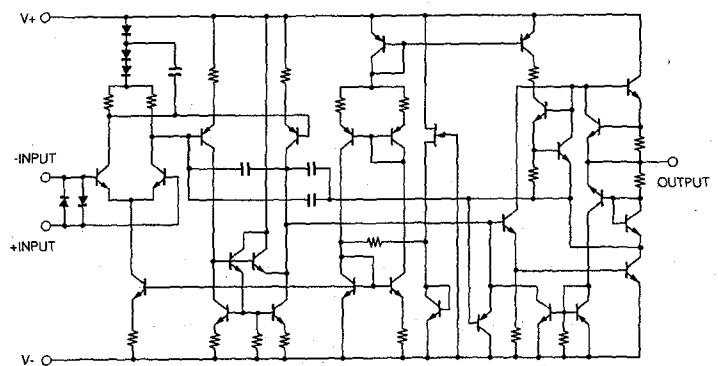


NJM2114 (Position NO.7555,7655)

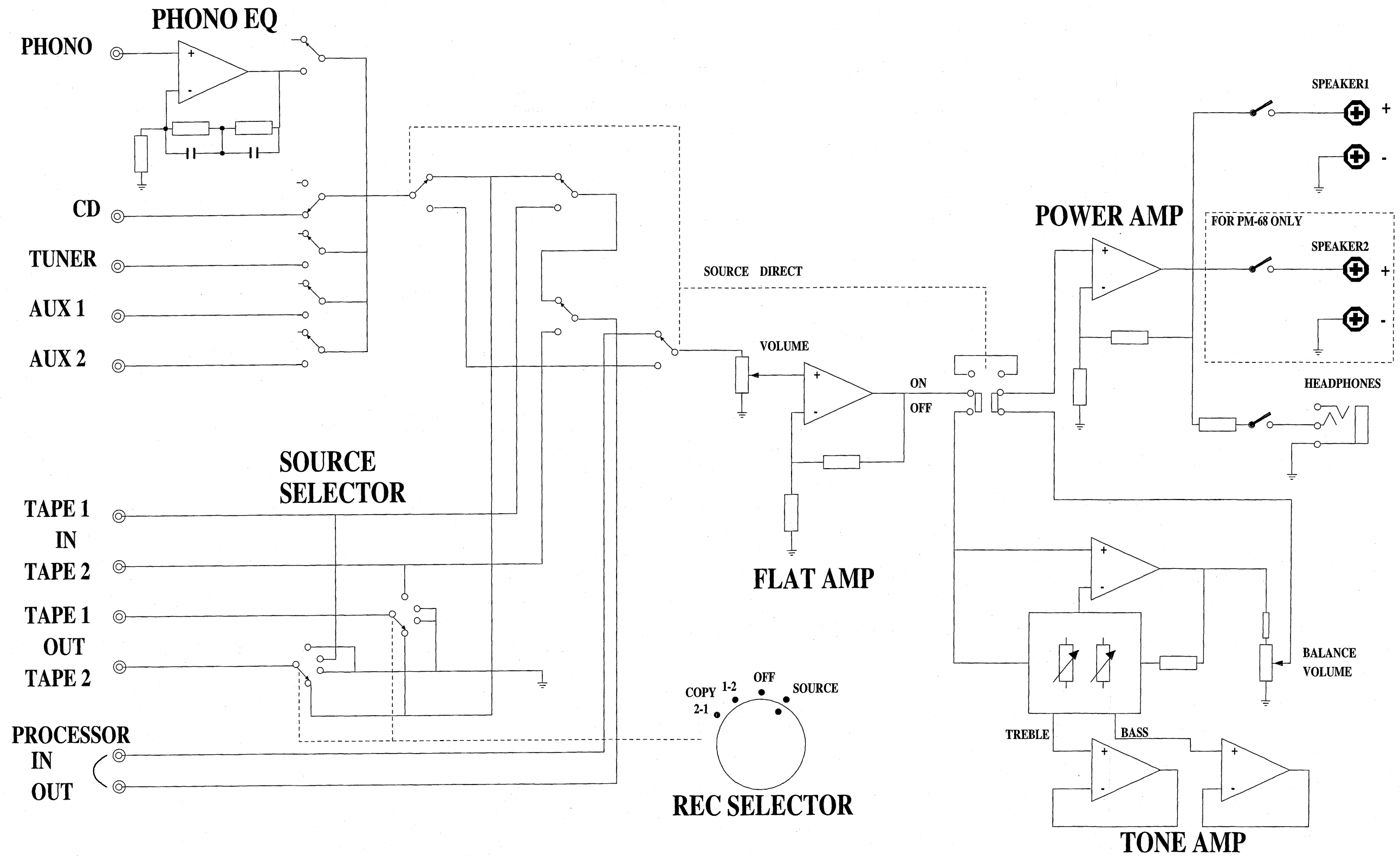
NJM2114



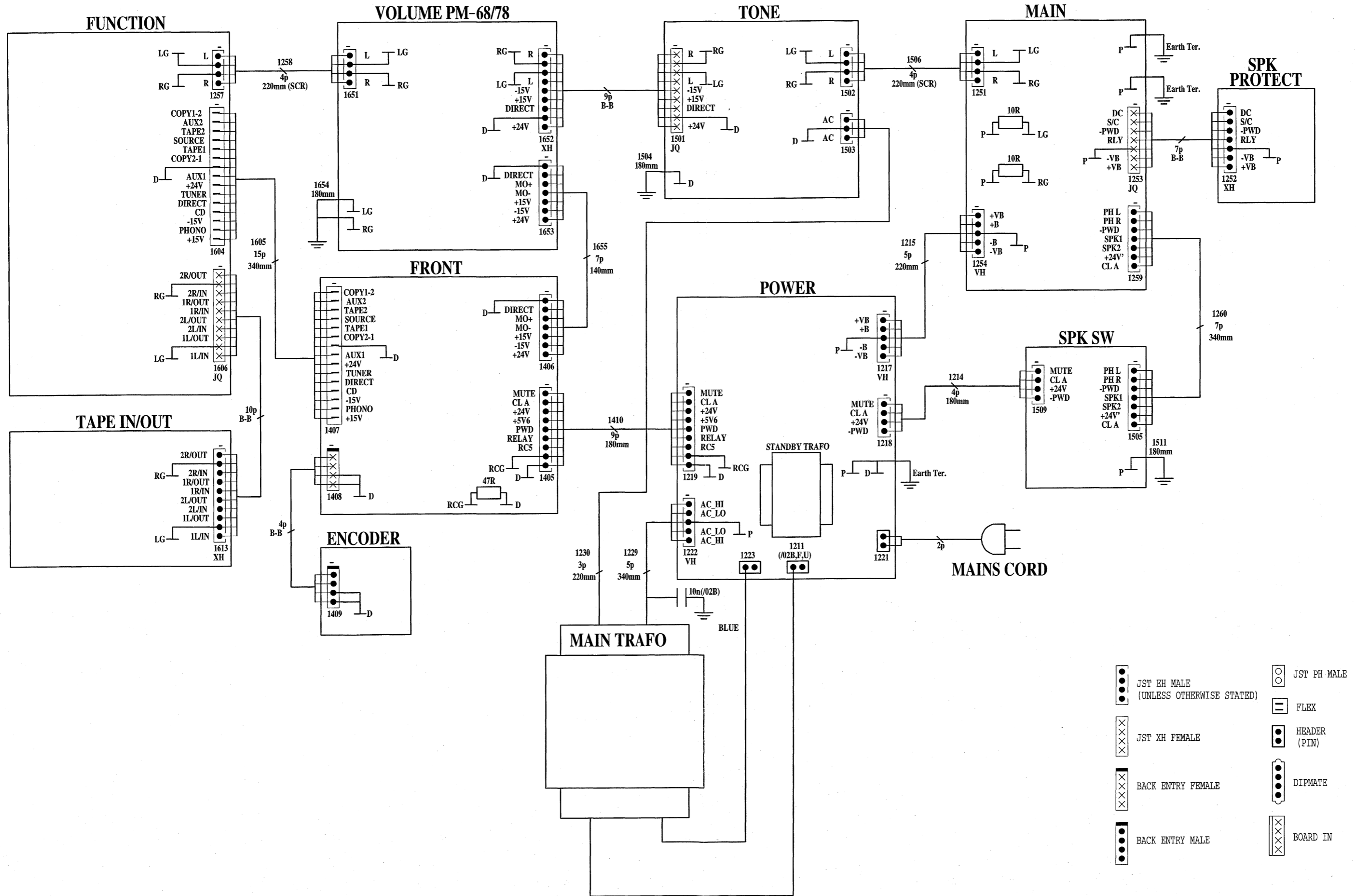
NJM2114



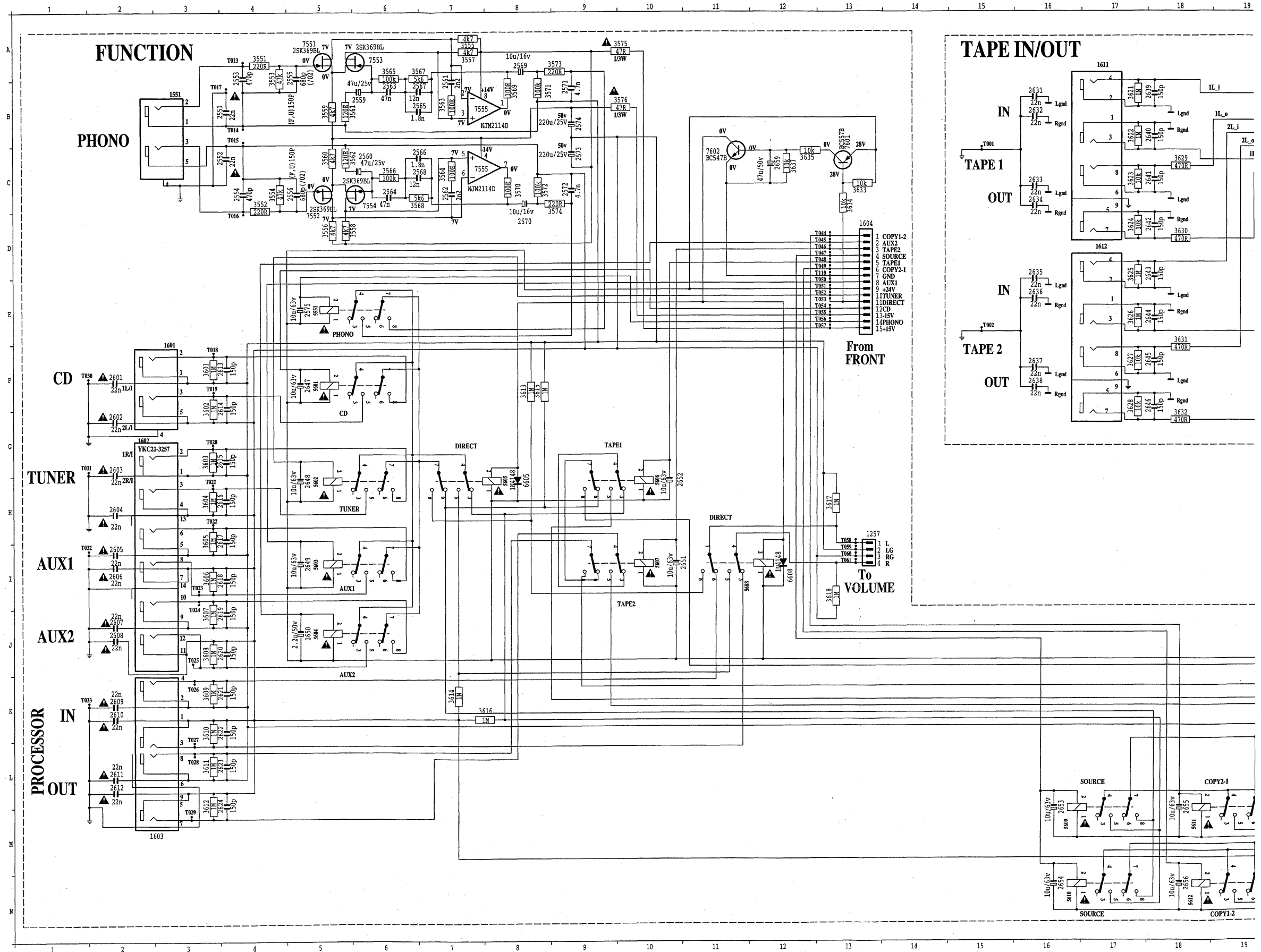
4. BLOCK DIAGRAM

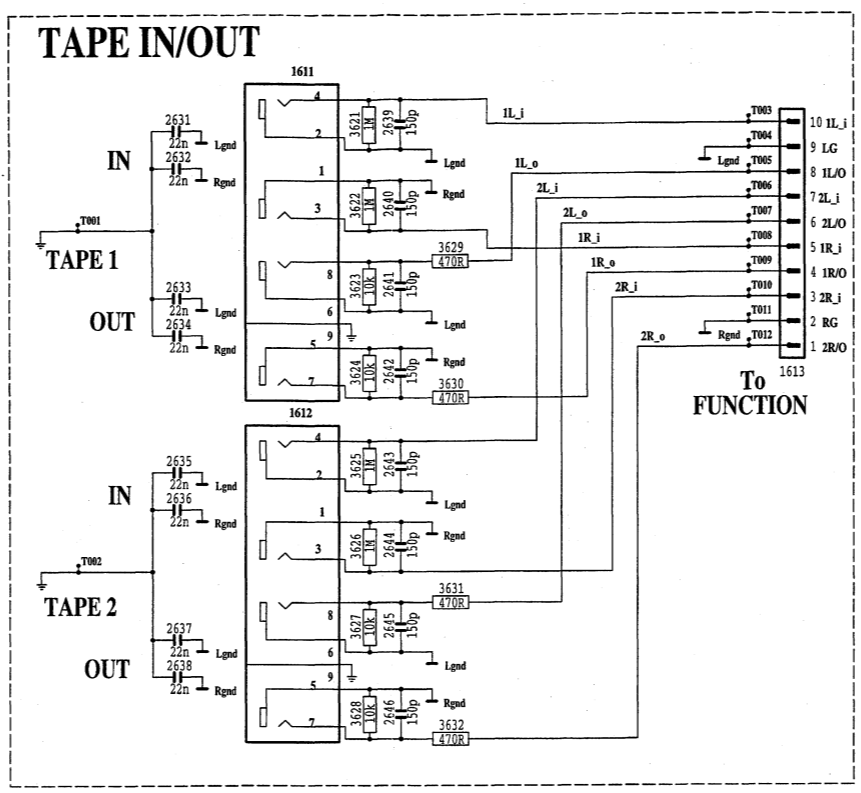
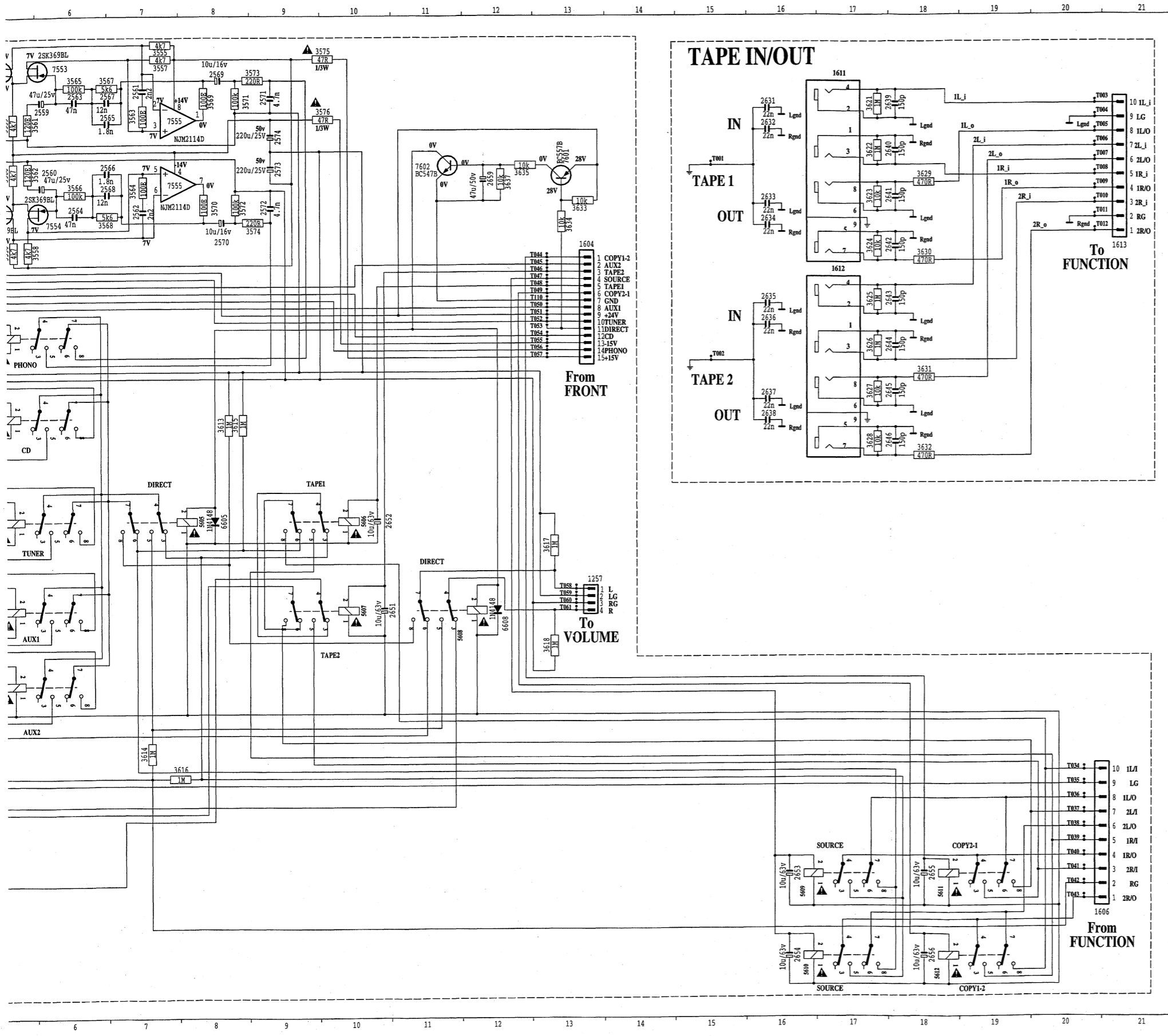


5. WIRING DIAGRAM



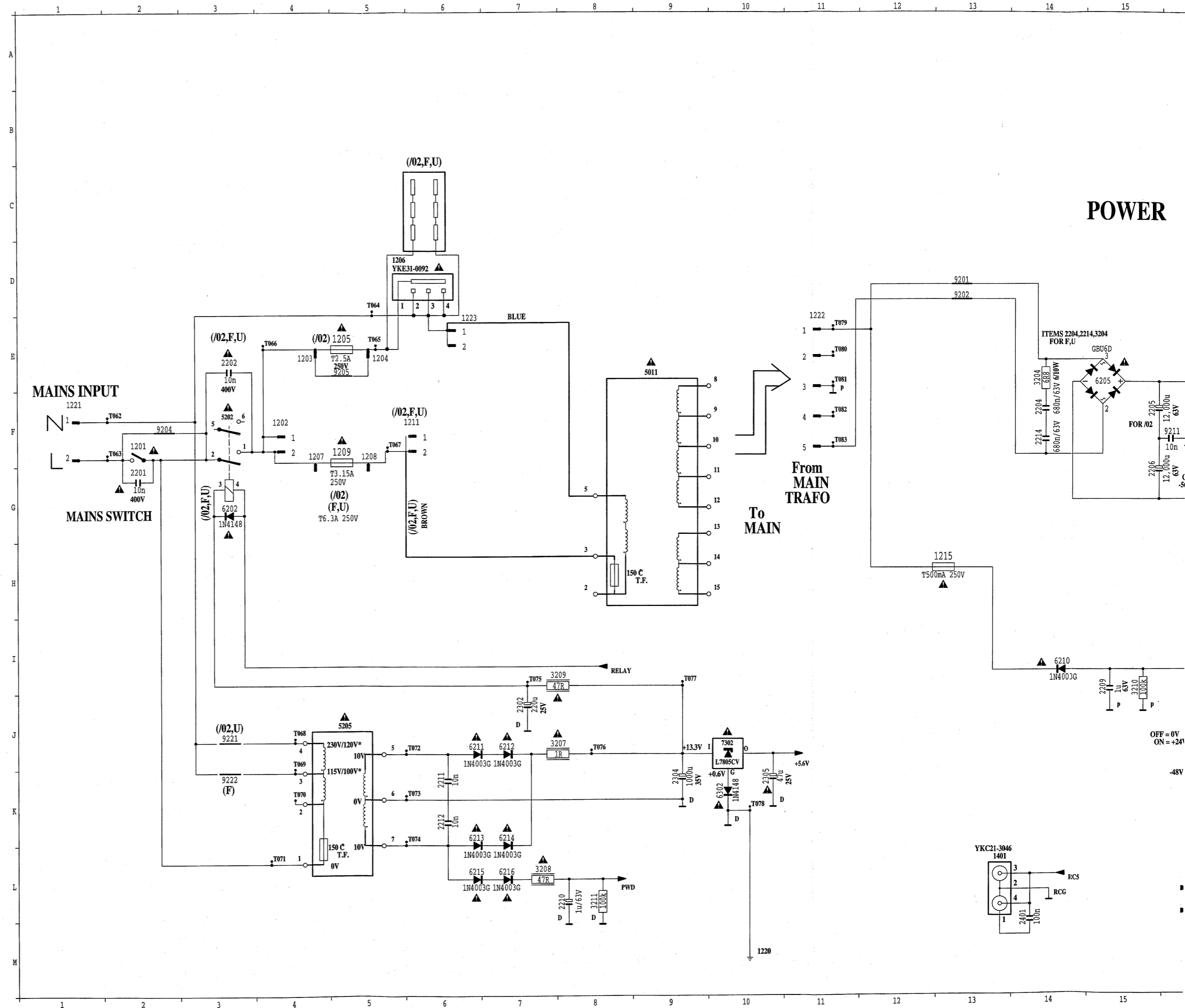
6. SCHEMATIC DIAGRAM AND PARTS LOCATION (PARTS SIDE)
POWER CIRCUIT II





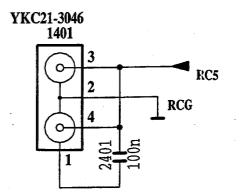
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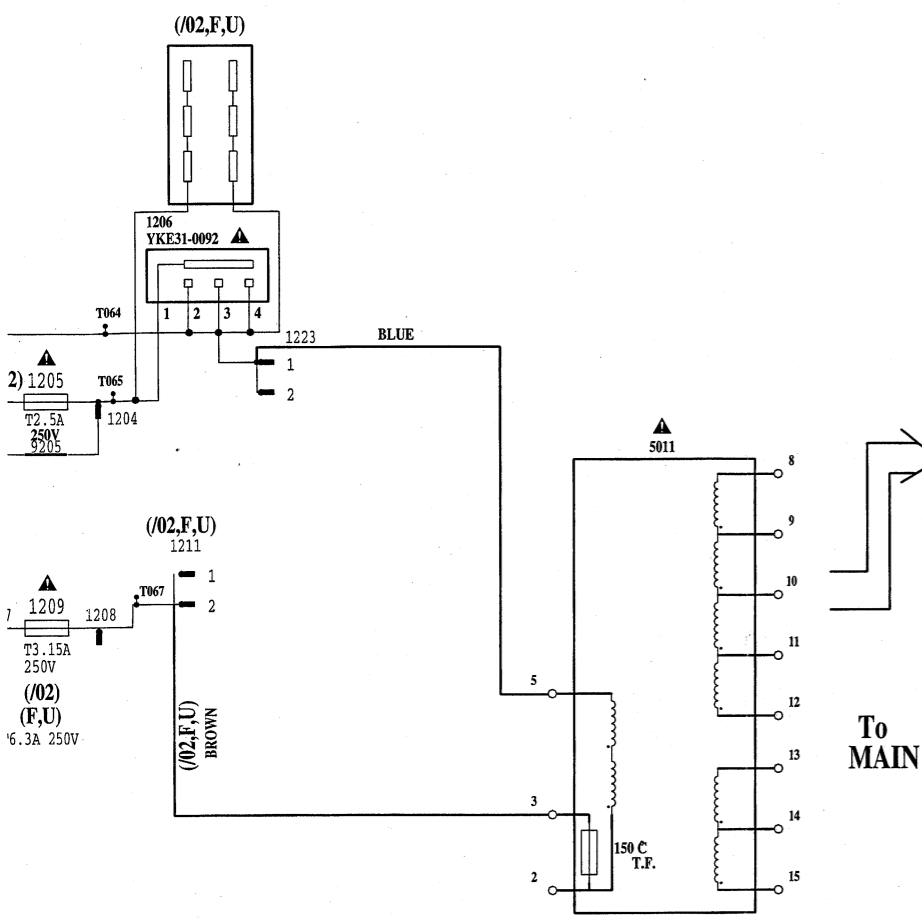
POWER CIRCUIT I (PM-68)



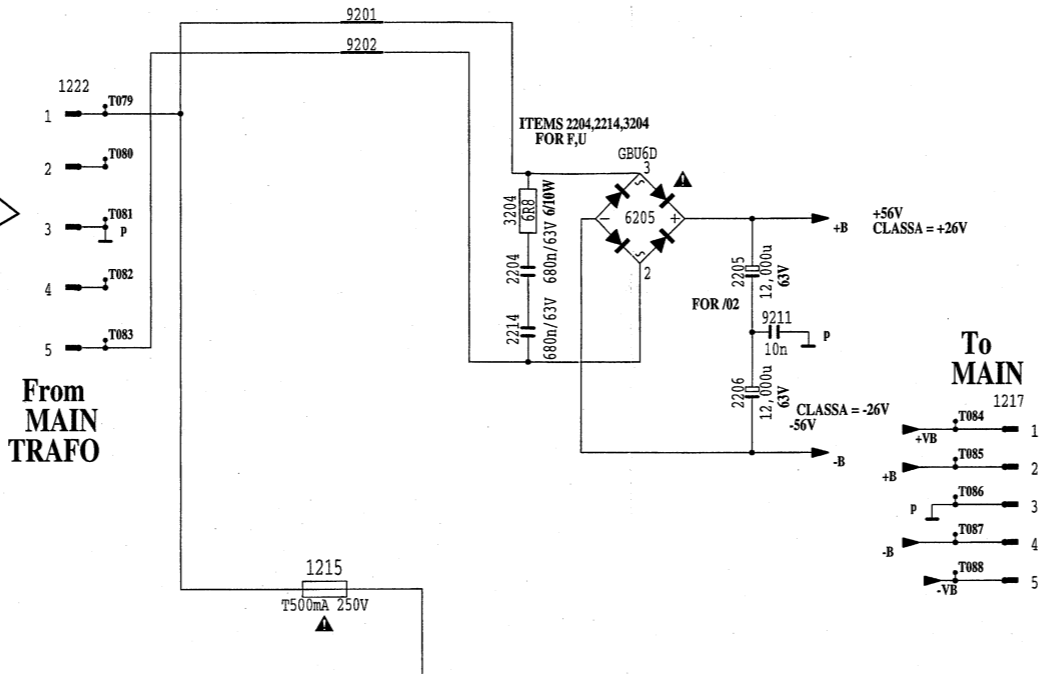
POWER

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



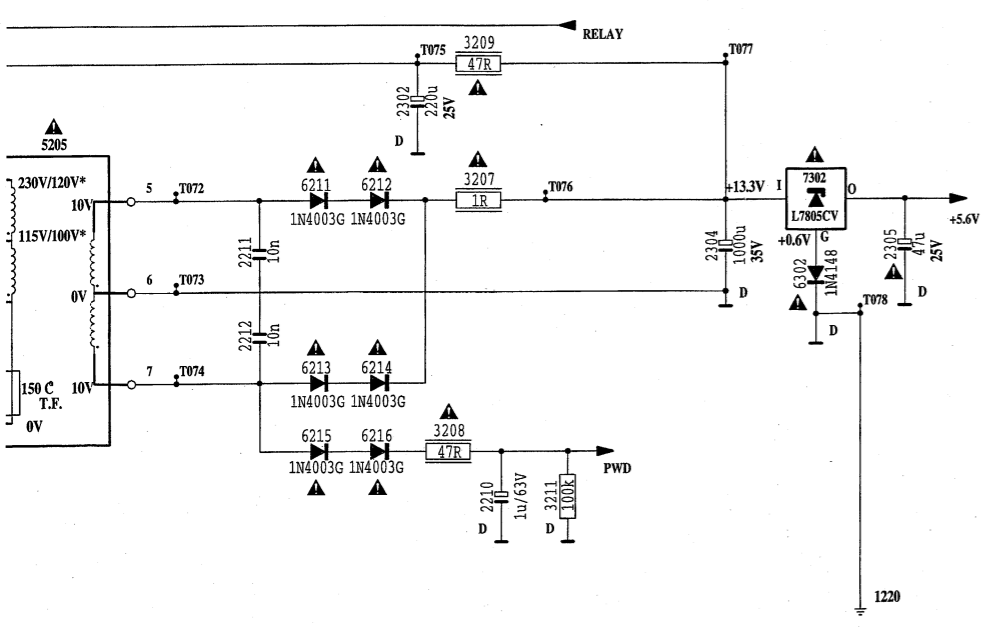


POWER

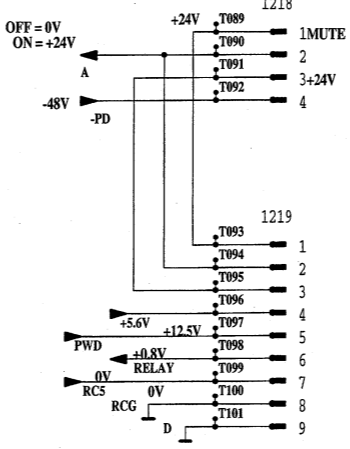


From MAIN TRAF0

To MAIN

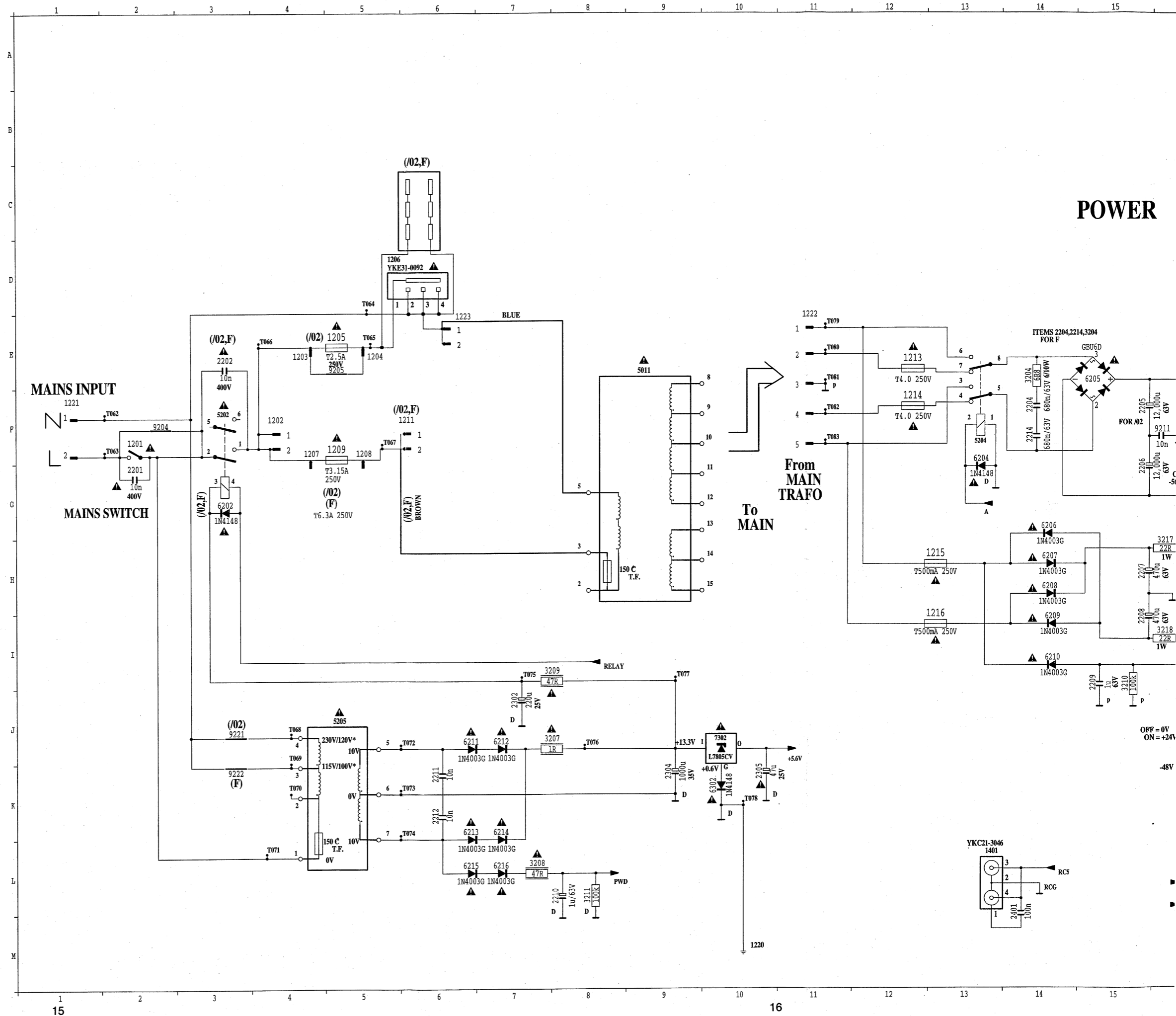


To SPK SW

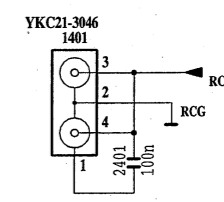


From FRONT

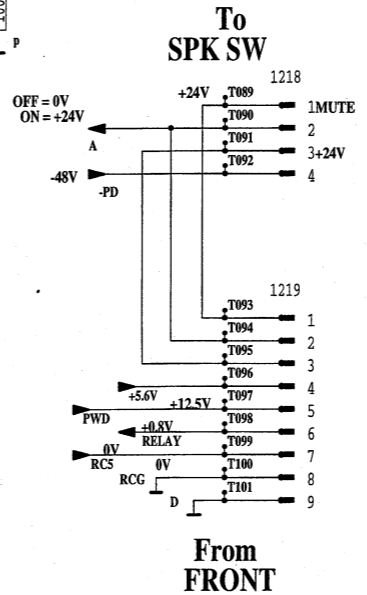
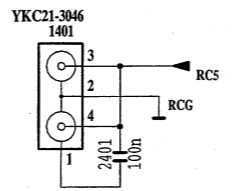
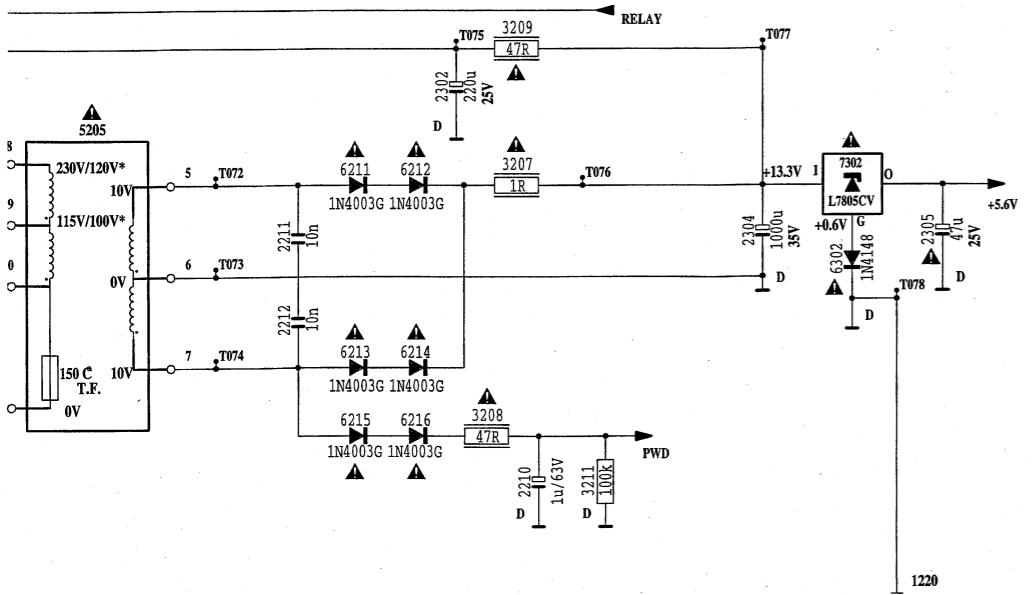
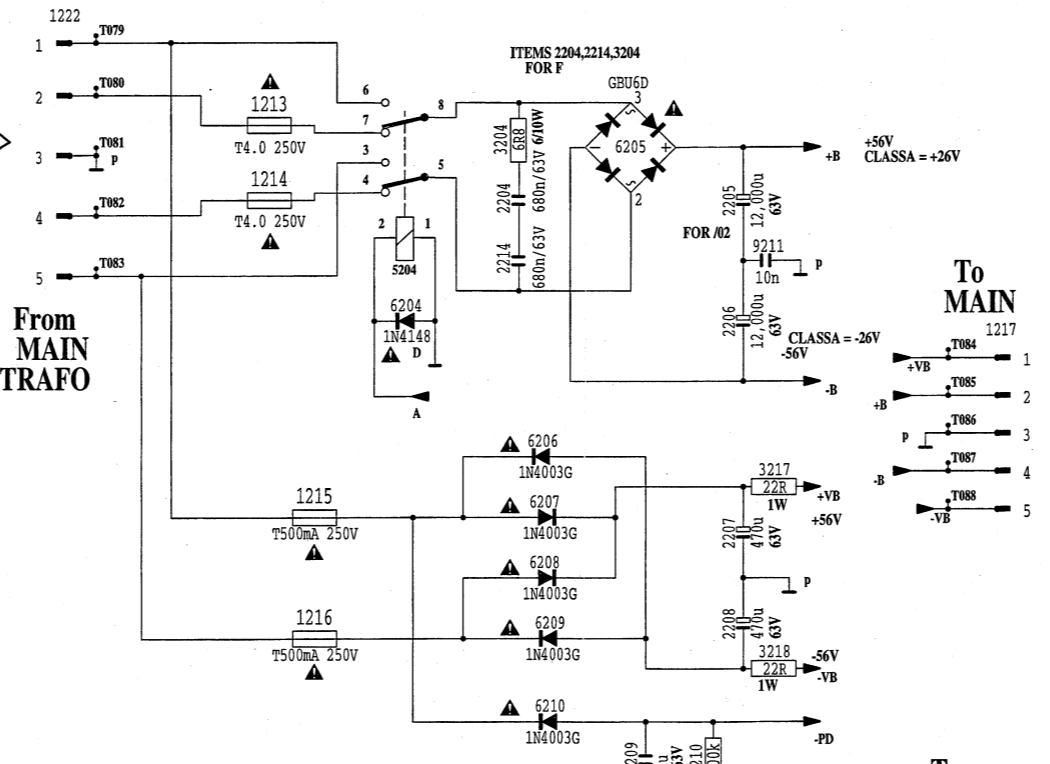
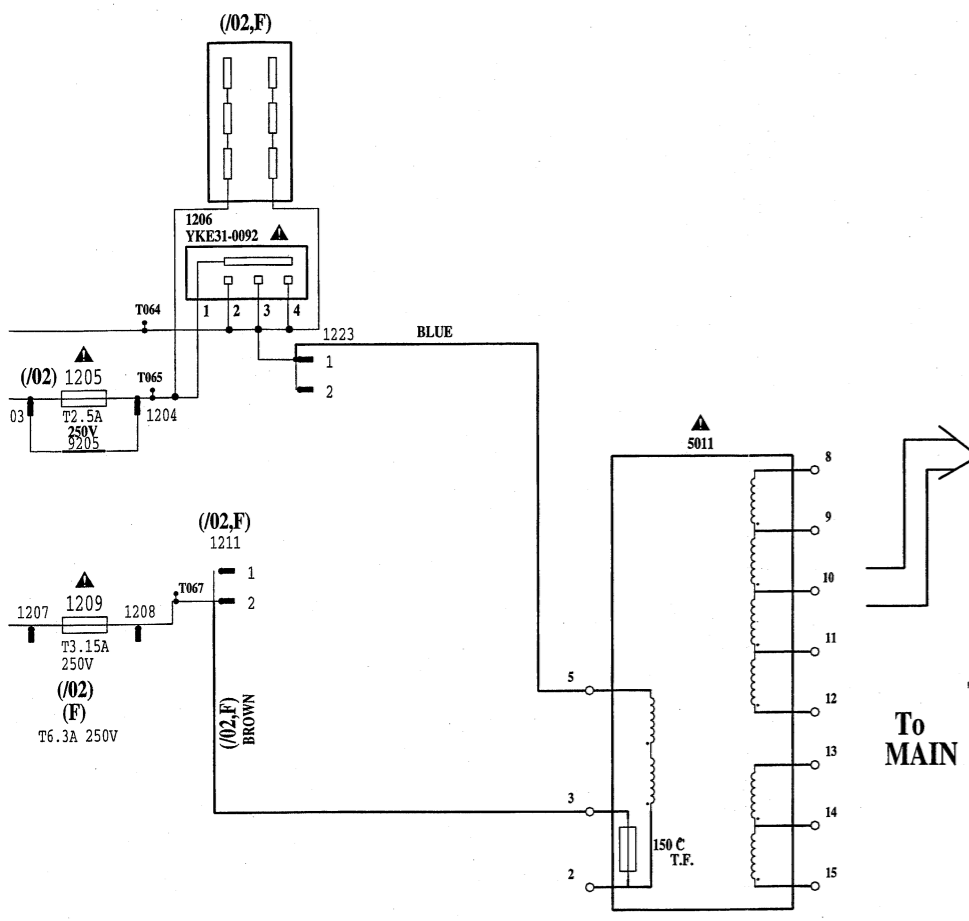
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OFF = 0V
ON = +24V
-48V

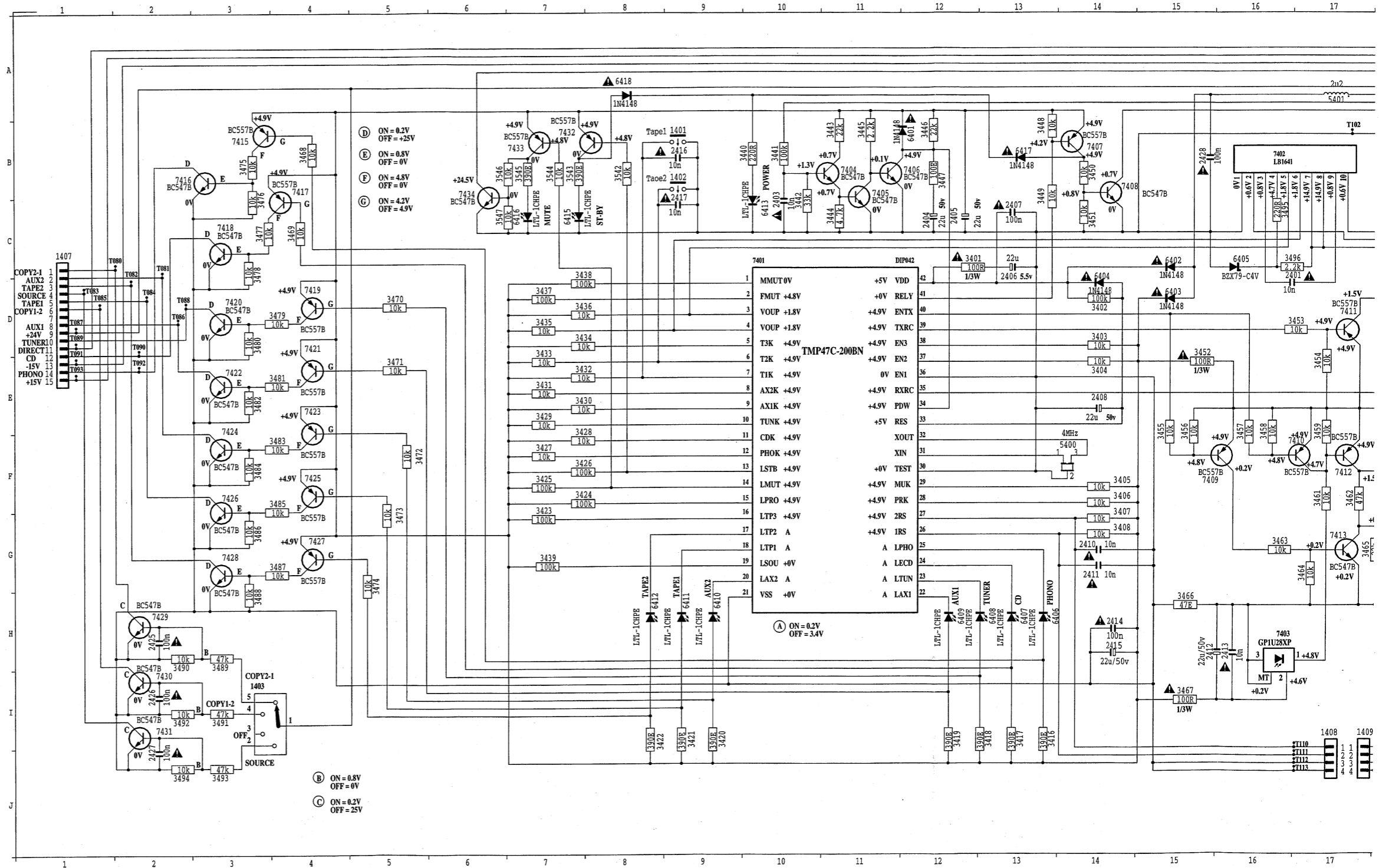


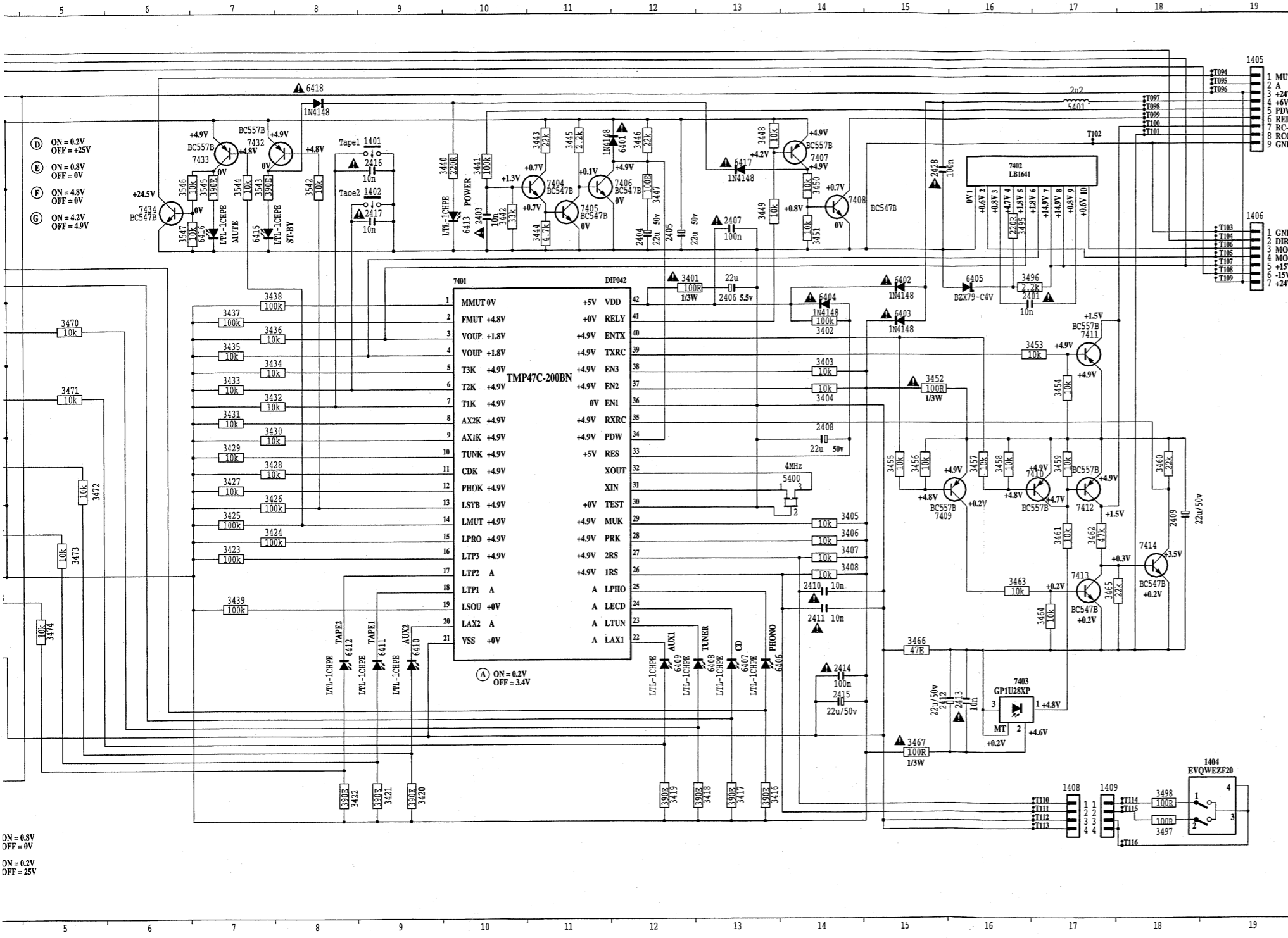
POWER



1201 F 2
 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 F 1
 1223 F 1
 1224 F 1
 1225 F 1
 1226 F 1
 1227 F 1
 1228 F 1
 1229 F 1
 1230 F 1
 1231 F 1
 1232 F 1
 1233 F 1
 1234 F 1
 1401 L13
 2201 G 2
 2202 G 2
 2204 F14
 2205 F15
 2206 G15
 2207 H15
 2208 H15
 2209 L15
 2210 K 6
 2211 K 6
 2212 K 6
 2214 F14
 2215 H12
 2216 H12
 2302 J 7
 2304 K 9
 2305 K10
 2401 L14
 3204 F14
 3207 J 8
 3208 L 7
 3209 I 8
 3210 I1
 3211 H15
 3212 H15
 3213 H15
 3214 K 7
 3215 L 6
 3216 L10
 3217 J10
 3218 J10
 9201 D13
 9202 D13
 9204 F 2
 9205 F 2
 9206 F 2
 9207 F 2
 9208 F 2
 9209 F 2
 9210 F 2
 9211 F 2
 9212 F 2
 9213 F 2
 9214 F 2
 9215 F 2
 9216 F 2
 9217 F 2
 9218 F 2
 9219 F 2
 9220 F 2
 9221 F 2
 9222 F 2

CONTROL CIRCUIT I (PM-68)





④ ON = 0.2V
OFF = +2.5V

⑤ ON = 0.8V
OFF = 0V

⑥ ON = 4.8V
OFF = 0V

⑦ ON = 4.2V
OFF = 4.9V

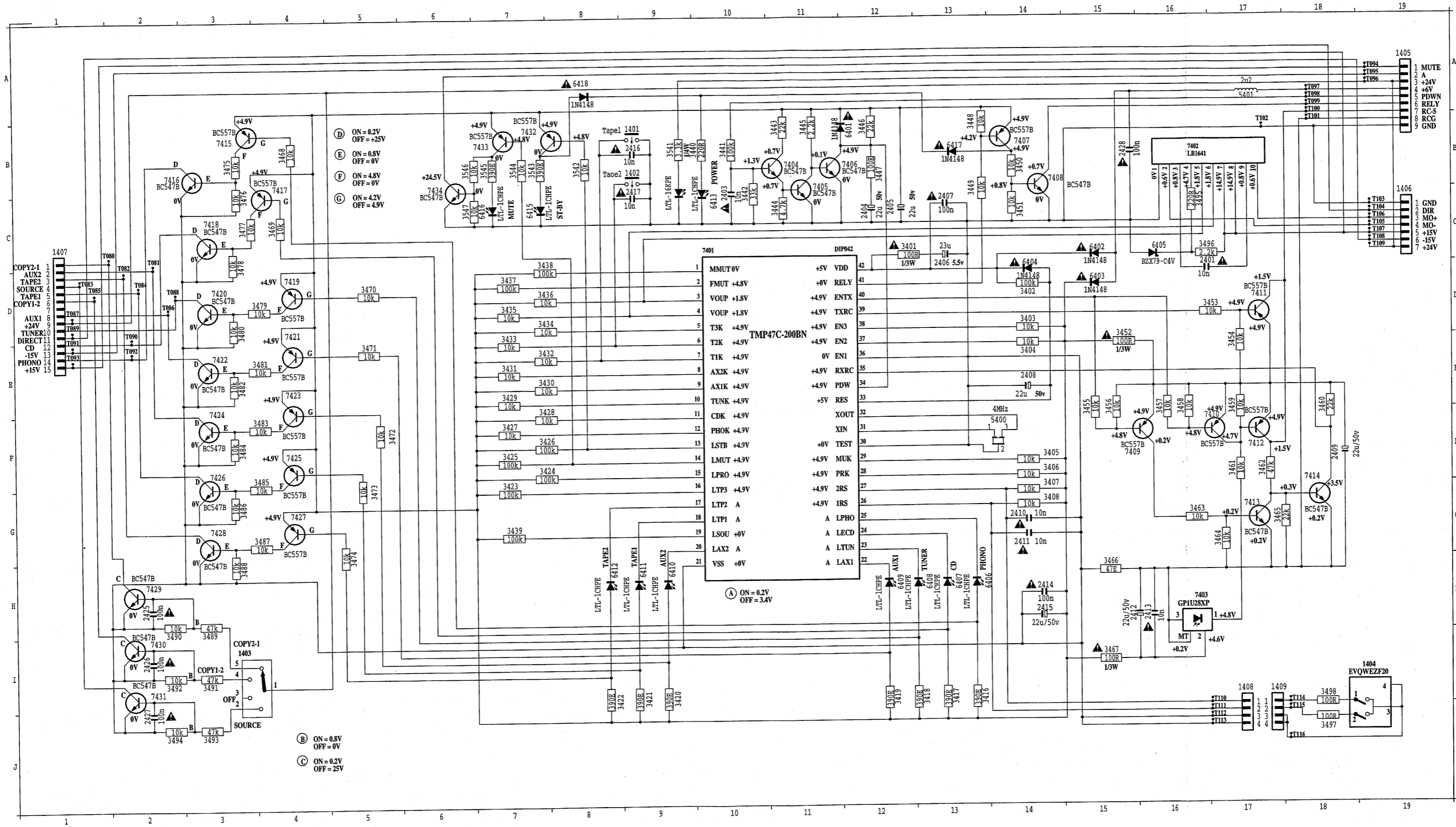
① ON = 0.2V
OFF = 3.4V

ON = 0.8V
OFF = 0V

ON = 0.2V
OFF = 2.5V

1401	MUTE	3493
1402	A	3494
1403	REL	3495
1404	RCC	3496
1405	GND	3497
1406	DIR	3498
1407	MO+	3499
1408	MO-	3500
1409	+15V	3501
1410	+15V	3502
1411	+24V	3503
1412	GND	3504
1413	GND	3505
1414	GND	3506
1415	GND	3507
1416	GND	3508
1417	GND	3509
1418	GND	3510
1419	GND	3511
1420	GND	3512
1421	GND	3513
1422	GND	3514
1423	GND	3515
1424	GND	3516
1425	GND	3517
1426	GND	3518
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1430	GND	3522
1431	GND	3523
1432	GND	3524
1433	GND	3525
1434	GND	3526
1435	GND	3527
1436	GND	3528
1437	GND	3529
1438	GND	3530
1439	GND	3531
1440	GND	3532
1441	GND	3533
1442	GND	3534
1443	GND	3535
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1445	GND	3537
1446	GND	3538
1447	GND	3539
1448	GND	3540
1449	GND	3541
1450	GND	3542
1451	GND	3543
1452	GND	3544
1453	GND	3545
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1455	GND	3547
1456	GND	3548
1457	GND	3549
1458	GND	3550
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1461	GND	3553
1462	GND	3554
1463	GND	3555
1464	GND	3556
1465	GND	3557
1466	GND	3558
1467	GND	3559
1468	GND	3560
1469	GND	3561
1470	GND	3562
1471	GND	3563
1472	GND	3564
1473	GND	3565
1474	GND	3566
1475	GND	3567
1476	GND	3568
1477	GND	3569
1478	GND	3570
1479	GND	3571
1480	GND	3572
1481	GND	3573
1482	GND	3574
1483	GND	3575
1484	GND	3576
1485	GND	3577
1486	GND	3578
1487	GND	3579
1488	GND	3580
1489	GND	3581
1490	GND	3582
1491	GND	3583
1492	GND	3584
1493	GND	3585
1494	GND	3586
1495	GND	3587
1496	GND	3588
1497	GND	3589
1498	GND	3590
1499	GND	3591
1500	GND	3592

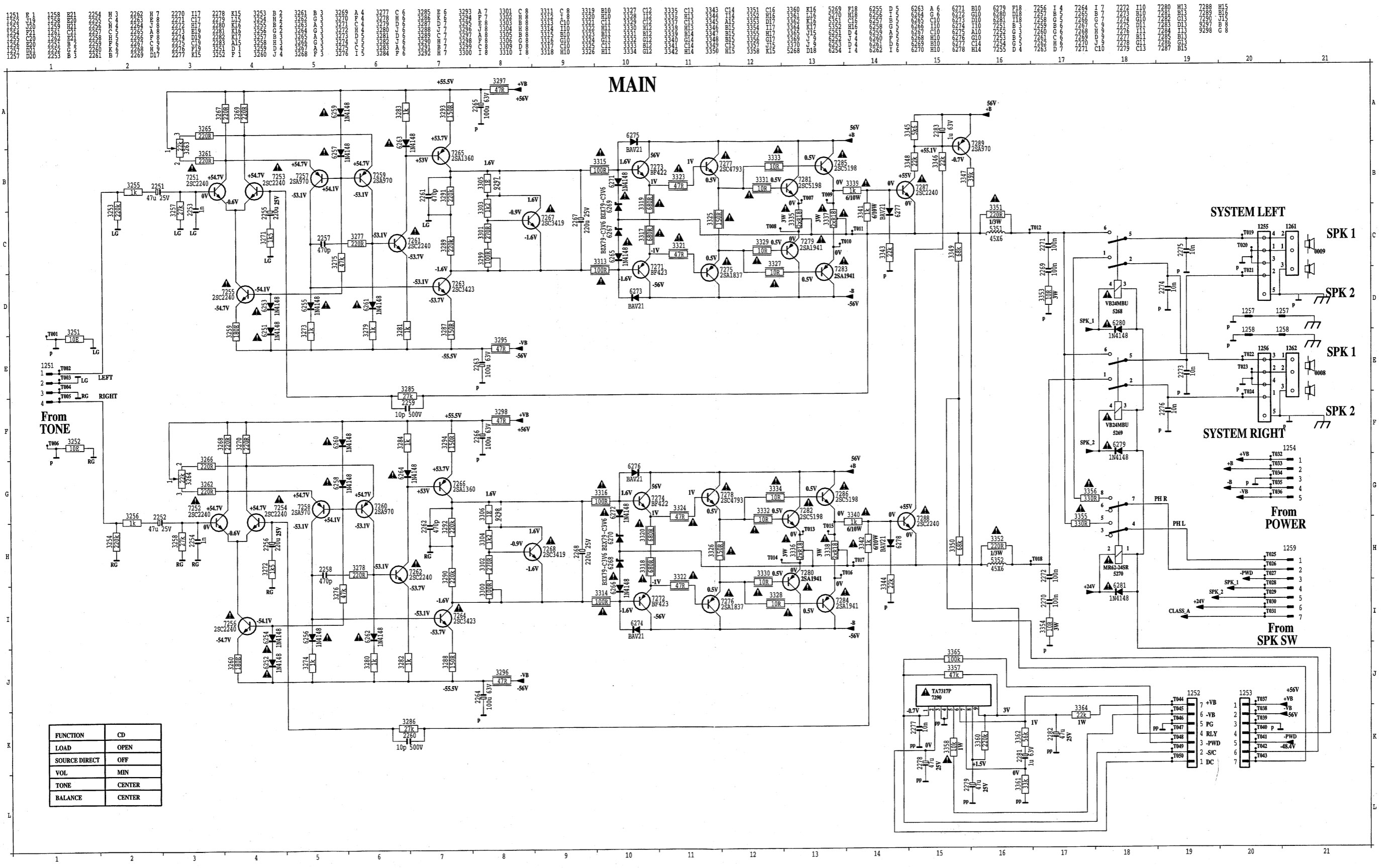
CONTROL CIRCUIT I (PM-78)



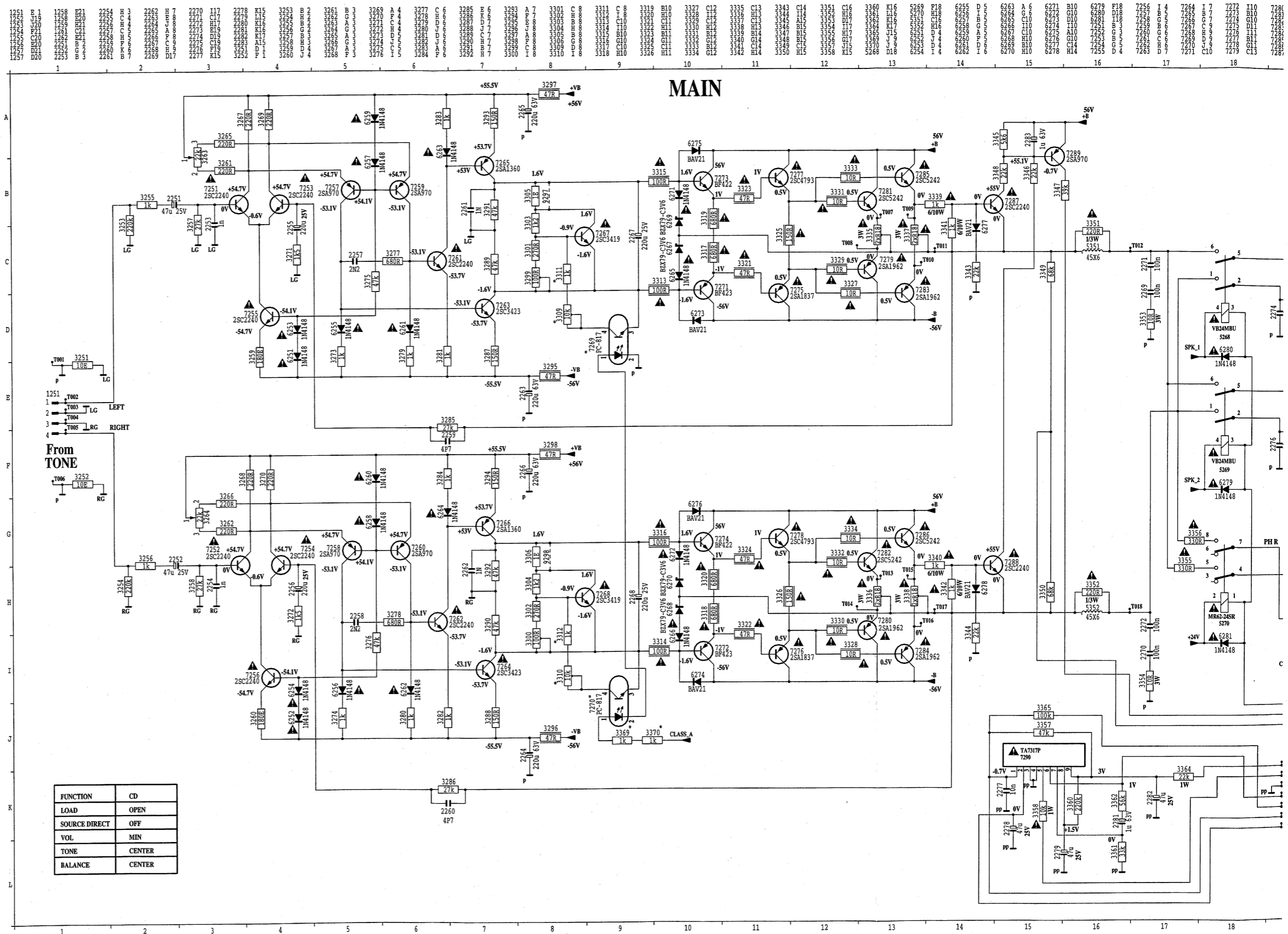
Component list and pin connections for the control circuit:

- 1401 MUTE
- 1402 A
- 1403 +24V
- 1404 +6V
- 1405 PDWN
- 1406 RELY
- 1407 RC-5
- 1408 RCG
- 1409 GND
- 1410 GND
- 1411 DIR
- 1412 MO+
- 1413 MO-
- 1414 +15V
- 1415 +5V
- 1416 +24V
- 1417 GND
- 1418 DIR
- 1419 MO+
- 1420 MO-
- 1421 +15V
- 1422 +5V
- 1423 +24V
- 1424 GND
- 1425 DIR
- 1426 MO+
- 1427 MO-
- 1428 +15V
- 1429 +5V
- 1430 +24V
- 1431 GND
- 1432 DIR
- 1433 MO+
- 1434 MO-
- 1435 +15V
- 1436 +5V
- 1437 +24V
- 1438 GND
- 1439 DIR
- 1440 MO+
- 1441 MO-
- 1442 +15V
- 1443 +5V
- 1444 +24V
- 1445 GND
- 1446 DIR
- 1447 MO+
- 1448 MO-
- 1449 +15V
- 1450 +5V
- 1451 +24V
- 1452 GND

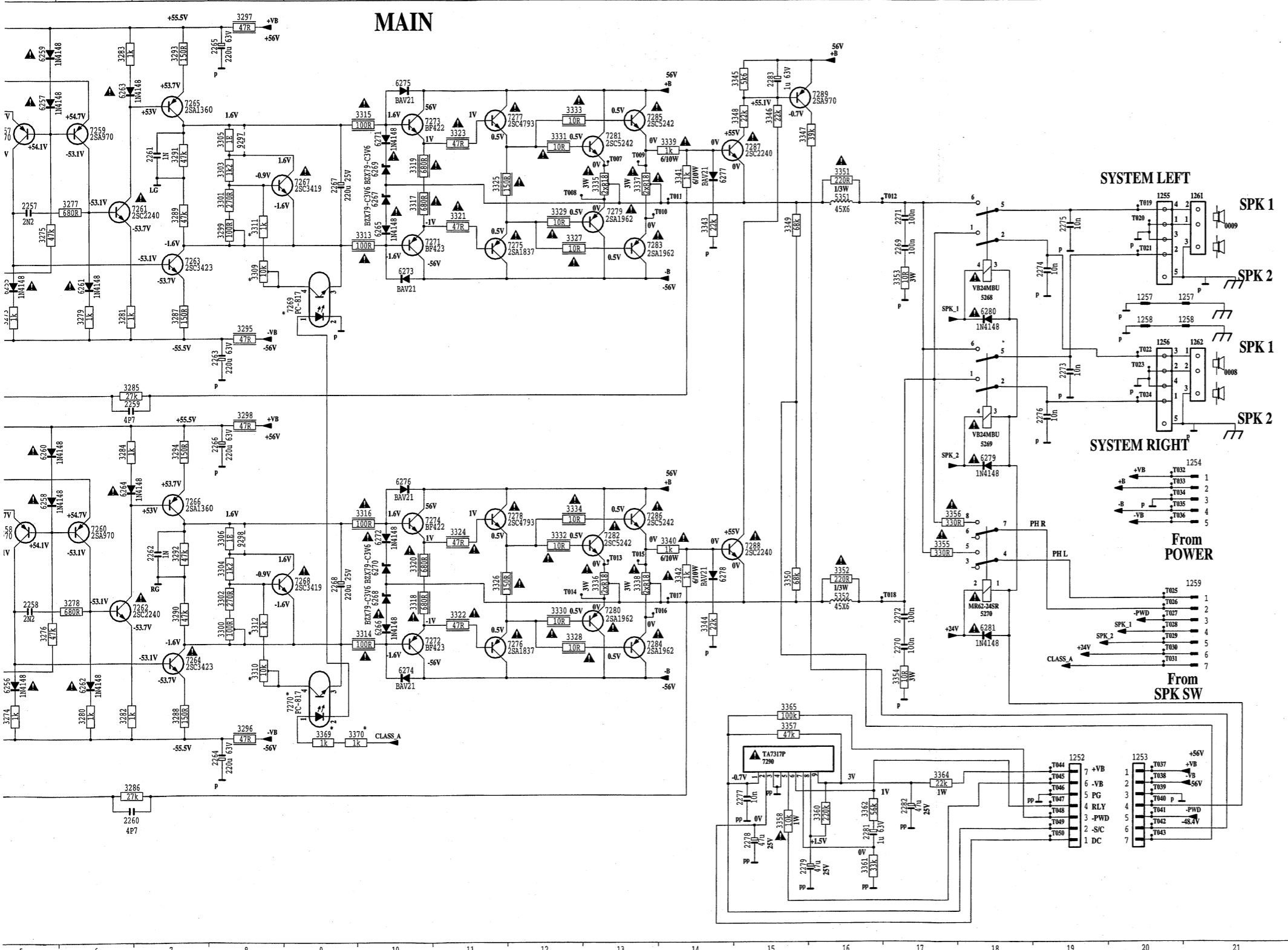
MAIN CIRCUIT (PM-68)



MAIN CIRCUIT(PM-78)

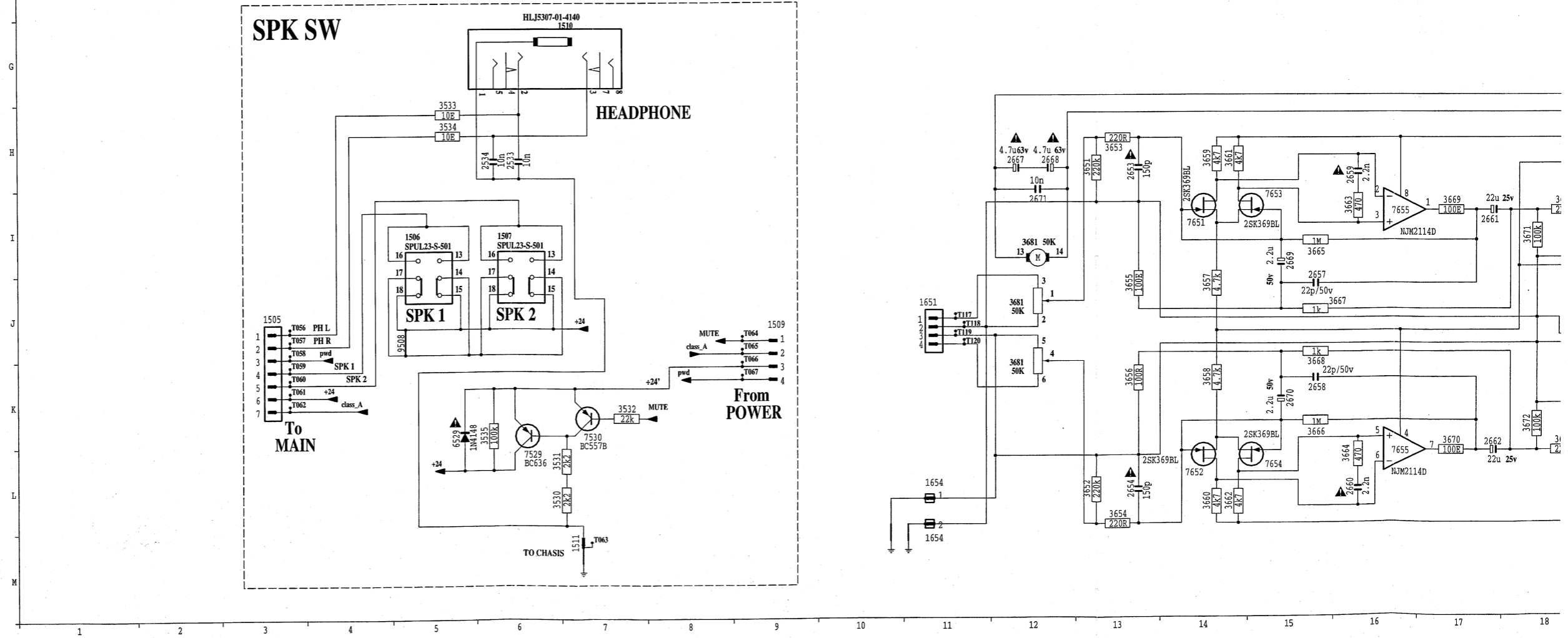
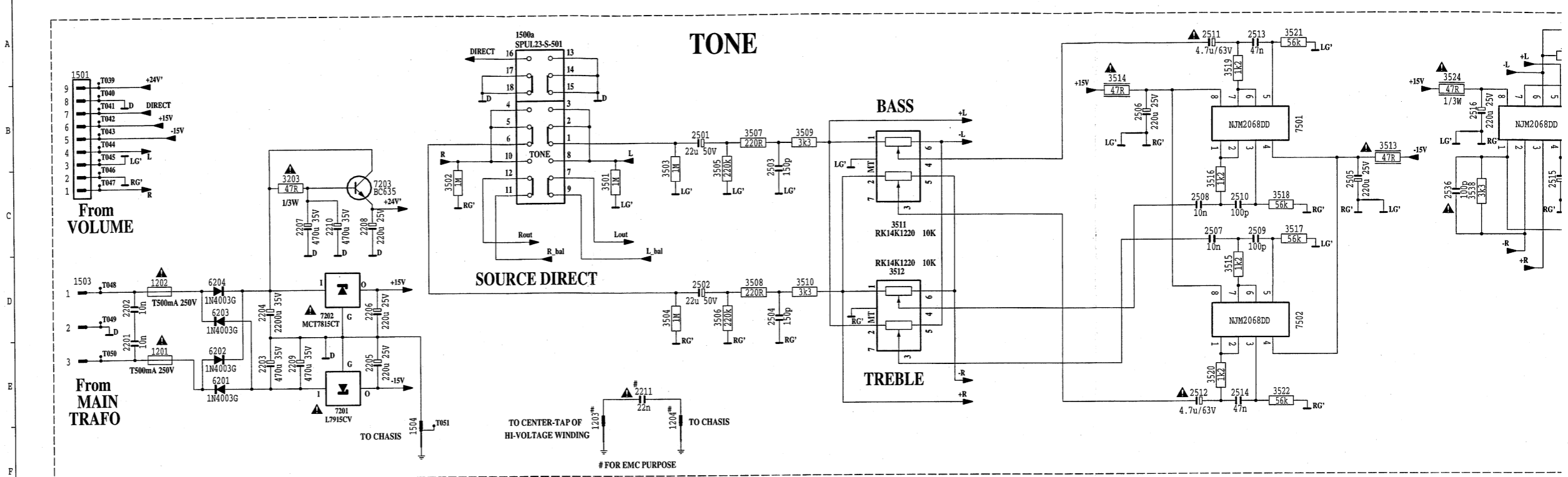


3277	3278	3279	3280	3281	3282	3283	3284	3285	3286	3287	3288	3289	3290	3291	3292	3293	3294	3295	3296	3297	3298	3299	3300	3301	3302	3303	3304	3305	3306	3307	3308	3309	3310	3311	3312	3313	3314	3315	3316	3317	3318	3319	3320	3321	3322	3323	3324	3325	3326	3327	3328	3329	3330	3331	3332	3333	3334	3335	3336	3337	3338	3339	3340	3341	3342	3343	3344	3345	3346	3347	3348	3349	3350	3351	3352	3353	3354	3355	3356	3357	3358	3359	3360	3361	3362	3363	3364	3365	3366	3367	3368	3369	3370	3371	3372	3373	3374	3375	3376	3377	3378	3379	3380	3381	3382	3383	3384	3385	3386	3387	3388	3389	3390	3391	3392	3393	3394	3395	3396	3397	3398	3399	3400	3401	3402	3403	3404	3405	3406	3407	3408	3409	3410	3411	3412	3413	3414	3415	3416	3417	3418	3419	3420	3421	3422	3423	3424	3425	3426	3427	3428	3429	3430	3431	3432	3433	3434	3435	3436	3437	3438	3439	3440	3441	3442	3443	3444	3445	3446	3447	3448	3449	3450	3451	3452	3453	3454	3455	3456	3457	3458	3459	3460	3461	3462	3463	3464	3465	3466	3467	3468	3469	3470	3471	3472	3473	3474	3475	3476	3477	3478	3479	3480	3481	3482	3483	3484	3485	3486	3487	3488	3489	3490	3491	3492	3493	3494	3495	3496	3497	3498	3499	3500
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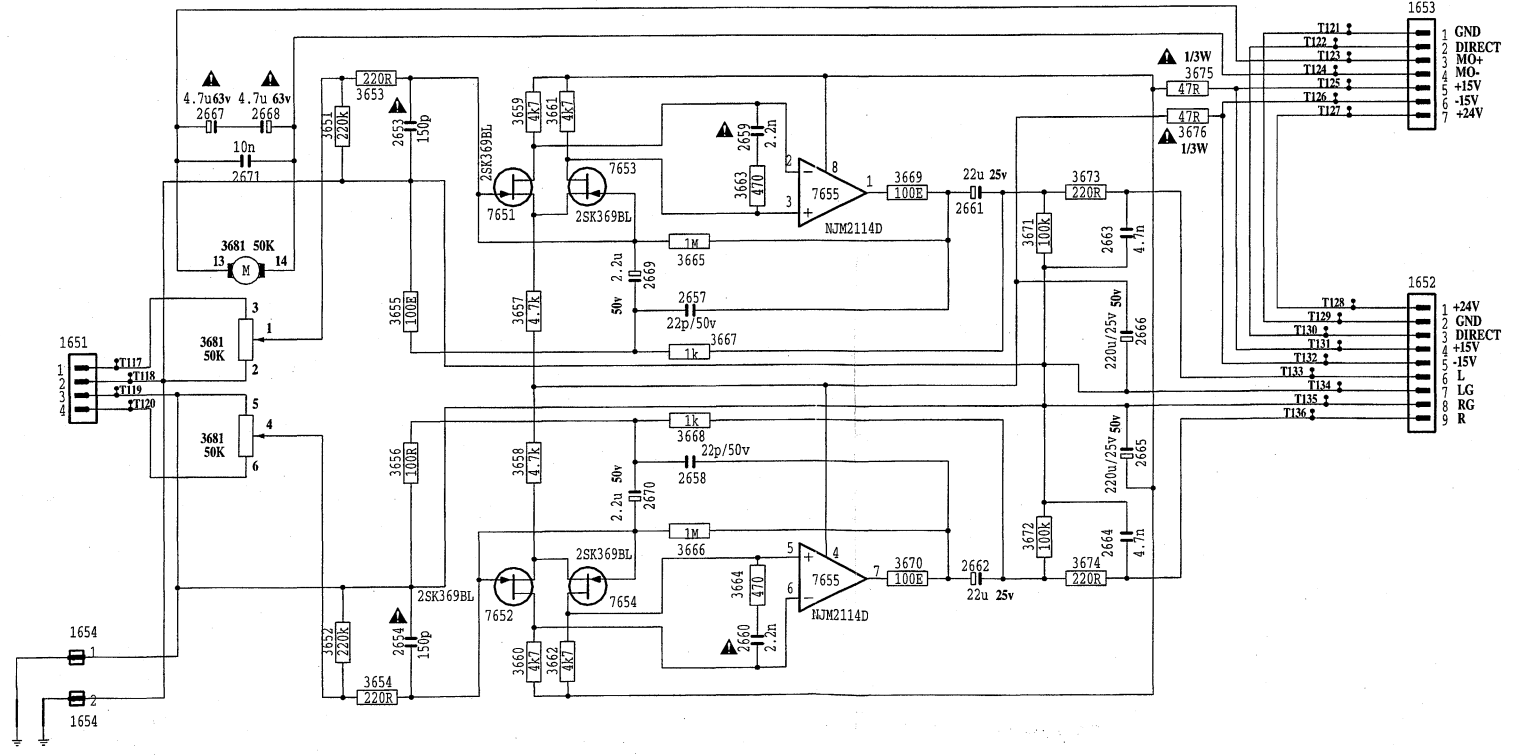
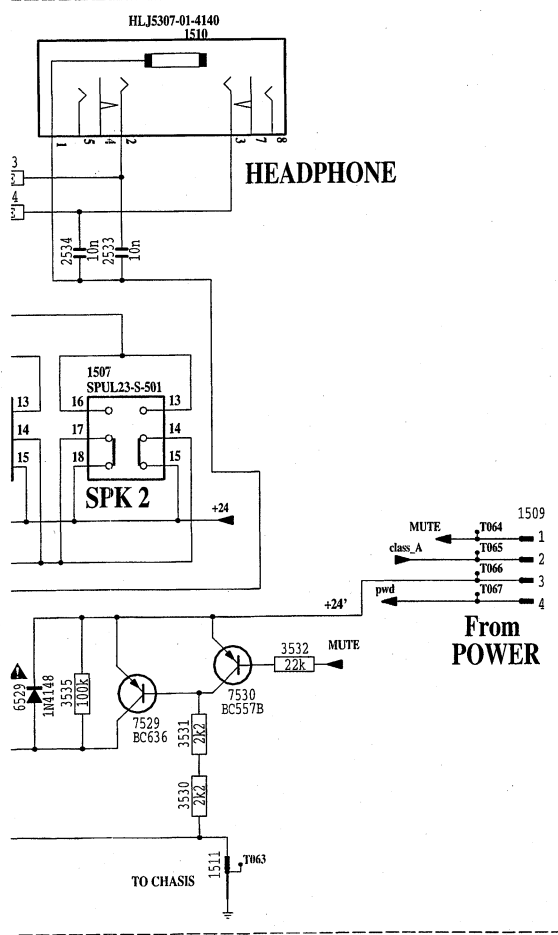
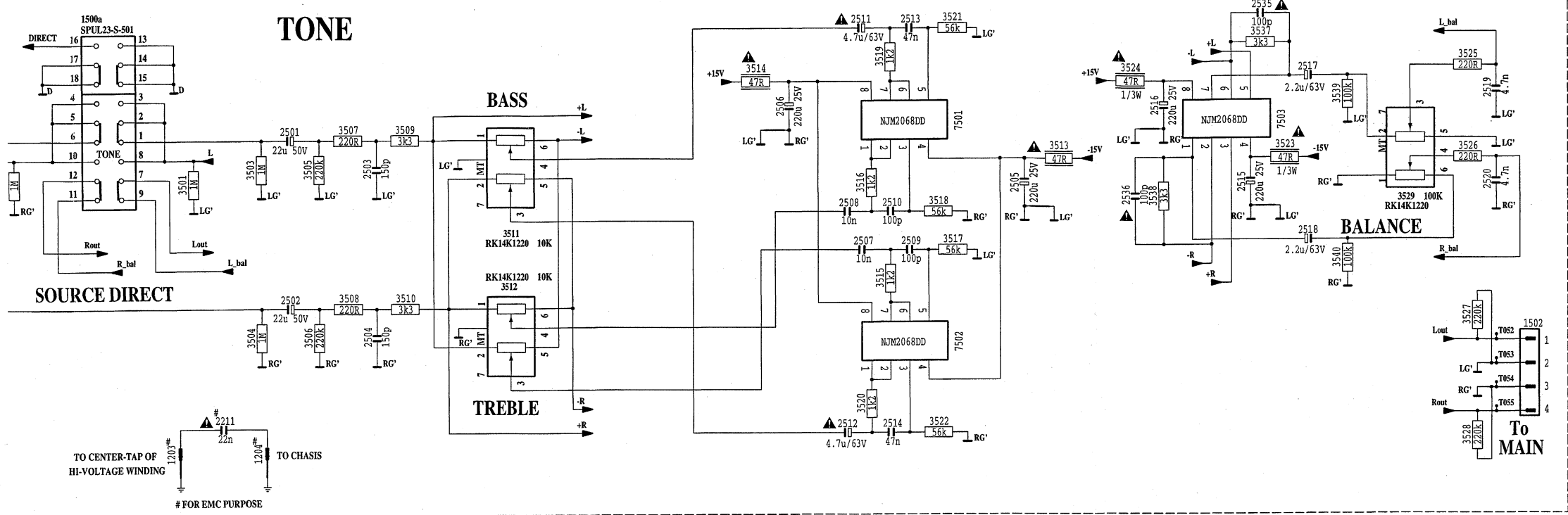


CONTROL CIRCUIT II (PM-68)

1201	B	B 2	1501	A	A 1	1507	T	T 6	1652	Z	Z 0	2203	D	D 3	2209	B	B 3	2504	C	C 9	3510	C	C 14	3516	B	B 17	3533	H	H 6	3553	H	H 13	3559	H	H 16	3565	K	K 19	3571	I	I 12	3505	C	C 8	3511	C	C 11	3517	C	C 15	3523	B	B 19	3529	C	C 20	3535	K	K 6	3552	L	L 13	3558	K	K 14	3564	L	L 16	3570	K	K 17	3576	H	H 19	6203	D	D 3	7501	B	B 15	7652
1202	D	D 2	1502	D	D 1	1508	H	H 9	1653	Z	Z 1	2204	D	D 4	2210	B	B 4	2505	C	C 10	3511	C	C 14	3517	B	B 18	3534	H	H 7	3554	H	H 14	3560	H	H 15	3566	K	K 20	3572	C	C 13	3506	D	D 9	3512	C	C 12	3518	C	C 16	3524	B	B 20	3530	L	L 6	3537	A	A 8	3553	H	H 13	3559	K	K 14	3565	L	L 15	3571	I	I 8	6204	D	D 4	7502	B	B 16	7653			
1203	F	F 8	1503	F	F 7	1509	M	M 9	1654	Z	Z 2	2205	D	D 5	2211	B	B 5	2506	C	C 11	3512	C	C 15	3518	B	B 19	3535	H	H 8	3555	H	H 15	3561	K	K 21	3567	K	K 22	3573	C	C 14	3507	D	D 10	3513	C	C 17	3519	C	C 18	3525	B	B 21	3531	L	L 7	3538	A	A 9	3554	H	H 14	3560	K	K 15	3566	L	L 16	3572	I	I 9	6205	D	D 5	7503	B	B 17	7654			
1204	F	F 8	1504	F	F 8	1510	M	M 7	1654	Z	Z 2	2206	D	D 6	2212	B	B 6	2507	C	C 12	3513	C	C 16	3519	B	B 20	3536	H	H 9	3556	H	H 16	3562	K	K 23	3568	K	K 24	3574	C	C 15	3508	D	D 11	3514	C	C 19	3520	B	B 22	3532	L	L 8	3539	A	A 10	3555	H	H 15	3561	L	L 17	3567	I	I 10	6206	D	D 6	7504	B	B 18	7655									
1500a	B	B 6	1505	C	C 1	1511	M	M 7	1654	Z	Z 2	2207	D	D 7	2213	B	B 7	2508	C	C 13	3514	C	C 17	3520	B	B 21	3537	H	H 10	3557	H	H 17	3563	K	K 25	3569	K	K 26	3575	C	C 16	3509	D	D 12	3515	C	C 20	3521	B	B 23	3533	L	L 9	3540	A	A 11	3556	H	H 16	3562	L	L 18	3568	I	I 11	6207	D	D 7	7505	B	B 19	7656									
1500b	B	B 6	1506	I	I 5	1651	J	J 1	1652	Z	Z 3	2208	D	D 8	2214	B	B 8	2509	C	C 14	3515	C	C 18	3521	B	B 22	3538	H	H 11	3558	H	H 18	3564	K	K 27	3570	K	K 28	3576	C	C 17	3510	D	D 13	3516	C	C 21	3522	B	B 24	3534	L	L 10	3541	A	A 12	3557	H	H 17	3563	L	L 19	3569	I	I 12	6208	D	D 8	7506	B	B 20	7657									

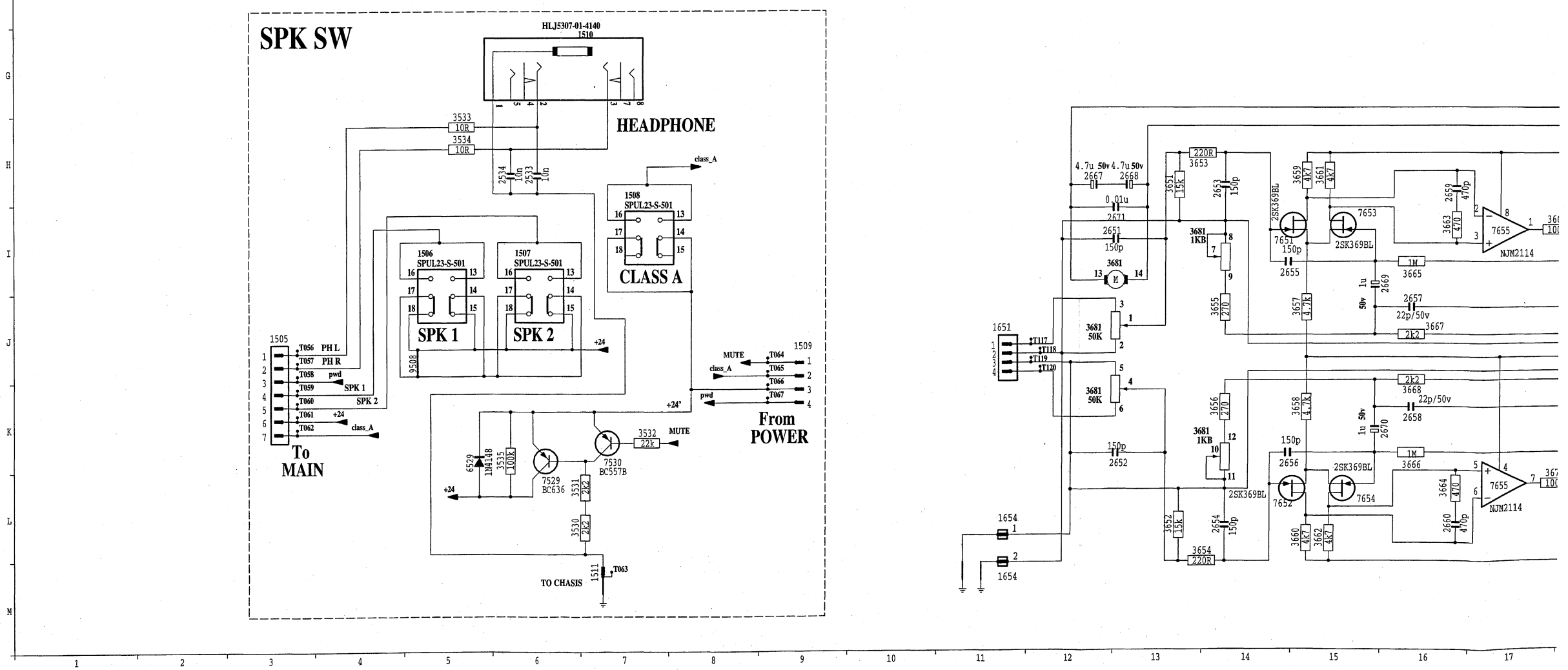
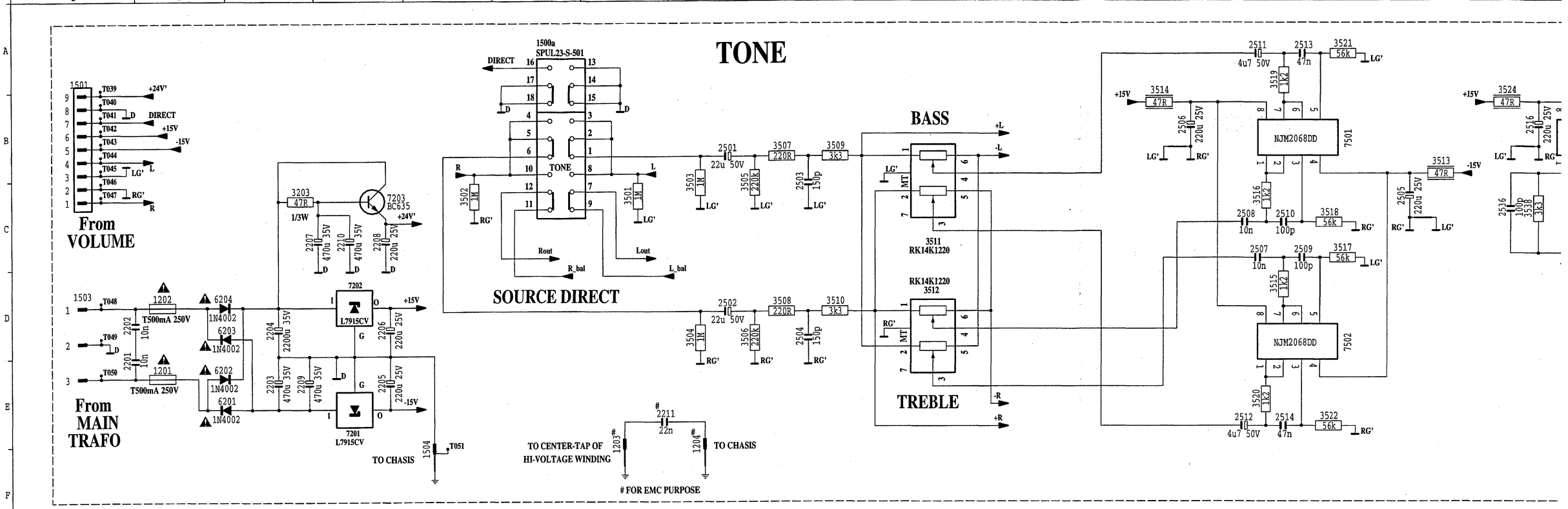


2516	B17	2533	H 6	2653	H13	2659	H16	2665	K19	2671	I12	3505	C 8	3511	C11	3517	C15	3523	B19	3529	C20	3535	F 6	3539	H13	3553	H13	3658	K14	3664	L16	3670	K17	3676	H19	6203	D 3	7501	B15	7652	L14
2517	B19	2534	H 6	2654	L13	2660	L16	2666	J19	2672	C13	3506	B 8	3512	D11	3518	C15	3524	B17	3530	L 6	3536	F 6	3540	C16	3554	H13	3659	K14	3665	L16	3671	K17	3677	H19	6204	D 3	7502	B15	7653	L14
2518	C19	2535	A18	2655	K14	2661	L17	2667	H19	2673	C13	3507	B 8	3513	D11	3519	C15	3525	B20	3531	L 6	3537	F 6	3541	C16	3555	H13	3660	K14	3666	L16	3672	K17	3678	H19	6205	D 3	7503	B18	7654	L15
2519	C21	2536	K14	2656	K14	2662	L18	2668	H12	2674	C13	3508	B 8	3514	B13	3520	C14	3526	B20	3532	L 6	3538	F 6	3542	C16	3556	H13	3661	K14	3667	L16	3673	K17	3679	H19	6206	D 4	7504	B18	7655	L15
2520	C21	2537	I12	2657	J15	2663	L18	2669	H15	2675	D 8	3509	B 9	3515	B13	3521	C14	3527	D20	3533	L 6	3539	F 6	3543	C16	3557	H13	3662	L14	3668	L16	3674	K17	3680	H19	6207	C 4	7505	K 7	7656	L16
2530	L 7	2652	K12	2658	K15	2664	K18	2670	K15	2676	D 8	3510	B 9	3516	C14	3522	E15	3528	E20	3534	L 6	3540	H13	3544	C14	3558	H13	3663	K16	3669	L17	3675	K17	3681	H19	6208	B 2	7506	B18	7657	L16

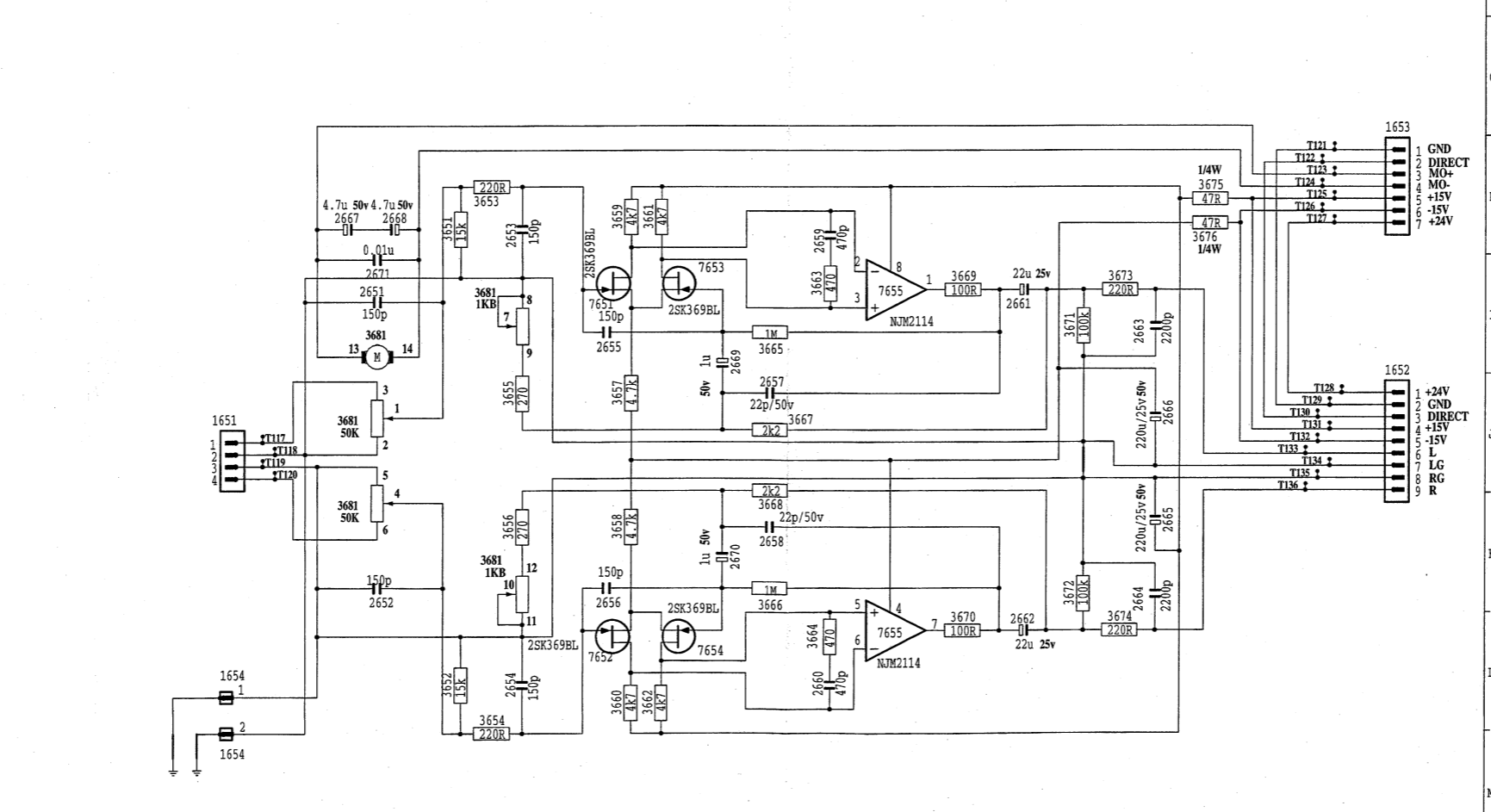
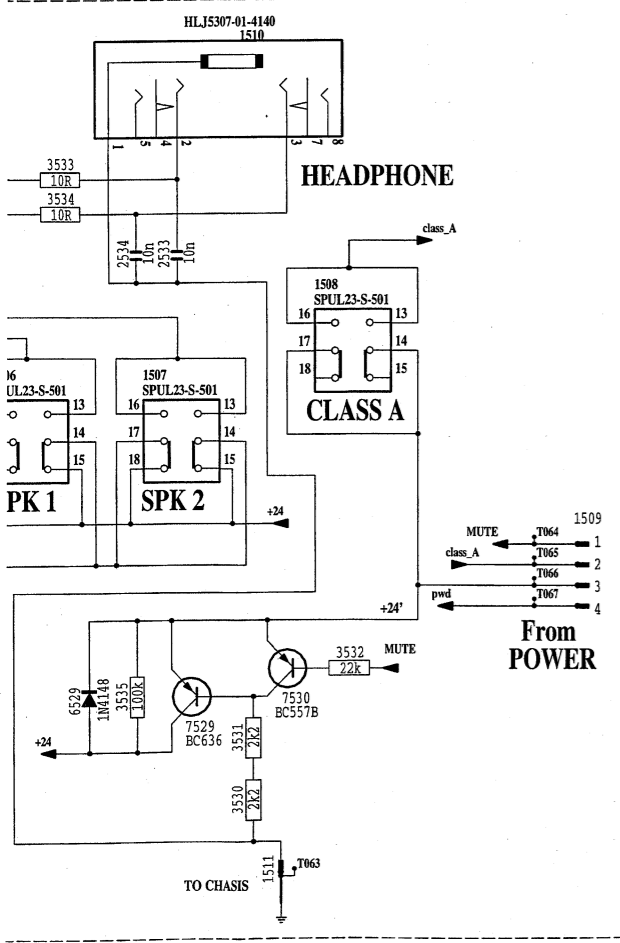
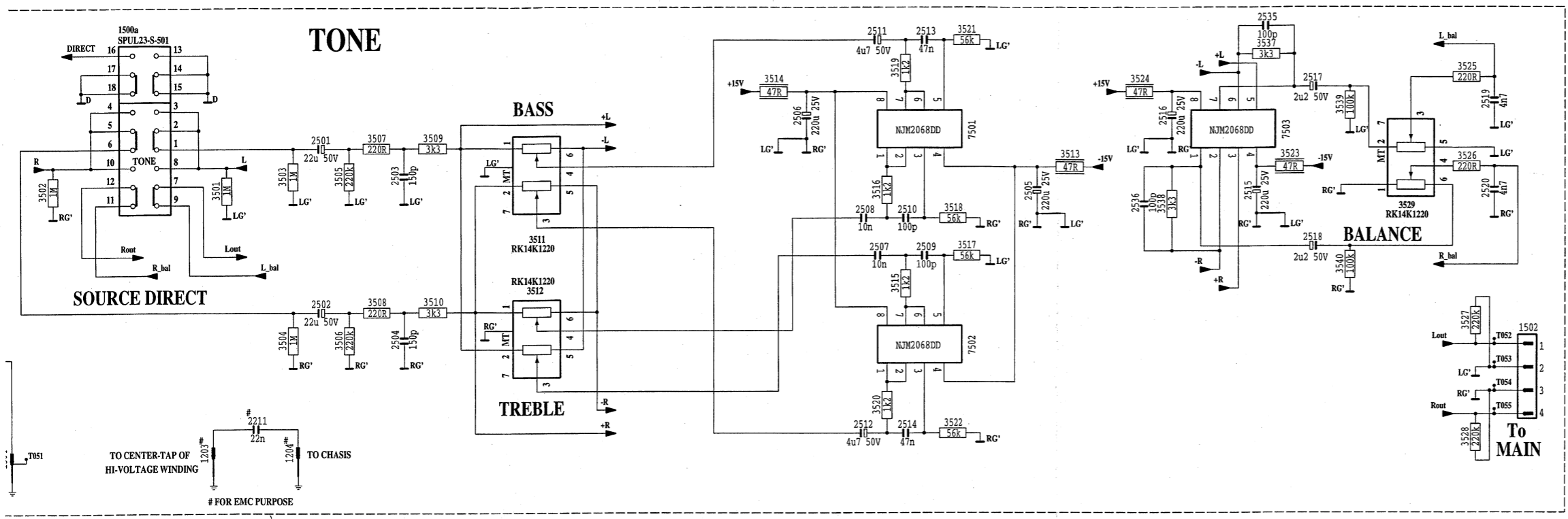


CONTROL CIRCUIT II (PM-78)

1201	F 8	1501	A 1	1502	D 1	1503	I 6	1504	H 7	1505	G 7	1506	C 3	1507	B 4	1508	A 5	1509	B 6	1510	C 7	1511	D 8	1512	E 9	1513	F 10	1514	G 11	1515	H 12	1516	I 13	1517	J 14	1518	K 15	1519	L 16	1520	M 17
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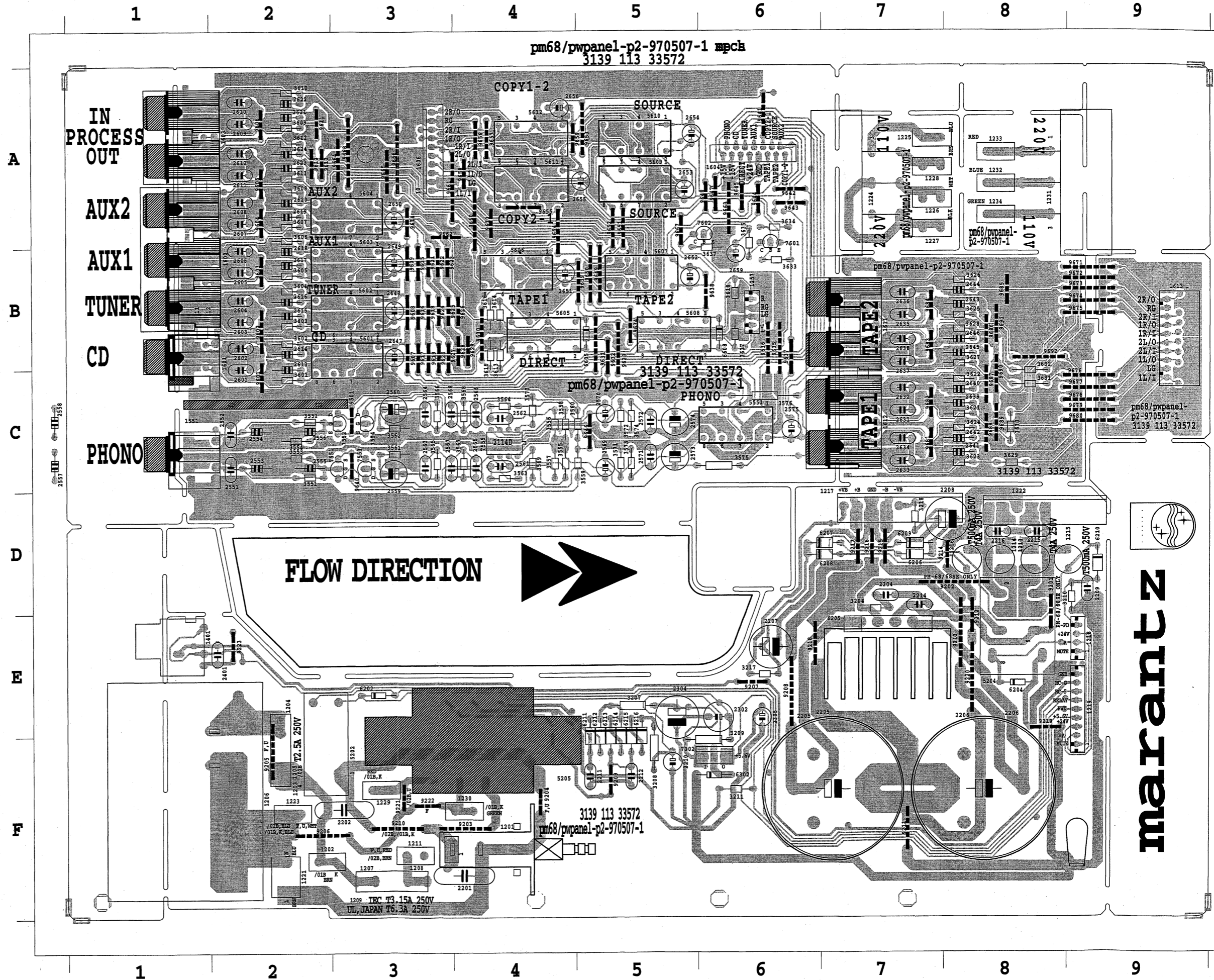


01	02	03	04	05	06	07	08	09	10	11	12	13	14	15	16	17	18	19	20	21
C16	C16	C15	C15	A15	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19
C16	C16	C15	C15	A15	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19
C16	C16	C15	C15	A15	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19	B19
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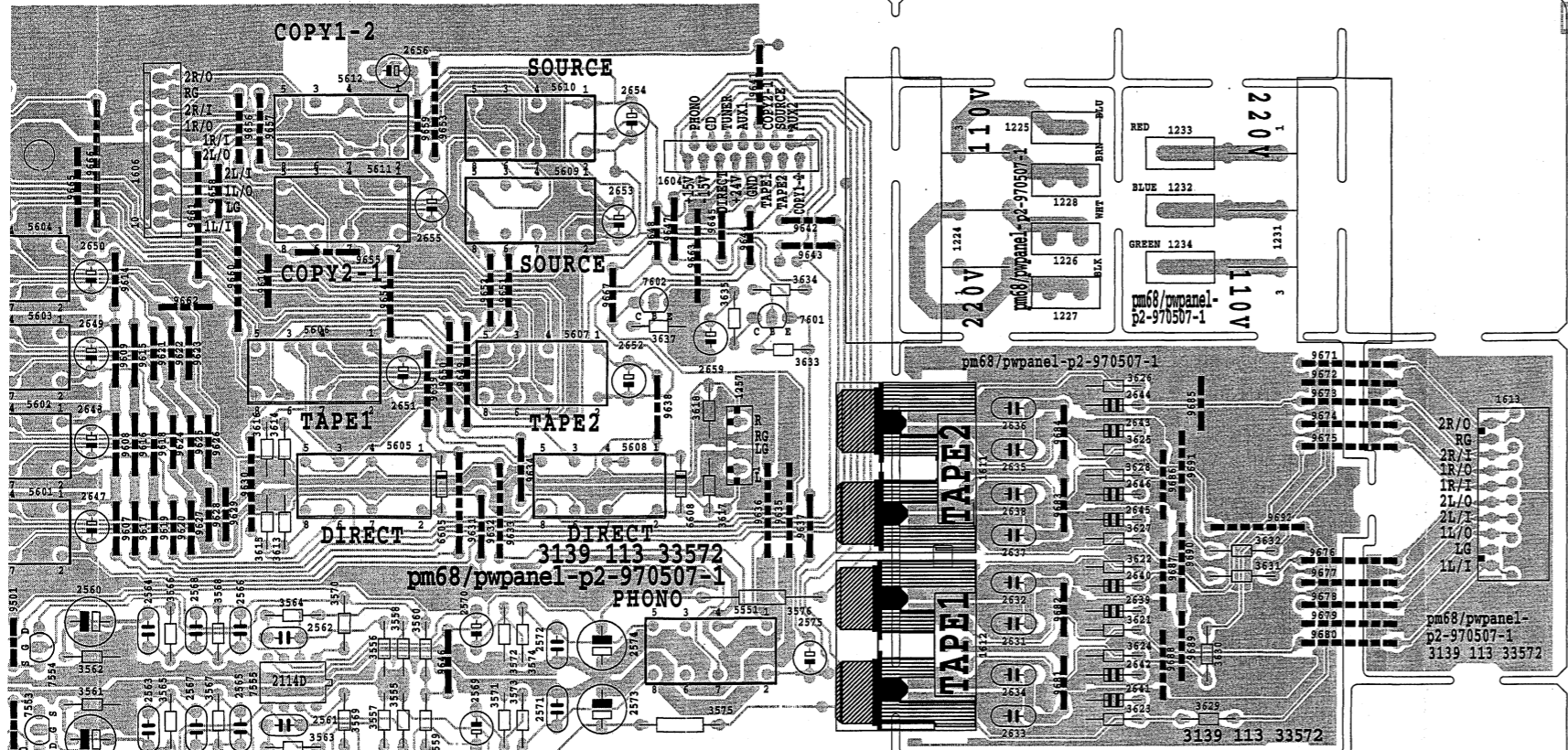
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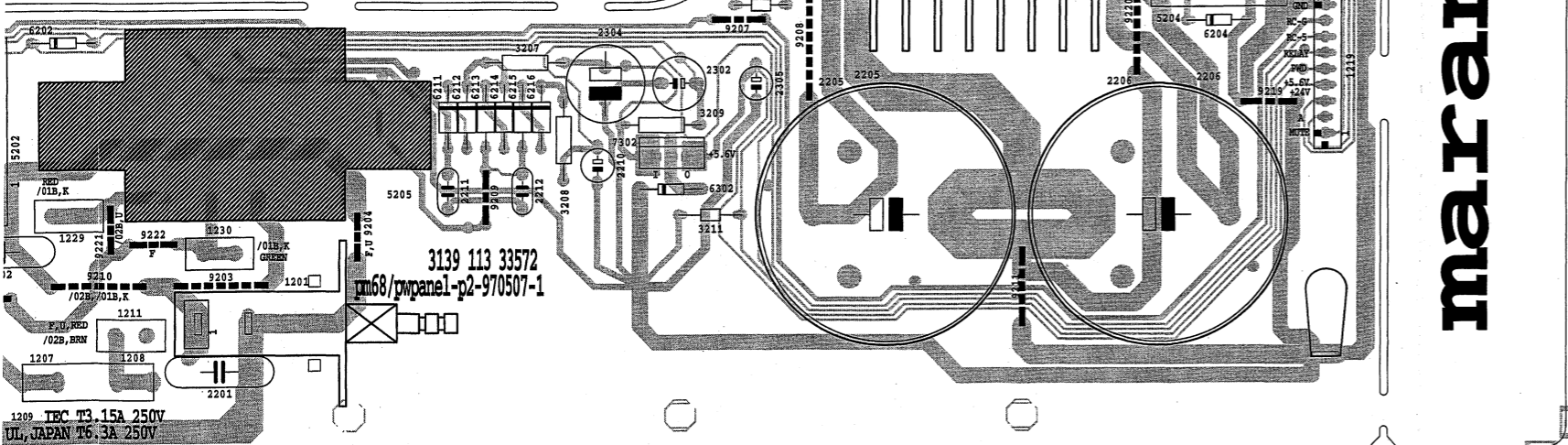
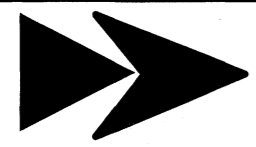


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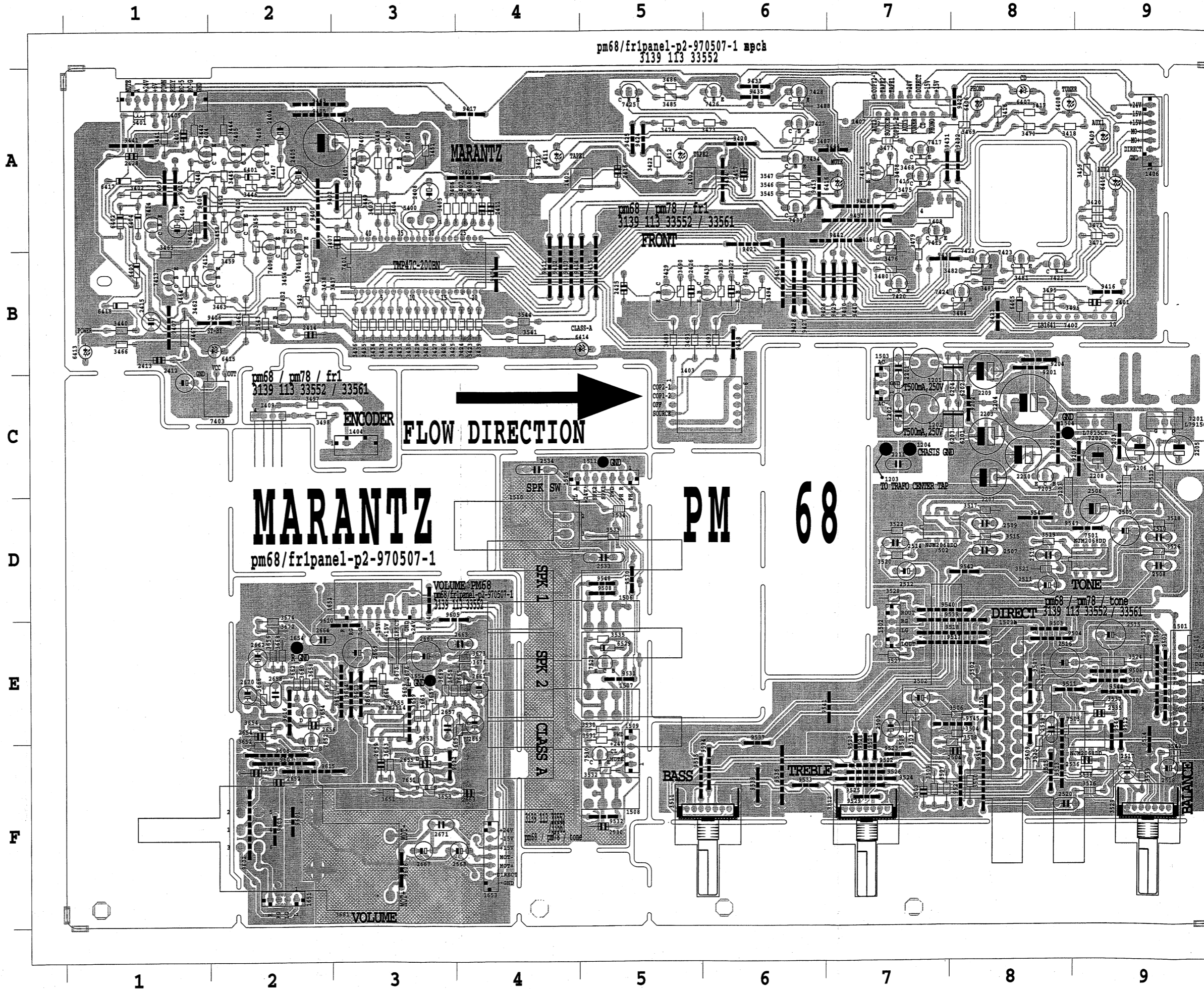


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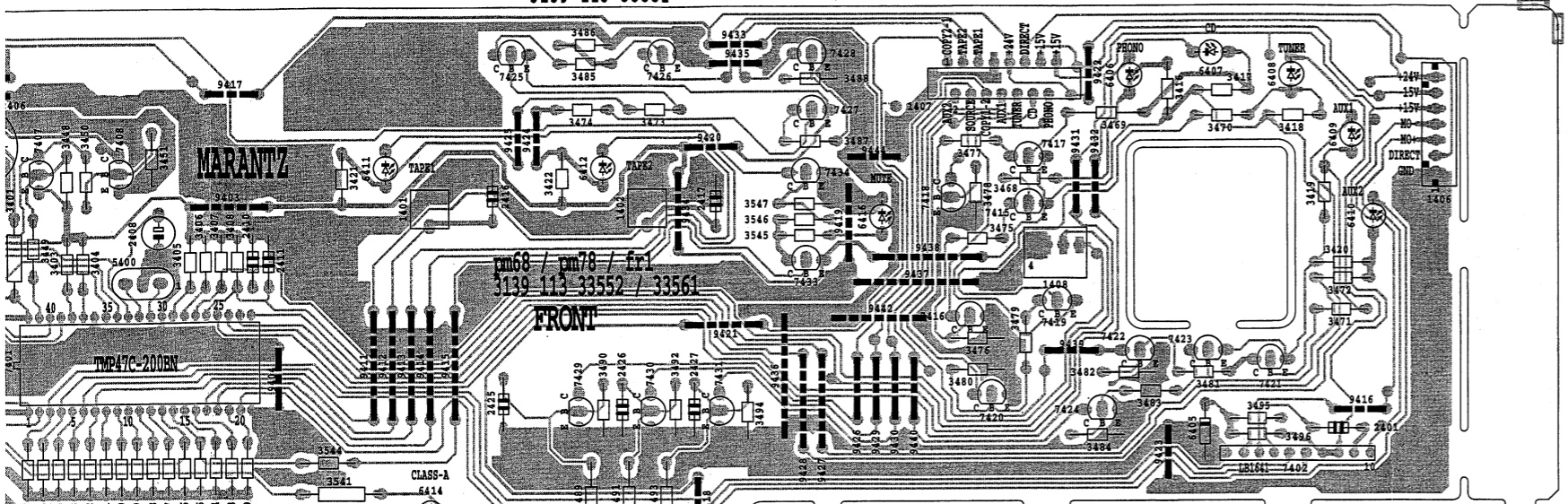
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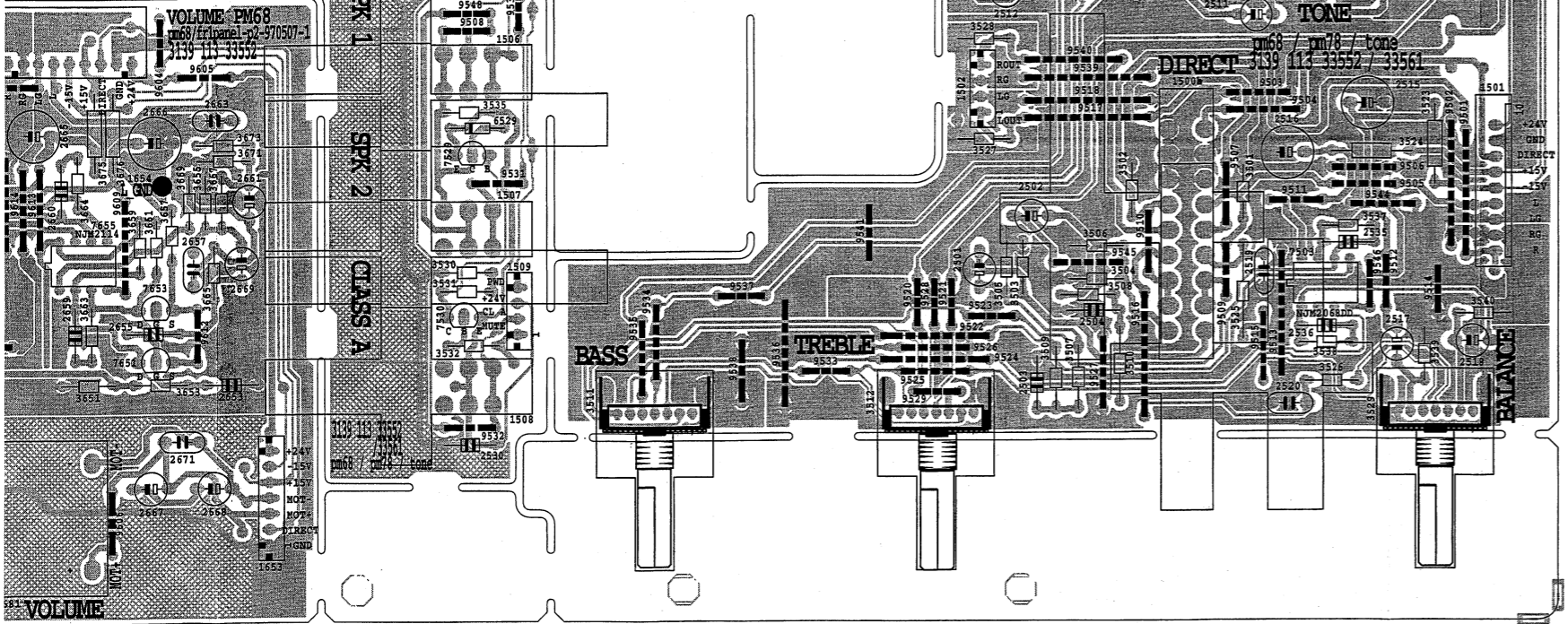
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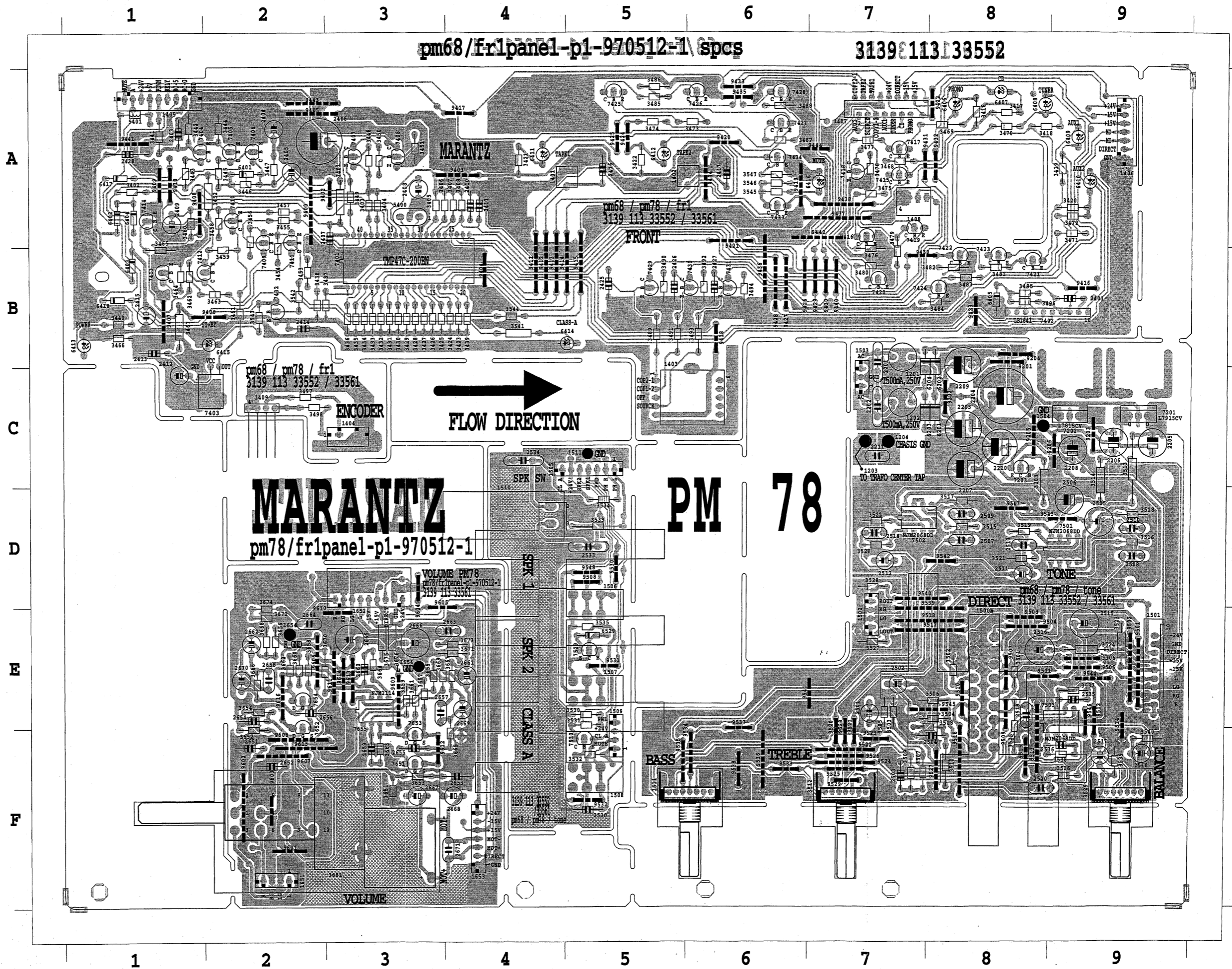
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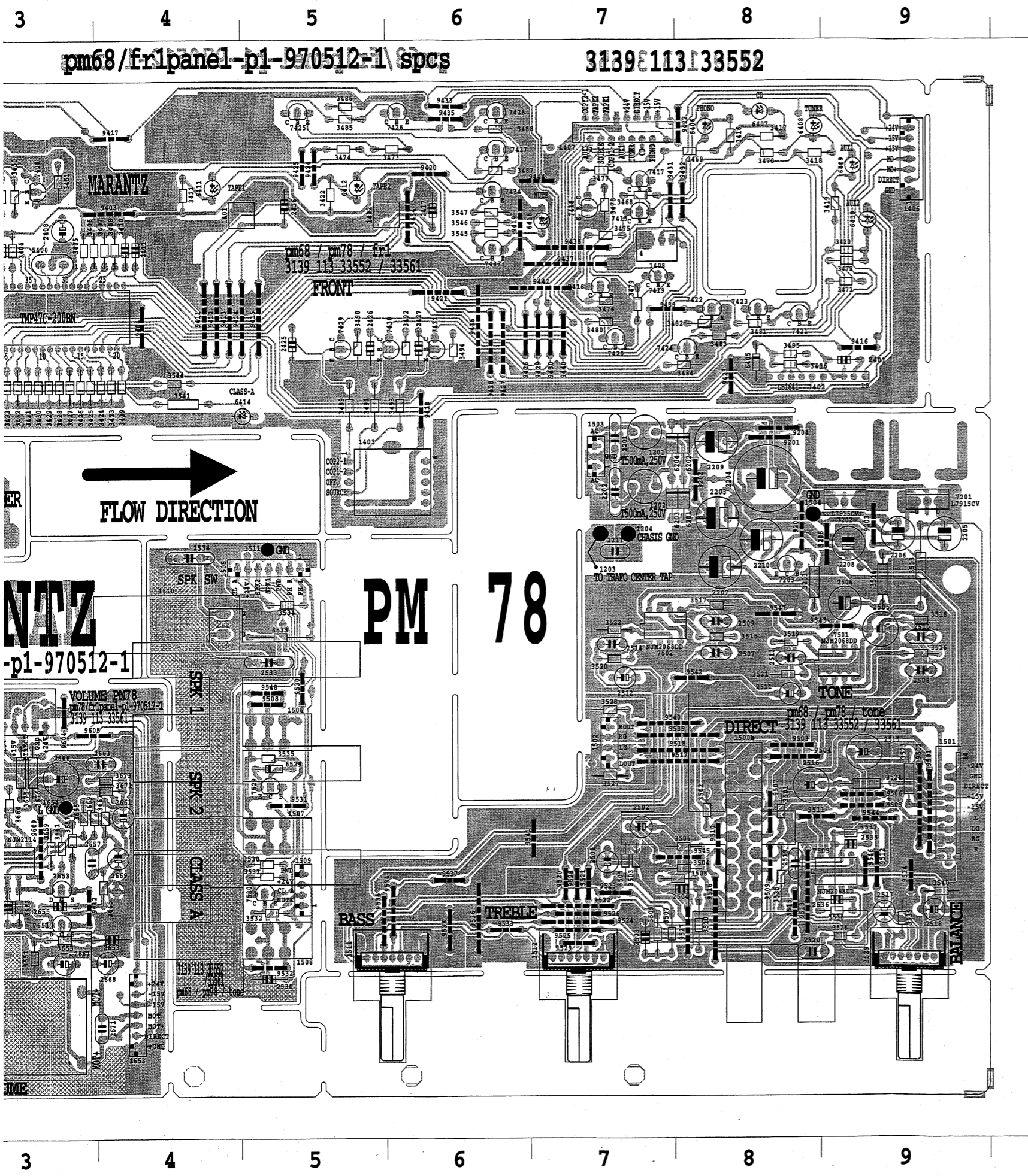
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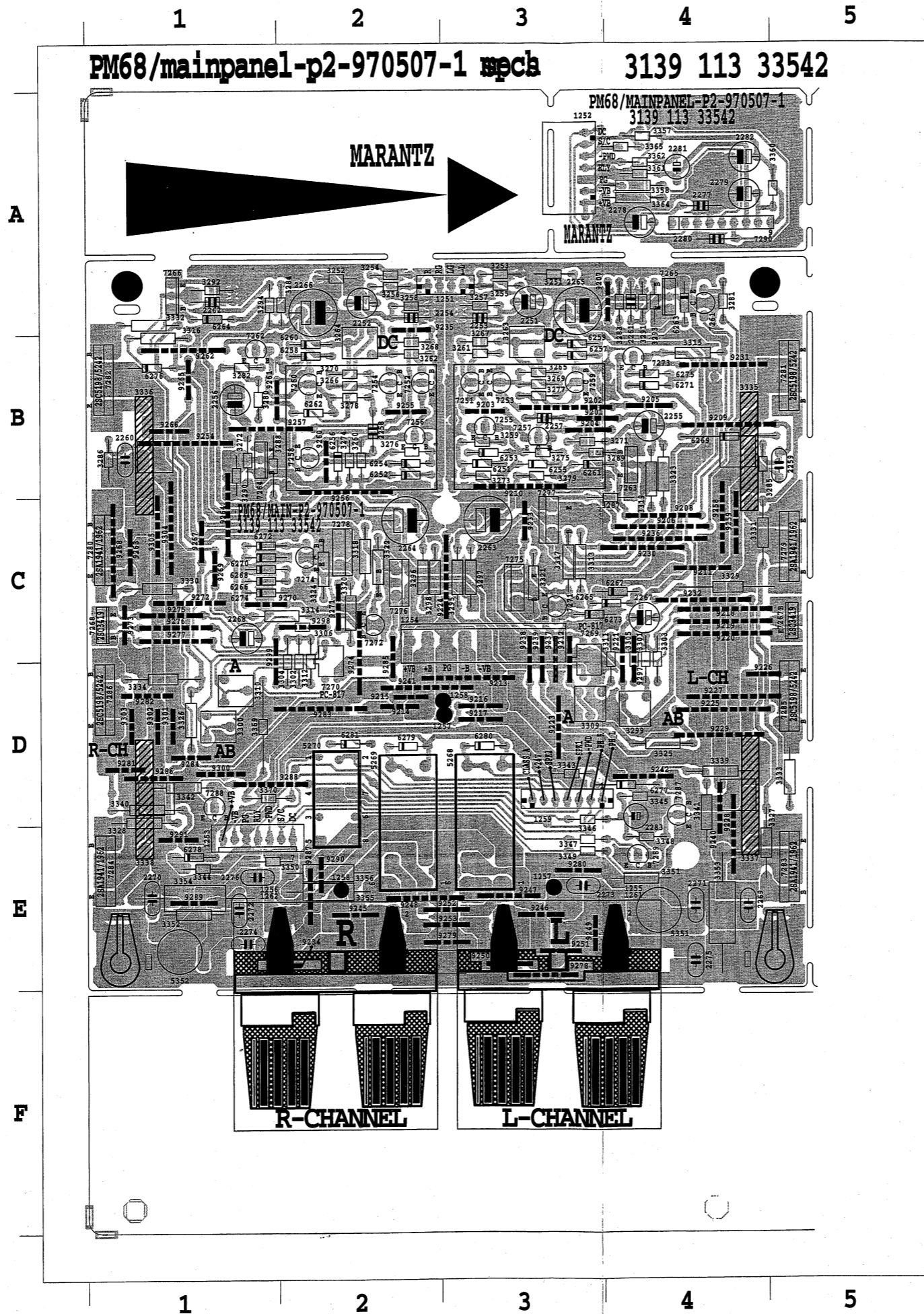
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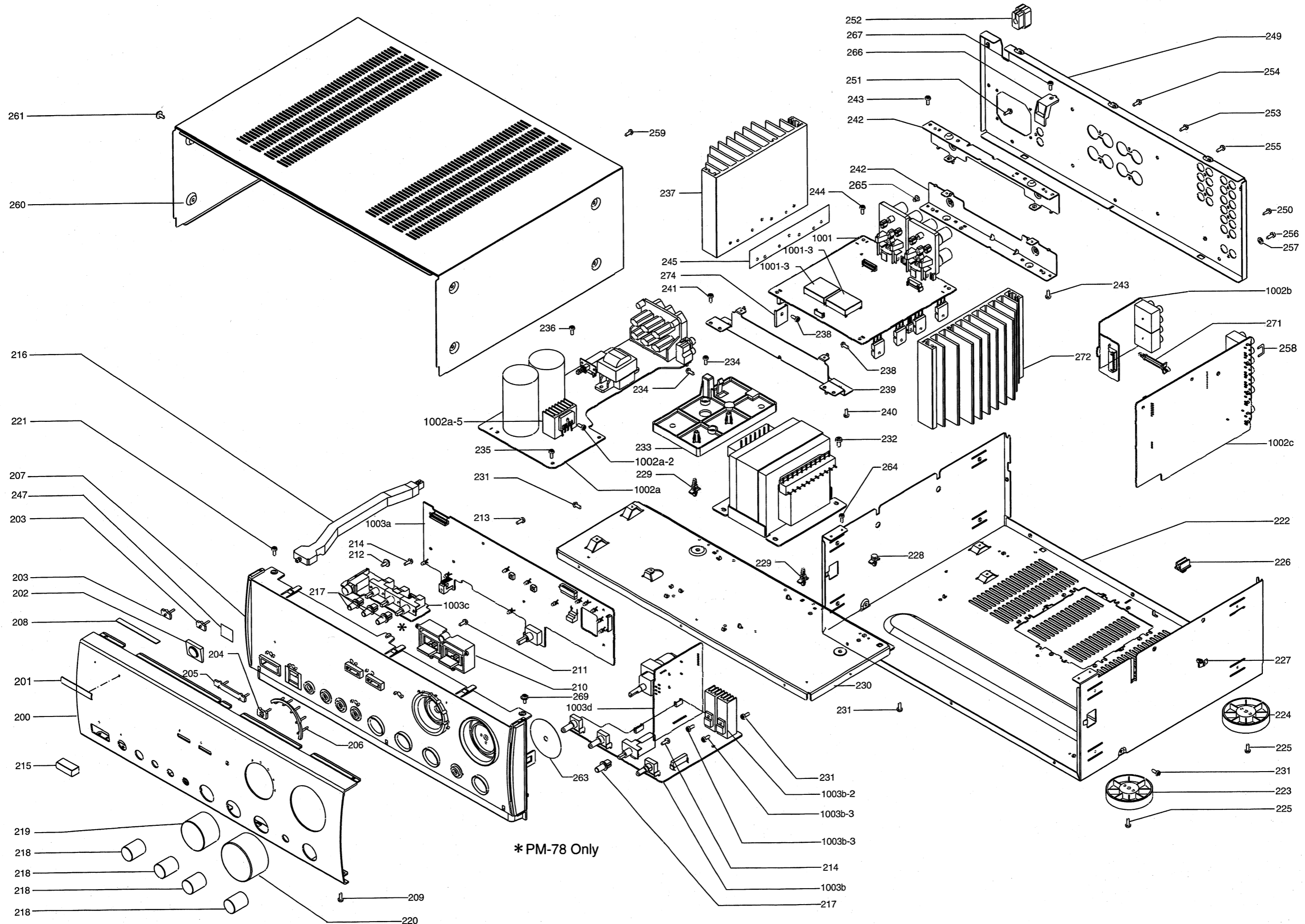
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2666 E 3	9205 C 8	2428 A 1	3544 B 4	9440 B 7
2667 F 3	9206 C 9	3401 A 3	3545 A 6	9441 A 1
2668 F 4	9501 E 9	3402 A 1	3546 A 6	9442 A 7
2669 E 4	9502 E 9	3403 A 3	3547 A 6	9443 A 2
2670 E 2	9503 E 8	3404 A 3	5400 A 3	9444 A 7
2671 F 3	9504 E 8	3405 A 3	5401 A 1	
3203 C 8	9505 E 9	3406 A 3	6401 A 2	
3501 E 8	9506 E 9	3407 A 4	6402 A 1	
3502 E 8	9507 E 8	3408 A 4	6403 B 1	
3503 E 7	9508 D 5	3416 A 8	6404 A 1	
3504 E 8	9509 E 8	3417 A 8	6405 B 8	
3505 E 7	9510 E 8	3418 A 8	6406 A 8	
3506 E 8	9511 E 8	3419 A 9	6407 A 8	
3507 F 7	9512 E 9	3420 A 9	6408 A 8	
3508 F 8	9513 F 8	3421 A 4	6409 A 9	
3509 F 7	9514 E 9	3422 A 5	6410 A 9	
3510 F 8	9515 F 8	3423 B 4	6411 A 4	
3511 F 6	9516 F 8	3424 B 4	6412 A 5	
3512 F 7	9517 E 8	3425 B 3	6413 B 1	
3513 C 9	9518 E 8	3426 B 3	6414 B 5	
3514 C 9	9520 F 7	3427 B 3	6415 B 2	
3515 D 8	9521 F 7	3428 B 3	6416 A 7	
3516 D 9	9522 F 7	3429 B 3	7401 B 3	



1251 A 3	3304 D 2	6281 D 2	9256 B 2
1252 A 3	3305 D 4	7251 B 3	9257 B 1
1253 E 1	3306 C 2	7252 B 2	9258 C 4
1254 C 3	3309 D 3	7253 B 3	9259 C 4
1255 F 3	3310 D 1	7254 B 2	9260 B 2
1256 F 2	3311 D 4	7255 B 3	9261 B 1
1259 D 3	3312 D 2	7256 B 2	9262 B 1
1261 F 3	3313 C 3	7257 B 3	9263 C 1
1262 F 2	3314 C 2	7258 B 2	9264 C 1
2251 A 3	3315 B 4	7259 B 3	9265 B 1
2252 A 2	3316 B 1	7260 B 2	9266 B 1
2253 A 3	3317 C 3	7261 A 4	9267 C 1
2254 A 2	3318 C 2	7262 B 1	9268 C 1
2255 B 4	3319 B 4	7263 B 4	9269 C 1
2256 B 1	3320 C 2	7264 B 1	9270 C 1
2257 B 3	3321 C 3	7265 A 4	9271 C 2
2258 B 2	3322 C 2	7266 A 1	9272 C 1
2259 B 5	3323 B 4	7267 C 5	9273 C 1
2260 B 1	3324 C 2	7268 C 1	9274 C 2
2261 A 4	3325 D 4	7269 D 3	9275 C 1
2262 A 1	3326 D 1	7270 D 2	9276 C 1
2263 C 3	3327 E 4	7271 C 3	9277 C 1
2264 C 2	3328 D 1	7272 C 2	9278 E 3
2265 A 3	3329 C 4	7273 B 4	9279 E 3
2266 A 2	3330 C 1	7274 C 2	9280 E 3
2267 C 4	3331 C 4	7275 C 3	9281 D 1
2268 C 1	3332 A 1	7276 C 2	9282 D 1
2269 E 4	3333 D 5	7277 C 3	9283 D 2
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



* PM-78 Only

(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			
					219	/02B,FB	4822 413 41745	SELECTOR KNOB BL	064J154100
217	/02B,FB	4822 410 60343	SPK BUTTON BL	058J270030	219	/02G	4822 410 11265	SELECTOR KNOB GL	064J154150
	UBL					FN			
217	/02G	4822 410 11263	SPK BUTTON GL	058J270230	220	/02B,FB	4822 410 10559	VOLUME KNOB BL	063J154080
	FN				220	/02G	4822 410 11266	VOLUME KNOB GL	063J154190
218	/02B,FB	4822 413 41678	TONE KNOB BL	025J154080		FN			
	UBL				223		4822 462 42129	LEG FRONT	QP46242129
218	/02G	4822 410 11264	TONE KNOB GL	025J154190	224		4822 462 42131	LEG REAR	QP46242131
	FN				▲ 252		4822 532 60948	MAINS CORD BUSH	QP53260948
219	/02B,FB	4822 413 41745	SELECTOR KNOB BL	064J154100					
	UBL				1605		4822 323 10406	FLEX CABLE 15P	QP32310406
219	/02G	4822 410 11265	SELECTOR KNOB GL	064J154150	▲ 5011	/02	4822 146 10844	MAINS TRSF.EI96-60T	QP14610844
	FN				▲ 5011	F	4822 146 10853	MAINS TRSF.EI96-60T	QP14610853
220	/02B,FB	4822 410 10559	VOLUME KNOB BL	063J154080					
	UBL					/02B,FB		PACKING CASE	232W801010
220	/02G	4822 410 11266	VOLUME KNOB GL	063J154190				(3139 116 37770)	
	FN					/02G		PACKING CASE	232W801020
223		4822 462 42129	LEG FRONT	QP46242129		FN		(3139 116 38470)	
224		4822 462 42131	LEG REAR	QP46242131				CUSHION	232W809010
▲ 252		4822 532 60948	MAINS CORD BUSH	QP53260948				(3139 116 24990)	
1605		4822 323 10406	FLEX CABLE 15P	QP32310406					
▲ 5011	/02	4822 146 10823	MAINS TRSF.EI96-60T	QP14610823					
▲ 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

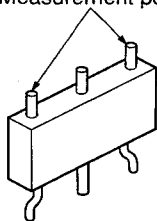
- After 30 min, the voltage should settle down to 90 mV \pm 5 mV.

** 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。

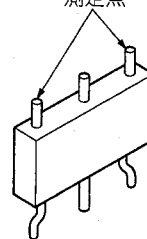
時間	電圧
0 秒— 30 秒 **	65mV 以上 70mV 以下

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。

11. ELECTRICAL PARTS LIST

ASSIGNMENT OF COMMON PARTS CODES.

RESISTORS

R*** : 1) GD05 × × × 140, Carbon film fixed resistor, ±5% 1/4W
 R*** : 2) GD05 × × × 160, Carbon film fixed resistor, ±5% 1/6W

① Resistance value

Examples ;

① Resistance value
 0.1Ω ... 001 10Ω ... 100 1kΩ ... 102 100kΩ ... 104
 0.5Ω ... 005 18Ω ... 180 2.7kΩ ... 272 680kΩ ... 684
 1Ω ... 010 100Ω ... 101 10kΩ ... 103 1MΩ ... 105
 6.8Ω ... 068 390Ω ... 391 22kΩ ... 223 4.7MΩ ... 475

Note : Please distinguish 1/4W from 1/6W by the shape of parts used actually.

CAPACITORS

C*** : CERAMIC CAP.

3) DD1 × × × × 370, Ceramic capacitor
 Disc type
 Temp.coeff.P350 ~ N1000, 50V
 ② Capacity value
 ③ Tolerance

Examples ;

② Tolerance (Capacity deviation)
 ±0.25pF ... 0
 ±0.5pF ... 1
 ±5% ... 5

* Tolerance of COMMON PARTS handled here are as follows :

0.5pF ~ 5pF ... ±0.25pF
 6pF ~ 10pF ... ±0.5pF
 12pF ~ 560pF ... ±5%

③ Capacity value

0.5pF ... 005 3pF ... 030 100pF ... 101
 1pF ... 010 10pF ... 100 220pF ... 221
 1.5pF ... 015 47pF ... 470 560pF ... 561

C*** : CERAMIC CAP.

4) DK16 × × × 300, High dielectric constant ceramic capacitor
 Disc type
 Temp.chara. 2B4, 50V
 ④ Capacity value

Examples ;

④ Capacity value
 100pF ... 101 1000pF ... 102 10000pF ... 103
 470pF ... 471 2200pF ... 222

C*** : 5) ELECTROLY CAP. (E), 6) FILM CAP. (F)

5) EA × × × × × 10, Electrolytic capacitor
 One-way lead type, Tolerance ±20%
 ⑤ Working voltage
 ⑥ Capacity value

Examples ;

⑤ Capacity value
 0.1μF ... 104 4.7μF ... 475 100μF ... 107
 0.33μF ... 334 10μF ... 106 330μF ... 337
 1μF ... 105 22μF ... 226 1100μF ... 118
 2200μF ... 228

⑥ Working voltage

6.3V ... 006 25V ... 025
 10V ... 010 35V ... 035
 16V ... 016 50V ... 050

6) DF15 × × × 350 → Plastic film capacitor
 DF15 × × × 310 → One-way type, Mylar ±5% 50V
 DF16 × × × 310 → Plastic film capacitor
 One-way type, Mylar ±10% 50V
 ⑦ Capacity value

Examples ;

⑦ Capacity value
 0.001μF (1000pF) ... 102 0.1μF ... 104
 0.0018μF ... 182 0.56μF ... 564
 0.01μF ... 103 1μF ... 105
 0.015μF ... 153

NOTE : 1) The above CODES (R***, R***, C***, C*** and C***) are omitted on the schematic diagram in some case.
 2) On the occasion, be confirmed the common parts on the parts list.
 3) Refer to "Common Parts List" for the other common parts (R105, DD4, DK4).

NOTE ON SAFETY FOR FUSIBLE RESISTOR :

The suppliers and their type numbers of fusible resistors are as follows;

1. KOA Corporation

Part No. (MJI)	Type No. (KOA)	Description
NH05 × × × 140	RF25S × × × × ΩJ	(±5% 1/4W)
NH05 × × × 120	RF50S × × × × ΩJ	(±5% 1/2W)
NH85 × × × 110	RF73B2A × × × × ΩJ	(±5% 1/10W)
NH95 × × × 140	RF73B2E × × × × ΩJ	(±5% 1/4W)

* Resistance value Resistance value (0.1 - 10kΩ)

2. Matsushita Electronic Components Co., Ltd

Part No. (MJI)	Type No. (MEC)	Description
NF05 × × × 140	ERD-2FCJ × × ×	(±5% 1/4W)
RF05 × × × 140	ERD-2FCG × × ×	(±2% 1/4W)
NF02 × × × 140		
RF02 × × × 140		

* Resistance value * Resistance value

Examples ;

* Resistance value
 0.1Ω ... 001 10Ω ... 100 1kΩ ... 102 100kΩ ... 104
 0.5Ω ... 005 18Ω ... 180 2.7kΩ ... 272 680kΩ ... 684
 1Ω ... 010 100Ω ... 101 10kΩ ... 103 1MΩ ... 105
 6.8Ω ... 068 390Ω ... 391 22kΩ ... 223 4.7MΩ ... 475

ABBREVIATION AND MARKS

ANT. : ANTENNA	BATT. : BATTERY
CAP. : CAPACITOR	CER. : CERAMIC
CONN. : CONNECTING	DIG. : DIGITAL
HP : HEADPHONE	MIC. : MICROPHONE
μ-PRO : MICROPROCESSOR	REC. : RECORDING
RES. : RESISTOR	SPK : SPEAKER
SW : SWITCH	TRANSF. : TRANSFORMER
TRIM. : TRIMMING	TRS. : TRANSISTOR
VAR. : VARIABLE	X'TAL : CRYSTAL

NOTE ON SAFETY :

Symbol \triangle Fire or electrical shock hazard. Only original parts should be used to replaced any part marked with symbol \triangle . Any other component substitution (other than original type), may increase risk of fire or electrical shock hazard.

安全上の注意 :

\triangle がついている部品は、安全上重要な部品です。必ず指定されている部品番号の部品を使用して下さい。

(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				
			SEMICONDUCTORS		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
			FRONT CIRCUIT BOARD		3465		4822 116 52257	22kΩ ±5% 0.5W	QP11652257
			CAPACITORS		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. (MUJ)	POS. NO.	VERS. COLOR	PART NO. (FOR PCS)	DESCRIPTION	PART NO. (MUJ)
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					TONE CIRCUIT BOARD	
▲ 6401		4822 130 30621	DIODE 1N4148	QP13030621				CAPACITORS	
∫					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				RESISTORS	
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
			MISCELLANEOUS		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	∫		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 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					