Service
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Product Service Group CE Audio

Service Information

Already published Service Informations :

CORRECTION TO SERVICE MANUAL

*Page 4-1 : Due to some update, the Set Block Diagram is enclosed.

*Page 9-5 : Due to some error, the Tape Adjustment & Check Table is enclosed.

***Correction of Mechanical & Accessories parts list (Page 13-2):**

Add	0309	4822 462 40683	Plate (Foot)
	0310	4822 462 40683	Plate (Foot)
	1501	3139 110 33960	FFC Foil 04P/120/04P BD /21
Change	0101	8240 008 57320	Cabinet Front /21
	0128	3139 118 15750	Window Display /21
	0142	3139 114 71310	Knob Level Karaoke /21
	1300	3139 110 35350	FFC Foil 11P/220/11P AD
	1800	3139 110 34800	FFC Foil 19P/180/19P BD

***Correction of circuit drawing and parts list for Front Board:**

Add	2415	4822 122 33777	47pF 5% 63V
	2416	4822 122 33848	47pF 5% 50V
	2459	4822 122 31765	100pF 2% 63V
	2462	4822 122 31765	100pF 2% 63V
	3416	4822 051 30103	10k 5% 0,062W
	3538	4822 051 30102	1k 5% 0,062W
	3540	4822 051 30102	1k 5% 0,062W
	4404	4822 051 30008	0R Jumper 0603 /21/37
	6440	4822 130 30621	1N4148 /21
	6448	4822 130 30621	1N4148 /22/30/34
Change	2400	4822 124 23432	100uF 20% 10V
	3808	4822 117 12968	820R 5% 0,62W /21
	6414	9322 155 59676	LED VS LTL-4222N
	6415	9322 155 59676	LED VS LTL-4222N
Delete	4405, 4406, 4491, 4493, 4497, 4501		
Delete	3430, 3431, 4448, 6406, 6411, 7411 /21/37		

***Correction of circuit drawing and parts list for AF9 Board:**

Add	1206	4822 267 11039	Flex Connector 11P
	2924	5322 126 11578	1nF 10% 50V /21
	3820	4822 116 52176	10R 5% 0,5W /22/30/34
	4148	4822 051 30008	0R Jumper 0603
	4149	4822 051 30008	0R Jumper 0603
	4150	4822 051 30008	0R Jumper 0603
	4151	4822 051 30008	0R Jumper 0603
	4152	4822 051 30008	0R Jumper 0603
Change	2401	4822 122 33777	47pF 5% 63V
	2402	4822 122 33777	47pF 5% 63V
	3534	4822 051 30273	27k 5% 0,062W
Delete	1201, 3662, 4102, 4118, 4801		
Delete	2208, 2209, 6206, 7202 /21/37		
Delete	4501 /21		

CHANGES DURING PRODUCTION

MECHANICAL & ACCESSORIES PARTS LIST (Page 13-2)

*From production week 0140 onwards the following has been changed due to UL Requirement to use V2 material for all major enclosure parts.

Change	0253	3139 114 74750	Panel Left (V2)
	0254	3139 114 74760	Panel Right (V2)
	0255	3139 114 74770	Cover Top (V2)
	0256	3139 114 74810	Panel Rear (V2)

(For /37 only)

FRONT BOARD

*From production week 0050 onwards the following has been changed to prevent ECO LED flashing when power up and for process improvement.

Change	2486	4822 124 11947	10uF 20% 16V

(For /22/30/34 only)

*From production week 0050 onwards pt.2a Board (identified by the last digit of the 12NC – 3139 113 3442**2a**) is introduced. For this reason new layout and circuit drawing are enclosed.

Reason: To modify the Karaoke PCB to resolve the Karaoke PCB clashing with the CDC-LC module.

*From production week 0104 onwards the following has been changed to avoid erratic volume change.

Change	3537	4822 051 30682	6k8 5% 0,062W
	3539	4822 051 30682	6k8 5% 0,062W

(P.T.O.)

*From production week 0108 onwards the following has been changed to 5mm LED pitch type for proper AI process for process inprovement.

Change	6411	9322 167 73676	LED VS LTL-4221NLC-KA (For /22/30/34 only)

*From production week 0121 onwards the software of the main processor IC (7400) has been upgrade to version 17. The service code is 9965 000 10408.

*From production week 0145 onwards the software of the main processor IC (7400) has been upgrade to version 20. The service code is 9965 000 10408.

AF9 BOARD

*From production week 0050 onwards the following has been changed for EMC improvement.

Add	4813	4822 051 20008	0R Jumper 0805
Delete	2901		

*From production week 0052 onwards the following has been changed for EMC and ESD improvement.

Add	2922	4822 122 31765	100pF 2% 63V
	2923	4822 121 51387	10nF 20% 16V

*From production week 0122 onwards the following has been changed to improve GSM immunity performance.

Add	3525	4822 051 30471	470R 5% 0,062W
	3526	4822 051 30471	470R 5% 0,062W
	3645	4822 051 30221	220R 5% 0,062W
	3646	4822 051 30221	220R 5% 0,062W
	4153	4822 051 30008	0R Jumper 0603
	4641	4822 051 30008	0R Jumper 0603
	4642	4822 051 30008	0R Jumper 0603
Delete	3641, 3642		

*From production week 0122 onwards the following has been changed for fault condition +5V6_con.

Add	2210	4822 126 13879	220nF +80/-20% 16V
	3821	4822 052 10109 ⚠	10R 5% 0,33W
Change	2208	4822 126 13879	220nF +80/-20% 16V (For /22/30/34 only)

*From production week 0133 onwards the following has been changed due to tick sound audible when volume up/down if ELCO reverse current leakage >0.3uA.

Change	2503	4822 124 22466	1uF 20% 50V
	2504	4822 124 22466	1uF 20% 50V
	2511	4822 124 22466	1uF 20% 50V
	2512	4822 124 22466	1uF 20% 50V

*During production pt.4 Board (identified by the last digit of the 12NC – 3139 113 3435**4**) is introduced. For this reason new layout and circuit drawing are enclosed.

POWER 2001 MODULE (30-70W VERSION)

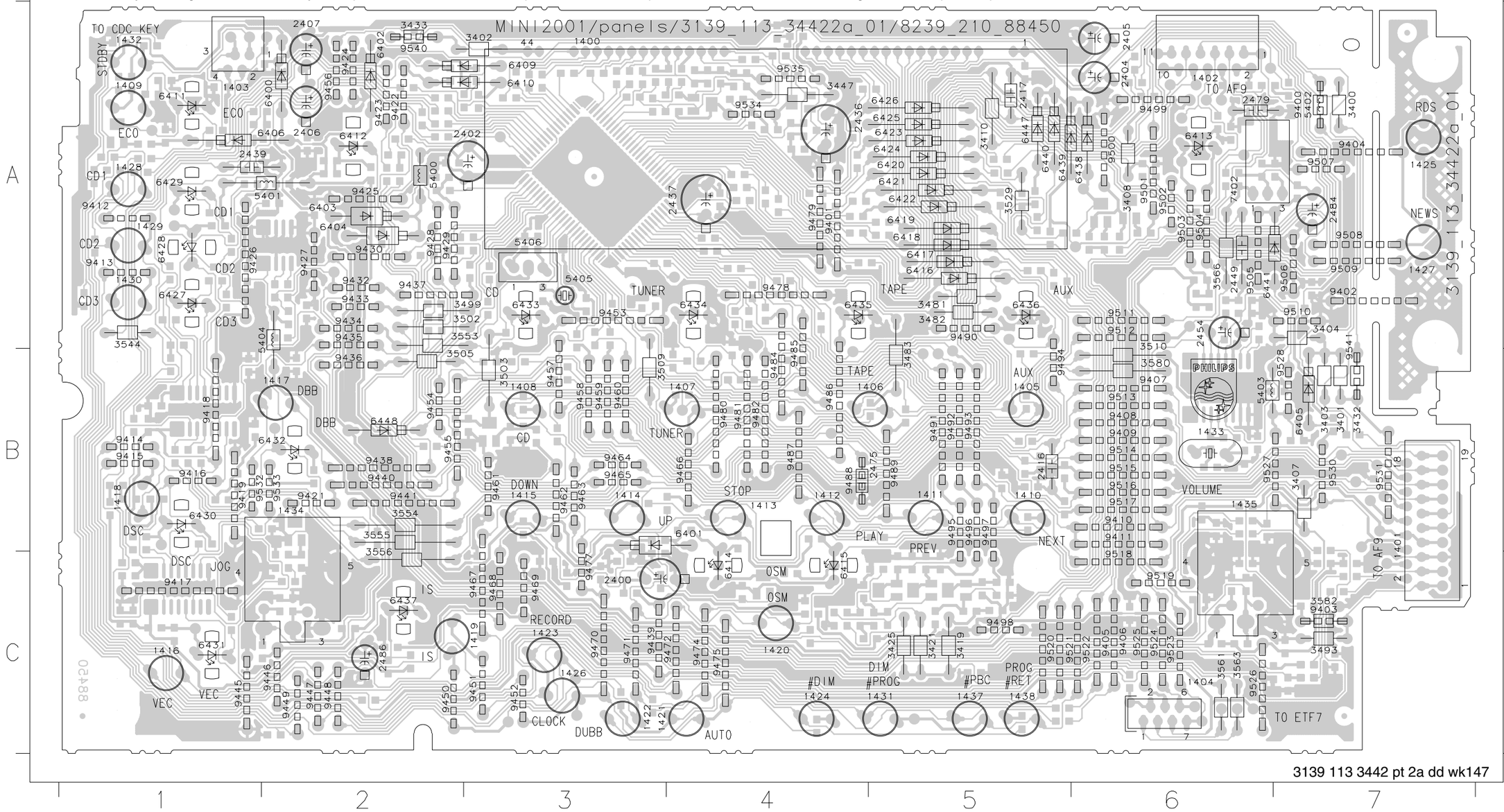
*During production pt.9 Board (identified by the last digit of the 12NC - 3103 303 3446**9** Mains Board & 3103 303 3447**9** Power Board) is introduced. For this reason new layout, circuit drawing and parts list are enclosed.

FRONT BOARD

FRONT BOARD - COMPONENT LAYOUT

1400	A31412	B41424	C41437	C52439	A13407	B73493	C73556	C25406	A36413	A66425	A56437	C29404	A79416	B19429	A29445	C19457	B39469	C39484	B49496	B59508	A79520	C59533	B2
1401	B71413	B41425	A71438	C52449	A63408	A63499	A33561	C66400	A26414	C46426	A56438	A69405	C69417	C19430	A29446	C29458	B39470	C39485	B49497	B59509	A79521	C59534	A4
1402	A61414	B31426	C32400	C32454	A63410	A53502	A33563	C66401	B46415	C46427	A16439	A59406	C69418	B19432	A29447	C29459	B39471	C39486	B49498	C59510	A79522	C69535	A4
1403	A11415	B31427	A72402	A32475	B53419	C53503	B33566	A66402	A26416	A56428	A16440	A59407	B69419	B19433	A29448	C29460	B39472	C49487	B49499	A69511	A69523	C69540	A2
1404	C61416	C11428	A12404	A62479	A63421	C53505	B23580	B66403	A26417	A56429	A16441	A69408	B69421	B29434	A29449	C29461	B39474	C49488	B49500	A69512	A69524	C69541	A7
1405	B51417	B21429	A12405	A62484	A73425	C53509	B33582	C76404	A26418	A56430	B16447	A59409	B69422	A29435	A29450	C29462	B39475	C49489	B59501	A69513	B69525	C6		
1406	B51418	B11430	A12406	A22486	C23432	B73510	A65400	A26405	B76419	A56431	C16448	B29410	B69423	A29436	B29451	C39463	B39477	C39490	A59502	A69514	B69526	C6		
1407	B41419	C31431	C52407	A23400	A73433	A23529	A55401	A26406	A26420	A56432	B27402	A69411	B69424	A29437	A29452	C39464	B39478	A49491	B59503	A69515	B69527	B6		
1408	B31420	C41432	A12416	B53401	B73447	A43544	A15402	A76409	A36421	A56433	A39400	A79412	A19425	A29438	B29453	A39465	B39479	A49492	B59504	A69516	B69528	B7		
1409	A11421	C31433	B62417	A53402	A33481	A53553	A35403	B66410	A36422	A56434	A49401	A49413	A19426	A19439	C39454	B29466	B49480	B49493	B59505	A69517	B69530	B7		
1410	B51422	C31434	B22436	A43403	B73482	A53554	B25404	A26411	A16423	A56435	A49402	A79414	B19427	A29440	B29455	B29467	C39481	B49494	B59506	A79518	C69531	B7		
1411	B51423	C31435	B62437	A43404	A73483	B53555	B25405	A36412	A26424	A56436	A59403	C79415	B19428	A29441	B29456	A29468	C39482	B49495	B59507	A79519	C69532	B1		

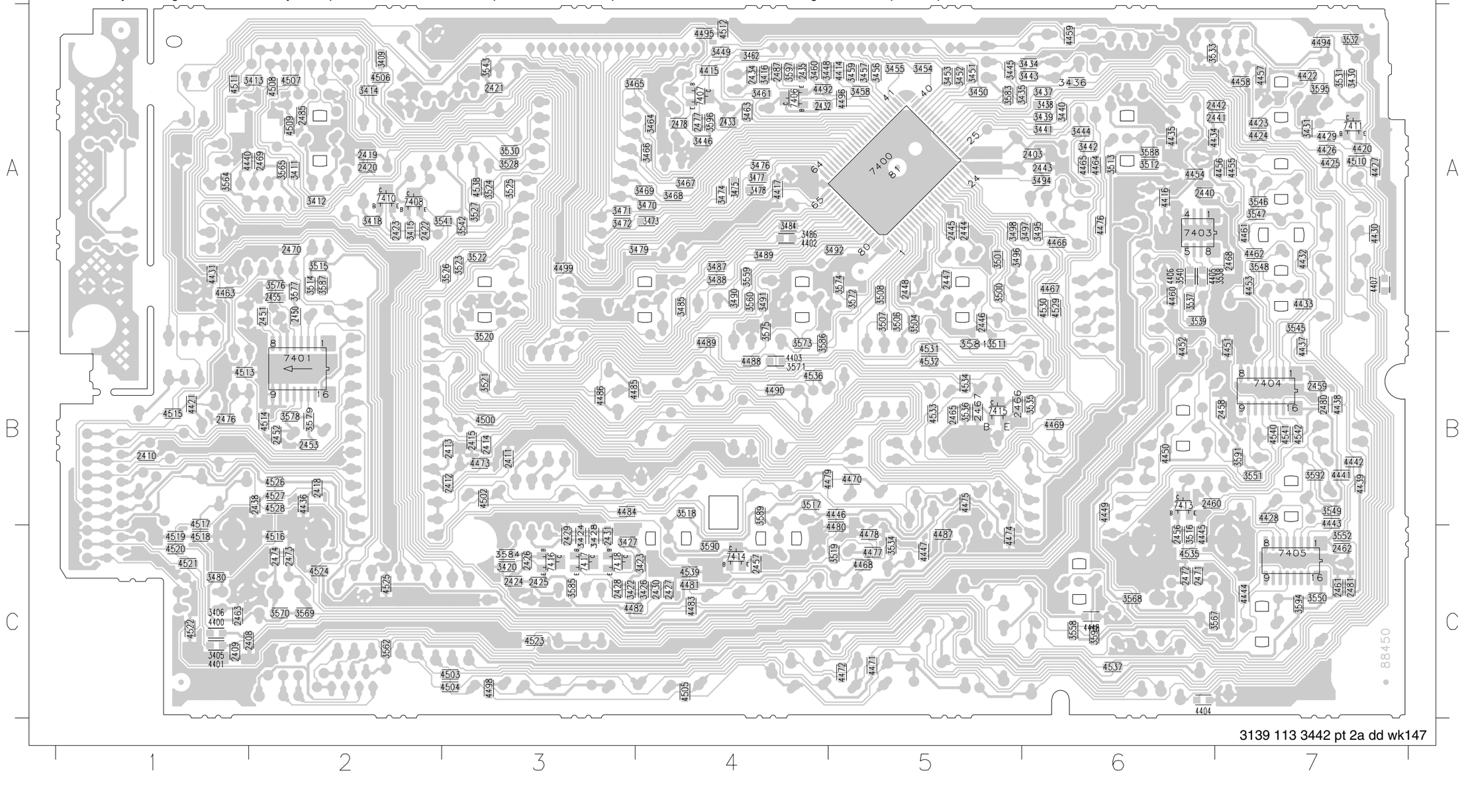
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.



FRONT BOARD - CHIP LAYOUT

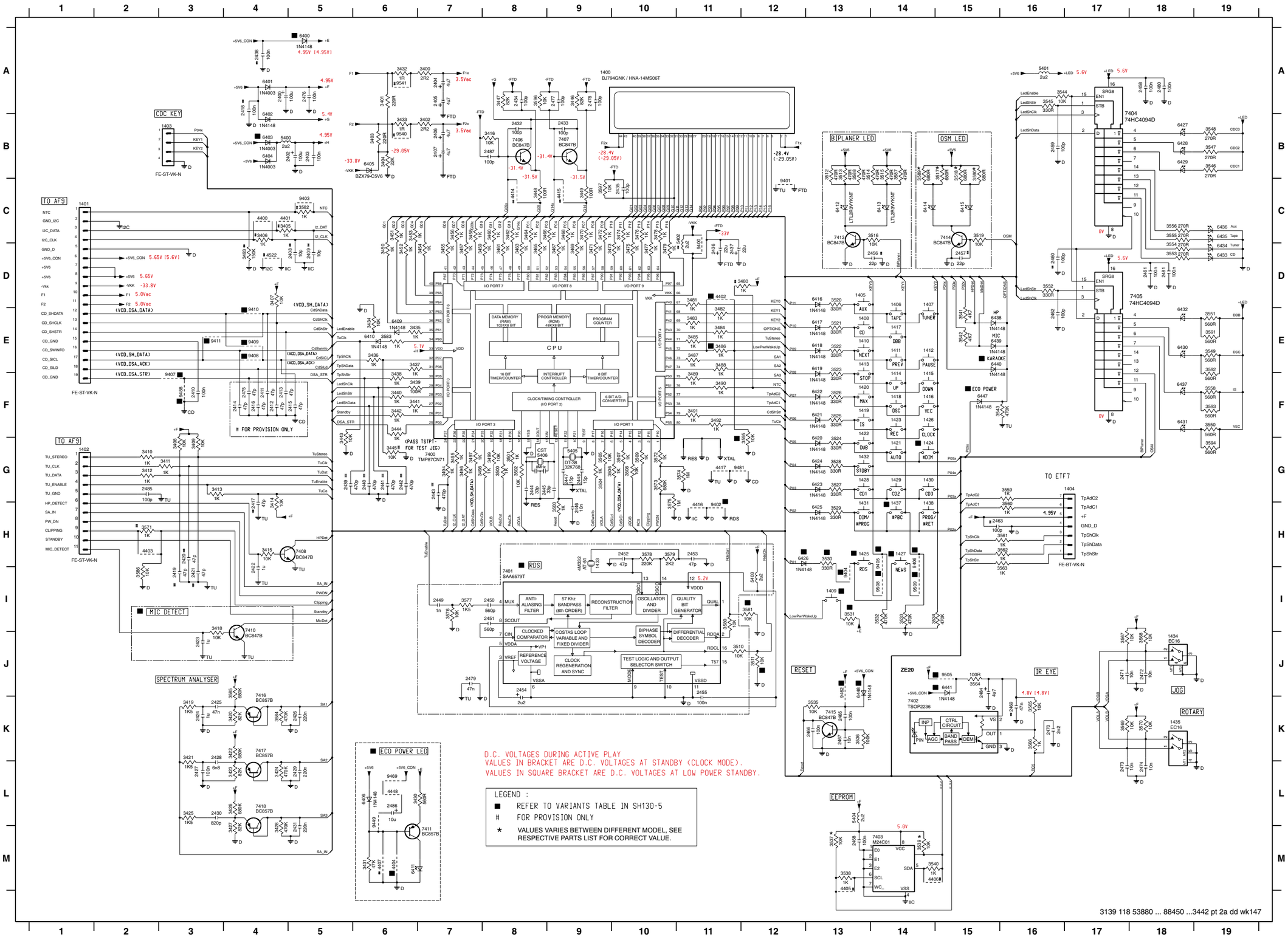
2403	A62425	C32444	A52462	C72481	C73424	C33444	A63461	A43477	A43497	A63519	C53536	B53558	C63577	A23595	A74421	B14437	B74453	A74469	B64485	B34505	C44521	C14537	C67413	B6
2408	C12426	C32445	A52463	C12485	A23426	C43445	A53462	A43478	A43498	A53520	B33537	A63559	A43578	B23596	A44422	A74438	B74454	A64470	B54486	B34506	A24522	C14538	A37414	C4
2409	C12427	C42446	A52465	B52487	A43427	C33446	A43463	A43479	A43500	A53521	B33538	A73560	A43579	B23597	A44423	A74439	B74455	A74471	C54487	C54507	A24523	C33439	C47415	B5
2410	B12428	C32447	A52466	B53405	C13428	C33448	A43464	A43480	C13501	A53522	A33539	A63562	C23581	B54400	C14424	A74440	A14456	A74472	C54488	B44508	A24524	C24540	B77416	C3
2411	B32429	C32448	A52467	B53406	C13430	A73449	A43465	A33884	A43504	A53523	A33540	A63564	A13583	A54401	C14425	A74441	B74457	A74473	C54489	B44509	A24525	B24541	B77417	C3
2412	B32430	C42450	A22468	A73409	A23431	A73450	A53466	A43485	A43506	A53524	A33541	A33565	A23594	C34402	A44426	A74442	B74458	A74474	C54490	B44510	A74526	B24542	B77418	C3
2413	B32431	C32451	A22469	A23411	A23434	A63451	A53467	A43486	A43507	A53525	A33542	A33567	C63585	C34403	B44427	A74443	B74459	A64475	B54492	A44511	A14527	B27400	A5	
2414	B32432	A42452	B22470	A23412	A23435	A53452	A53468	A43487	A43508	A53526	A33543	A33568	C63586	B44404	C64428	B74444	C74460	A64476	A64494	A74512	A44528	B27401	B2	
2415	B32433	A42453	B22471	C63413	A23436	A63453	A53469	A43488	A43511	B53527	A33545	A74569	C23587	A24405	A64429	A74445	C64461	A74477	C54495	A44513	B14529	A67403	A6	
2418	B22434	A42455	A22472	C63414	A23437	A63454	A53470	A43489	A43512	A63528	A33546	A73570	C23588	A64406	A64430	A74446	B54462	A74478	C54496	A54514	B24530	A67404	B7	
2419	A22435	A42456	C62473	C23415	A23438	A63455	A53471	A33490	A43513	A63530	A33547	A73571	B43589	B44407	A74431	A14447	C54463	A14479	B54498	C34515	B14531	B57405	C7	
2420	A22438	B22457	C42474	C23416	A43439	A63456	A53472	A33491	A43514	A23531	A73548	A73572	A53590	C44414	A54432	A74448	C64464	A64480	C54499	A34516	C24532	B57406	A4	
2421	A32440	A62458	B72476	B13418	A23440	A63457	A53473	A43492	A53515	A23532	A73549	B73573	B43591	B74415	A44433	A74449	B64465	A64481	C44500	B34517	B14533	B57407	A4	
2422	A22441	A72459	B72477	A43420	C33441	A63458	A53474	A43494	A63516	C63533	A63550	C73574	A53592	B74416	A64434	A64450	B64466	A64482	C34502	B34518	C14534	B57408	A2	
2423	A22442	A72460	B62478	A43422	C33442	A63459	A53475	A43495	A63517	B43534	C53551	B73575	A43593	C64417	A44435	A64451	B74467	A64483	C44503	C34519	C14535	C67410	A2	
2424	C32443	A62461	C72480	B73423	C43443	A63460	A43476	A43496	A53518	B43535	B63552	C73576	A23594	C74420	A74436	B24452	B64468	C54484	B34504	C34520	C14536	B47411	A7	

This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.



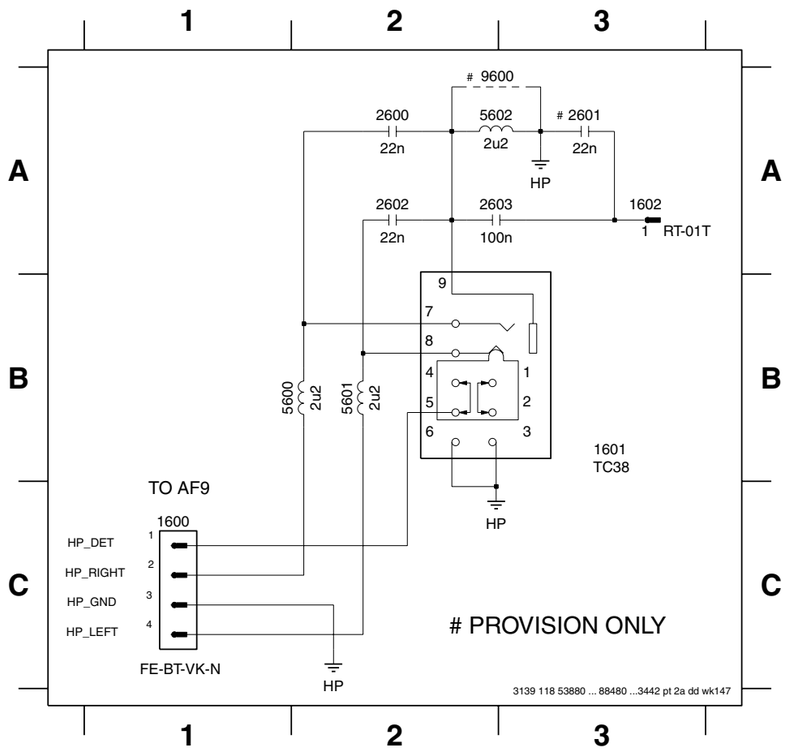
3139 113 3442 pt 2a dd wk147

FRONT BOARD - CIRCUIT DIAGRAM



1400 A9 3445 G6 4522 D4
1401 C1 3446 A9 5400 B4
1402 G1 3447 A8 5401 A16
1403 B3 3448 C8 5402 C11
1404 G16 3449 C9 5403 I12
1405 D13 3450 D6 5404 L13
1406 D14 3451 C6 5405 G9
1407 D14 3452 D6 5406 G8
1408 E13 3453 C6 6400 A5
1409 I13 3454 D7 6401 A4
1410 E13 3455 D7 6402 B4
1411 E14 3456 C7 6403 B4
1412 E14 3457 D7 6404 B4
1413 E13 3458 C7 6405 B6
1414 F14 3459 D7 6406 L6
1415 F14 3460 C8 6409 E6
1416 F14 3461 D8 6410 E6
1417 E14 3462 C8 6411 M6
1418 F14 3463 D8 6412 C13
1419 F13 3464 C8 6413 C14
1420 F13 3465 D8 6414 C14
1421 G14 3466 C8 6415 C15
1422 F13 3467 D9 6416 D13
1423 F14 3468 C9 6417 E13
1424 G14 3469 D9 6418 E13
1425 H13 3470 C9 6419 E13
1426 F14 3471 D9 6420 G13
1427 H14 3472 C9 6421 F13
1428 G13 3473 D9 6422 F13
1429 G14 3474 C10 6423 G13
1430 G14 3475 D10 6424 G13
1431 H13 3476 C10 6425 H13
1432 G13 3477 D10 6426 H12
1433 H9 3478 C10 6427 B18
1434 J18 3479 D10 6428 B18
1435 K18 3480 D12 6429 B18
1437 H14 3481 D11 6430 E18
1438 H14 3482 E11 6431 F18
2400 A4 3483 E11 6432 E18
2402 B5 3484 E11 6433 D19
2403 B5 3485 E11 6434 D19
2404 A7 3486 E11 6435 C19
2405 A7 3487 E11 6436 C19
2406 B7 3488 E11 6437 F18
2407 B7 3489 F11 6438 E15
2408 D5 3490 F11 6439 E15
2409 D5 3491 F11 6440 E15
2410 F3 3492 F11 6441 J15
2411 F4 3493 D4 6447 F15
2412 F4 3494 G7 6448 J13
2413 F4 3495 G7 7402 K14
2414 F4 3496 G7 7403 M14
2415 F5 3497 G7 7404 B17
2416 F4 3498 G7 7405 D18
2417 H4 3499 G8 7406 B8
2418 A4 3500 G8 7407 B9
2419 I3 3501 G8 7408 H5
2420 H3 3502 G8 7410 J4
2421 I3 3503 H9 7411 M7
2422 I4 3504 G9 7413 C13
2423 J3 3505 G9 7414 C15
2424 K3 3506 G9 7415 K13
2425 K3 3507 G10 7416 J4
2426 K5 3508 G10 7417 K4
2427 L3 3509 G10 7418 L4
2428 K3 3510 J11 9400 D11
2429 L5 3511 J12 9401 C12
2430 L3 3512 B13 9402 H11
2431 M5 3513 B13 9403 C5
2432 B8 3514 B13 9404 I13
2433 B9 3515 B14 9405 H14
2434 A8 3516 C14 9406 H14
2435 C10 3517 B15 9407 E3
2436 D11 3518 B15 9408 E4
2437 D11 3519 C15 9409 E4
2438 A4 3520 D13 9410 D4
2439 G5 3521 E13 9411 E3
2440 G6 3522 E13 9449 L6
2441 G6 3523 E13 9462 J13
2442 G6 3524 G13 9469 L6
2443 G7 3525 F13 9481 G11
2444 G8 3526 F13 9488 F3
2445 G8 3527 G13 9505 J15
2446 H9 3528 G13 9508 I14
2447 G9 3529 H13 9509 I14
2448 G9 3530 H13 9540 B6
2449 I7 3531 I13 9541 A6
2450 I8 3532 I14
2451 I8 3533 I14
2452 H10 3534 I15
2453 H11 3535 K13
2454 J8 3536 K13
2455 J11 3537 M13
2456 D14 3538 M13
2457 D15 3539 M14
2458 A18 3540 M14
2459 B16 3541 E15
2460 D16 3542 E15
2461 D18 3543 F15
2462 E16 3544 A16
2463 H15 3545 A16
2465 K13 3546 B19
2466 K13 3547 B19
2467 K13 3548 B19
2468 M13 3549 E19
2469 K16 3550 F19
2470 K16 3551 E19
2471 J17 3552 D16
2472 J18 3553 D18
2473 L17 3554 D18
2474 L18 3555 C18
2475 F4 3556 C18
2476 A5 3558 F19
2477 A9 3559 G16
2478 A9 3560 H16
2479 J7 3561 H16
2480 A18 3562 H16
2481 D18 3563 I16
2484 J15 3564 J15
2485 G2 3565 K16
2486 L6 3566 K16
2487 B8 3567 J17
3400 A7 3568 J18
3401 A6 3569 K17
3402 B7 3570 K18
3403 B6 3571 H2
3404 B6 3572 G10
3405 C4 3573 G10
3406 C4 3574 G11
3407 D4 3575 H10
3408 G3 3576 I7
3409 G3 3577 I7
3410 G2 3578 H10
3411 G3 3579 H10
3412 G2 3580 I11
3413 G3 3581 I12
3414 H4 3582 C5
3415 H4 3583 E6
3416 B8 3584 K4
3418 I3 3585 J4
3419 K3 3586 I2
3420 K4 3587 B14
3421 K3 3588 B13
3422 K4 3589 B14
3423 L4 3590 B15
3424 L4 3591 E19
3425 L3 3592 E19
3426 L4 3593 F19
3427 M4 3594 G19
3428 M4 3595 G12
3430 L6 3596 A8
3431 M6 3597 C9
3432 A6 4400 C4
3433 B6 4401 C4
3434 E6 4402 D11
3435 E6 4403 H2
3436 E6 4404 M6
3437 E6 4405 M13
3438 F6 4406 M14
3439 F6 4407 M6
3440 F6 4414 C8
3441 F6 4415 C9
3442 F6 4416 H11
3443 G5 4417 G11
3444 F6 4448 L6

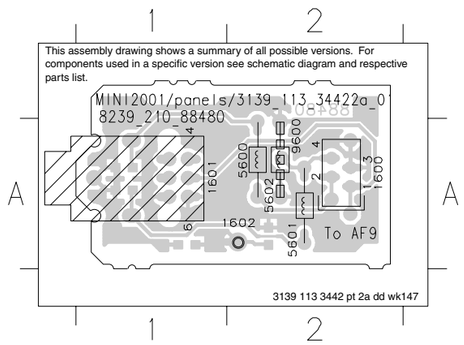
HEADPHONE PART - CIRCUIT DIAGRAM



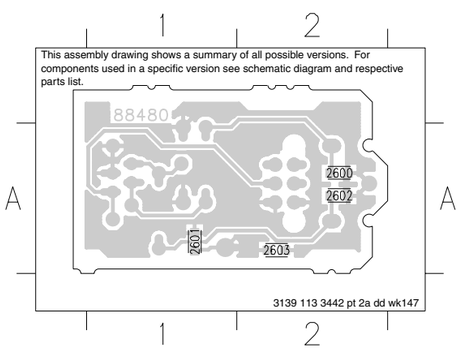
1600 C1
1601 B3
1602 A3
2600 A2
2601 A3
2602 A2
2603 A2
5600 B2
5601 B2
5602 A2
9600 A2

HEADPHONE BOARD - COMPONENT & CHIP LAYOUT

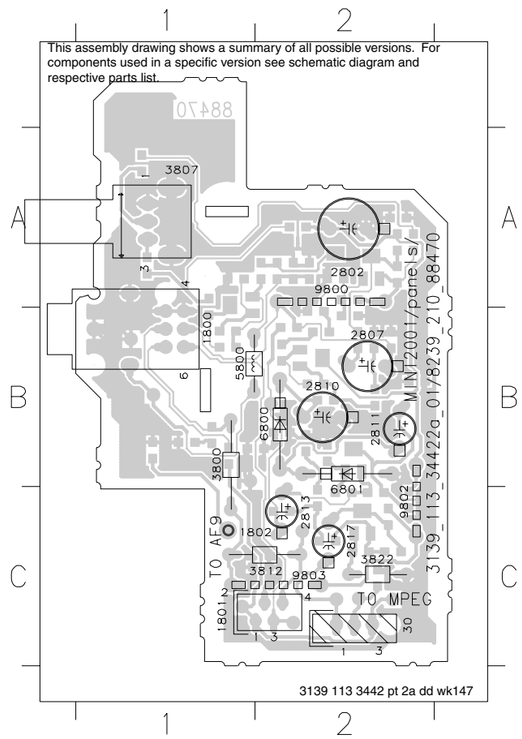
1600 A2 1602 A2 5601 A2 9600 A2
1601 A1 5600 A2 5602 A2



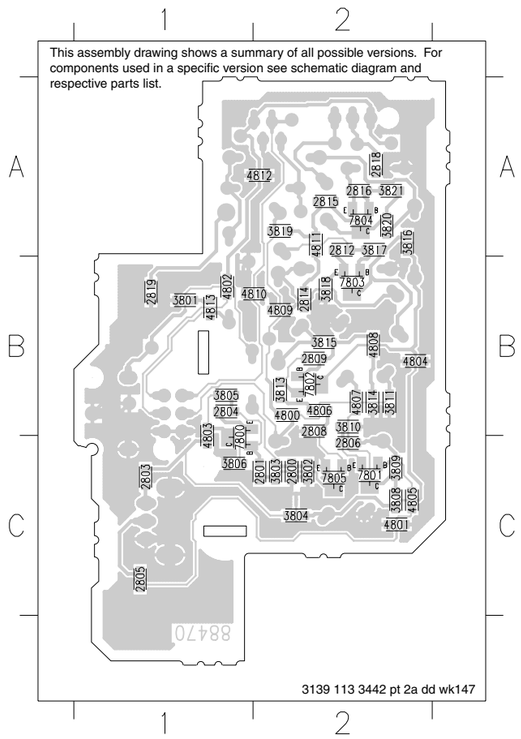
2600 A2 2601 A1 2602 A2 2603 A2



KARAOKE BOARD - COMPONENT & CHIP LAYOUT



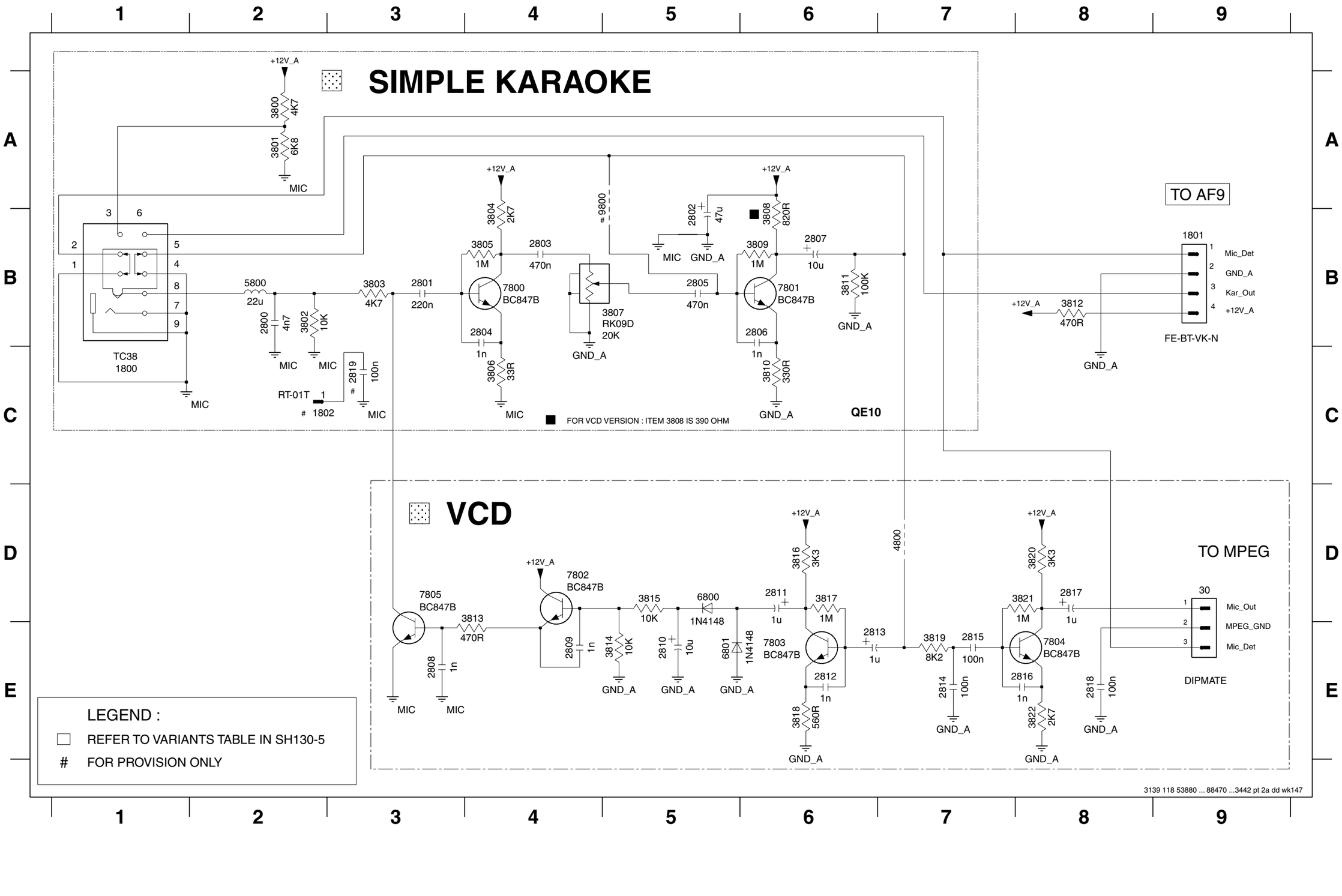
30 C2
1800 B1
1801 C1
2802 A2
2807 B2
2810 B2
2811 B2
2813 C2
2817 C2
3800 B1
3807 A1
3812 C2
3822 C2
5800 B1
6800 B2
6801 C2
9800 A2
9802 C2
9803 C2



2800 C2
2801 C2
2803 C1
2804 B1
2805 C1
2806 C2
2808 B2
2809 B2
2812 A2
2814 B2
2815 A2
2816 A2
2818 A2
2819 B1
3801 B1
3802 C2
3803 C2
3804 C2
3805 B1
3806 C1
3808 C2
3809 C2
3810 B2
3811 B2
3813 B2
3814 B2
3815 B2
3816 A2
3817 A2
3818 B2
3819 A2
3820 A2
3821 A2
4800 B2
4801 C2
4802 B1
4803 B1
4804 A2
4805 C2
4806 B2
4807 B2
4808 B2
4809 B2
4810 B2
4811 A2
4812 A2
4813 B1
7800 C1
7801 C2
7802 B2
7803 B2
7804 A2
7805 C2

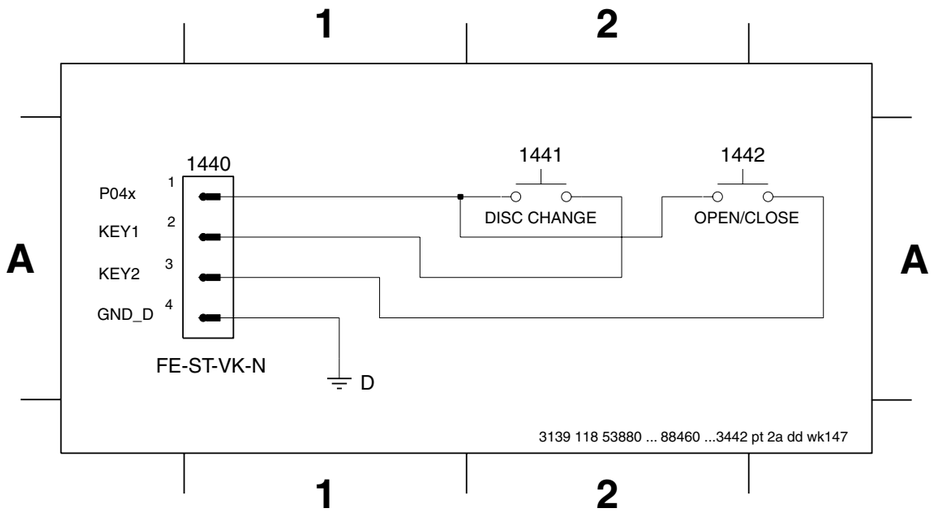
KARAOKE PART - CIRCUIT DIAGRAM

30 D9	1802 C2	2802 B5	2805 B5	2808 E3	2811 D6	2814 E7	2817 D8	3800 A2	3803 B3	3806 C4	3809 B6	3812 B8	3815 D5	3818 E6	3821 D8	5800 B2	7800 B4	7803 E6	9800 A5
1800 C1	2800 B2	2803 B4	2806 B6	2809 E4	2812 E6	2815 E7	2818 E8	3801 A2	3804 B4	3807 B4	3810 C6	3813 D4	3816 D6	3819 E7	3822 E8	6800 D5	7801 B6	7804 E8	
1801 B9	2801 B3	2804 B4	2807 B6	2810 E5	2813 E6	2816 E8	2819 C3	3802 B2	3805 B4	3808 B6	3811 B6	3814 E5	3817 D6	3820 D8	4800 D7	6801 E5	7802 D4	7805 D3	



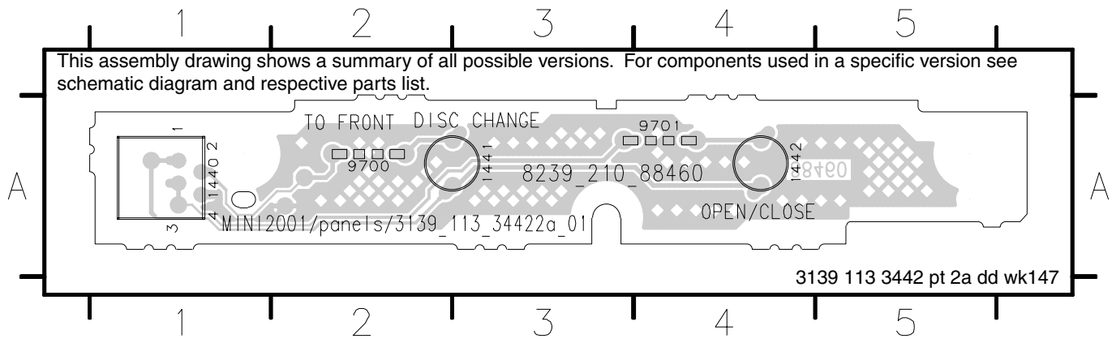
KEY-CDC PART - CIRCUIT DIAGRAM

1440 A1 1441 A2 1442 A2



KEY-CDC BOARD - COMPONENT LAYOUT

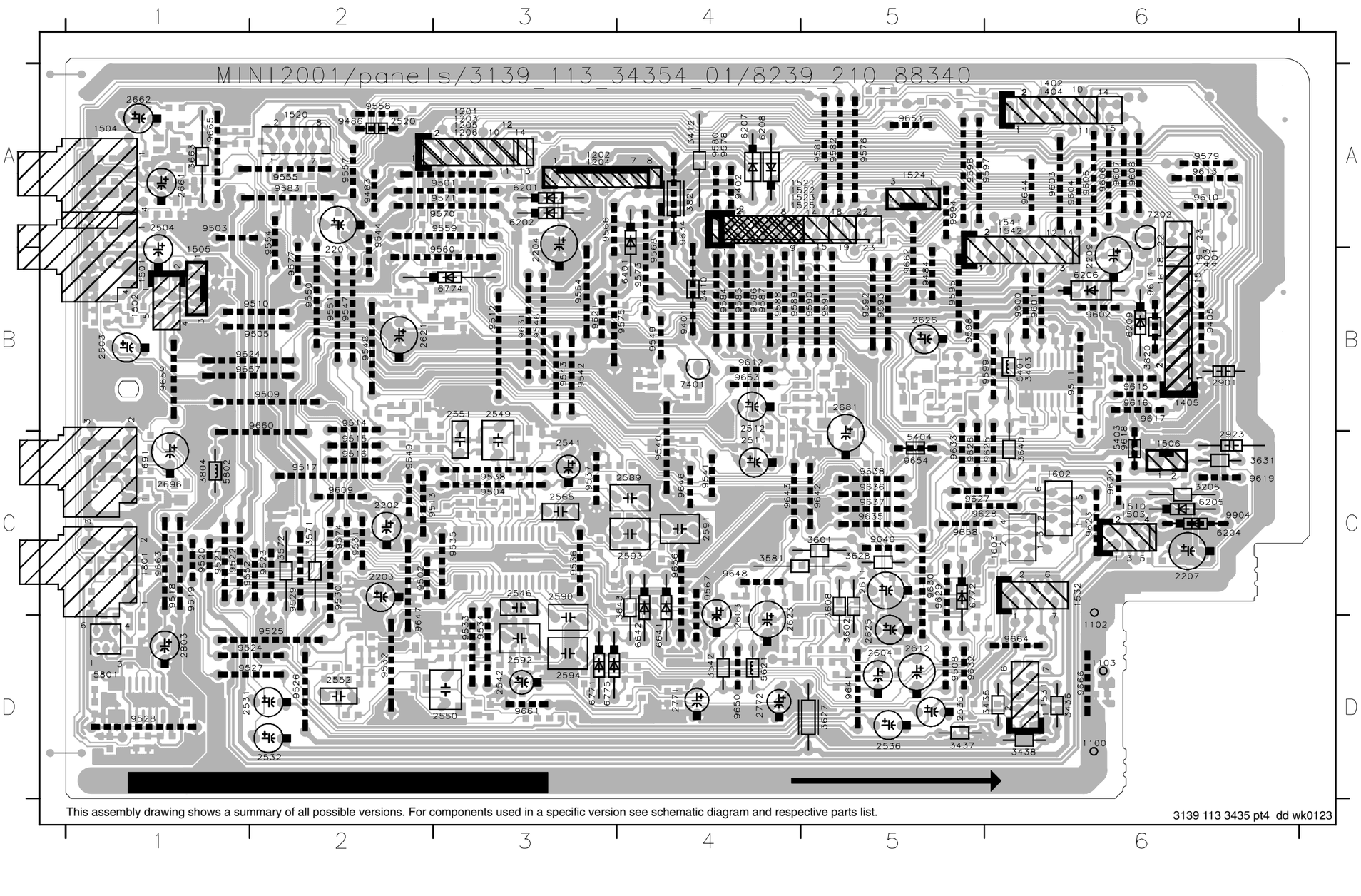
1440 A1 1441 A3 1442 A4 9700 A2 9701 A4



AF9 BOARD

AF9 BOARD - COMPONENT LAYOUT

1100 D6	1503 C6	1603 C6	2535 D5	2603 D4	2923 C6	3627 D5	6202 A3	9401 B4	9513 C2	9529 C2	9547 B2	9570 A3	9587 B4	9603 A6	9620 C6	9637 C5	9657 B1
1102 D6	1504 A1	1691 C1	2536 D5	2604 D5	3205 C6	3628 C5	6204 C6	9402 A4	9514 B2	9530 C2	9548 B2	9571 A3	9588 B4	9604 A6	9621 B3	9638 C5	9658 C5
1103 D6	1505 B1	1801 C1	2541 C3	2611 C5	3403 B6	3631 C6	6205 C6	9405 B6	9515 C2	9531 C2	9549 B4	9573 B4	9589 B4	9605 A6	9623 C6	9640 C5	9659 B1
1201 A3	1506 C6	2201 B2	2542 D3	2612 D5	3410 B4	3640 C6	6206 B6	9483 A2	9516 C2	9532 D2	9550 B2	9574 C2	9590 B5	9606 A6	9624 B1	9641 D5	9660 B2
1202 A3	1510 C6	2202 C2	2546 C3	2621 B2	3412 A4	3643 C4	6207 A4	9484 B5	9517 C2	9533 D3	9551 B2	9575 B4	9591 B5	9607 A6	9625 C6	9642 C5	9661 D3
1203 A3	1520 A2	2203 C2	2549 B3	2623 D4	3435 D6	3663 A1	6208 A4	9486 A2	9518 C1	9534 D3	9552 C1	9576 A5	9592 B5	9608 A6	9626 C5	9643 C4	9662 B5
1204 A3	1521 A5	2204 B3	2550 D3	2625 D5	3436 D6	3804 C1	6209 B6	9501 A3	9519 C1	9535 C3	9554 A2	9577 B2	9593 B5	9609 C2	9627 C5	9644 A6	9663 C1
1205 A3	1522 A5	2207 C6	2551 B3	2626 B5	3437 D5	3820 B6	6401 B4	9502 C2	9520 C1	9536 C3	9555 A2	9578 A4	9594 A5	9610 A6	9628 C5	9646 C4	9664 D6
1206 A3	1523 A5	2209 B6	2552 D2	2661 A1	3438 D6	3821 A4	6641 D4	9503 A1	9521 C1	9537 C3	9557 A2	9579 A6	9595 B5	9612 B4	9629 C5	9647 D2	9665 A1
1401 B6	1524 A5	2503 B1	2565 C3	2662 A1	3542 D4	5401 B6	6642 D4	9504 C3	9522 C1	9538 C3	9558 A2	9580 A4	9596 A5	9613 A6	9630 C5	9648 C4	9666 D6
1402 A6	1525 A5	2504 A1	2589 C4	2681 B5	3571 C2	5403 C6	6771 D3	9505 B2	9523 C2	9540 C4	9559 A3	9581 A5	9597 A6	9614 B6	9631 B3	9649 C2	9904 C6
1403 B6	1531 D6	2511 C4	2590 C3	2696 C1	3572 C2	5404 C5	6772 C5	9508 D5	9524 D2	9541 C4	9560 B3	9582 A5	9598 B5	9615 B6	9632 D5	9650 D4	
1404 A6	1532 C6	2512 B4	2591 C4	2771 D4	3581 C4	5621 D4	6774 B3	9509 B2	9525 D2	9542 B3	9564 B3	9583 A2	9599 B6	9616 B6	9633 C5	9651 A5	
1405 B6	1541 A6	2520 A2	2592 D3	2772 D4	3601 C5	5801 D1	6775 D3	9510 B2	9526 D2	9543 B3	9566 A3	9584 B4	9600 B6	9617 B6	9634 A4	9653 B4	
1501 B1	1542 A6	2531 D1	2593 C4	2803 D1	3602 D5	5802 C1	7202 A6	9511 B6	9527 D2	9544 A2	9567 C4	9585 B4	9601 B6	9618 C6	9635 C5	9654 C5	
1502 B1	1602 C6	2532 D2	2594 D3	2901 B6	3608 C5	6201 A3	7401 B4	9512 B3	9528 D1	9546 B3	9568 B4	9586 B4	9602 B6	9619 C6	9636 C5	9656 C4	

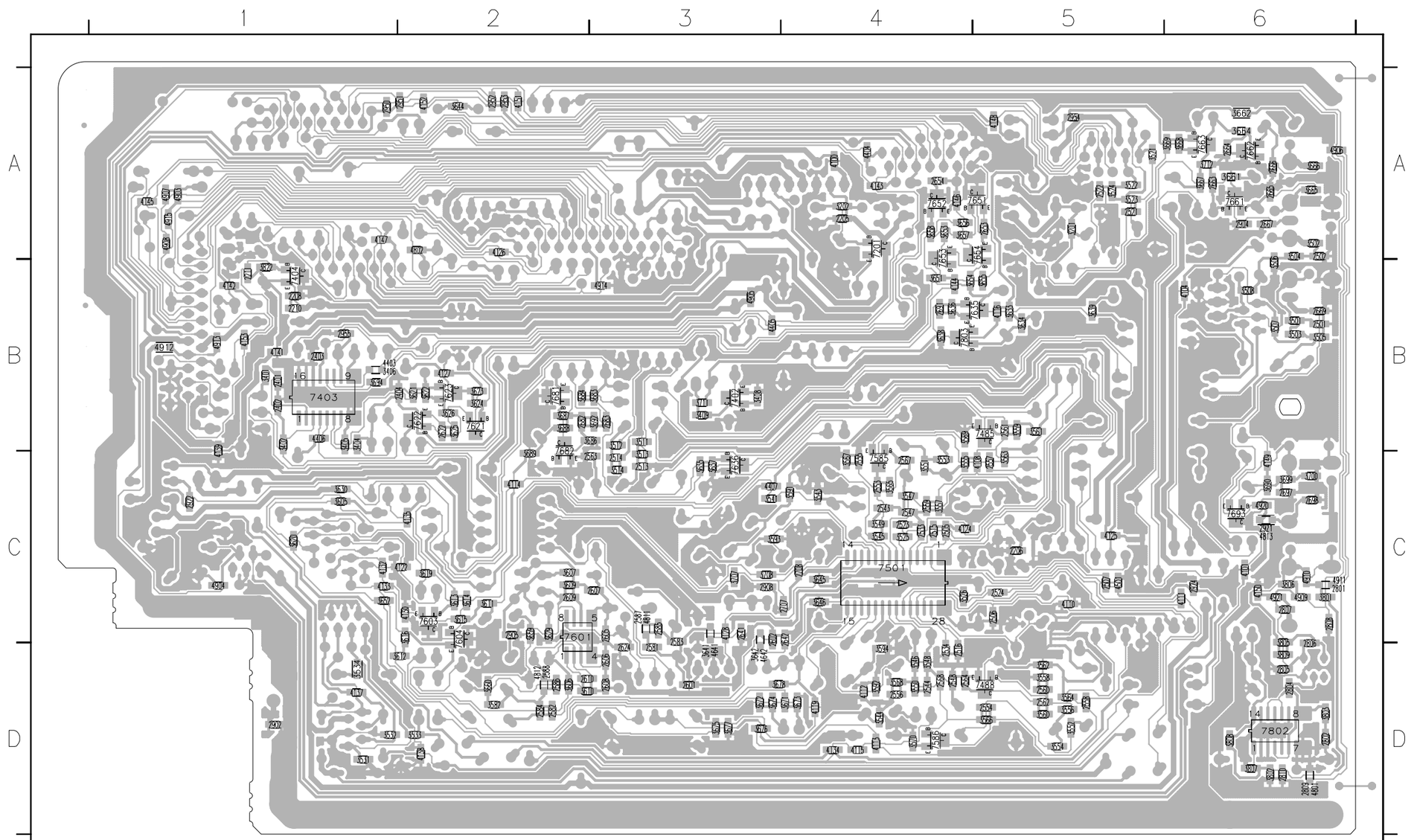


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3435 pt4 dd wk0123

AF9 BOARD - CHIP LAYOUT

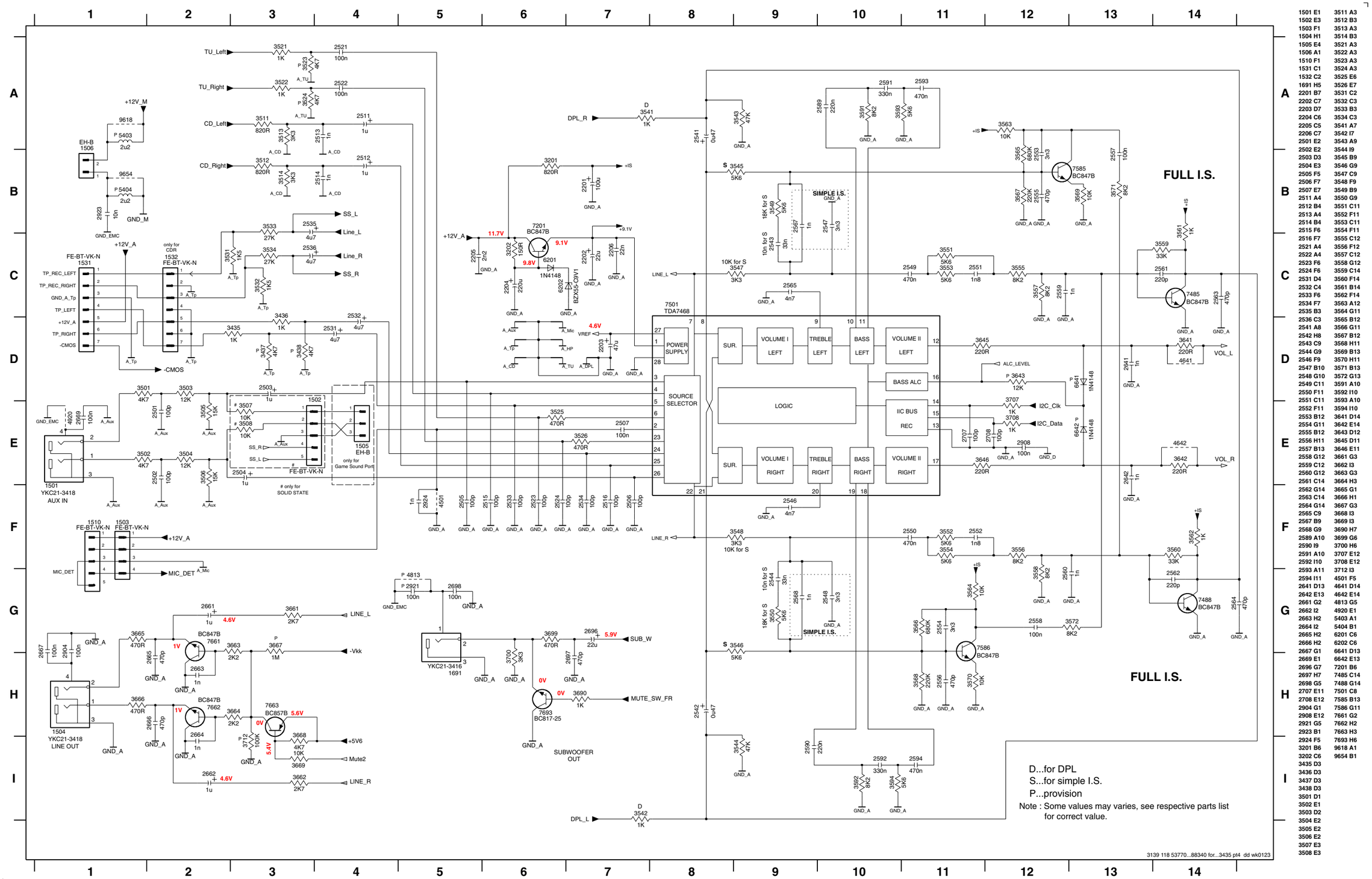
2205 A4	2523 C4	2567 C4	2641 C3	2805 D6	3202 A4	3521 A5	3552 D5	3591 C4	3624 B2	3654 B4	3676 D3	3803 D6	4124 C4	4148 A5	4904 C1	7501 C4	7693 C6
2206 C5	2524 C5	2568 D4	2642 C4	2806 D6	3401 B1	3522 A5	3553 C4	3592 D4	3625 B2	3655 B5	3677 D3	3805 C6	4125 C5	4149 C6	4905 B3	7585 C4	7802 D6
2208 B1	2533 C4	2581 D3	2653 A5	2807 C6	3402 B1	3523 A5	3554 D5	3593 C3	3626 B2	3656 A4	3678 D3	3806 C6	4126 A2	4150 C6	4906 A6	7586 D4	7803 B4
2210 B1	2534 D4	2582 D2	2654 A4	2808 C6	3404 B1	3524 A5	3555 C4	3594 D4	3629 C2	3657 A4	3683 B3	3807 D6	4127 B2	4151 A2	4907 A1	7601 C2	
2211 B1	2543 C4	2583 C3	2663 A6	2809 D6	3405 B1	3525 C4	3556 D5	3605 C1	3630 C1	3658 A4	3684 B2	3808 D6	4128 C3	4152 A2	4908 A1	7603 C2	
2401 B1	2544 D4	2584 D2	2664 A6	2810 D6	3406 B1	3526 C4	3557 C4	3606 D2	3633 B5	3659 C2	3686 B3	3809 D6	4130 C2	4153 B1	4909 C6	7604 C2	
2402 B1	2547 C4	2585 C3	2665 A6	2902 D1	3408 B3	3531 D1	3558 D5	3607 C2	3634 B5	3660 D2	3687 B2	3822 B1	4132 C1	4403 B1	4910 C6	7621 B2	
2403 B1	2548 D4	2586 D2	2666 A6	2904 A6	3409 B3	3532 D1	3559 B5	3609 C2	3635 C3	3661 A6	3688 B2	4100 A4	4133 C1	4404 A4	4911 C6	7622 B2	
2404 B2	2553 C4	2587 C3	2667 A6	2905 C2	3501 B6	3533 D2	3560 D5	3610 D2	3636 B4	3662 A6	3689 C2	4101 C6	4134 D4	4405 B3	4912 B1	7623 B2	
2501 B6	2554 D5	2588 D2	2669 B6	2908 C3	3502 A6	3534 D1	3561 B5	3611 C2	3637 C3	3664 A6	3690 C6	4104 B6	4135 C2	4406 B1	4913 B1	7635 B5	
2502 A6	2555 C4	2601 D3	2682 B2	2921 C6	3503 B6	3541 C3	3562 D5	3612 D2	3638 B4	3665 A6	3692 B3	4108 C5	4137 D1	4407 C3	4914 B3	7636 C3	
2505 C4	2556 D4	2602 C3	2683 B3	2922 C1	3504 A6	3543 C4	3563 C5	3613 C2	3639 B5	3666 A6	3694 B1	4110 C5	4138 D2	4501 C5	4915 A1	7651 A5	
2506 C5	2557 C5	2605 C3	2691 B4	2924 C6	3505 B6	3544 D4	3564 D5	3614 C2	3641 D3	3667 A6	3699 C6	4111 C6	4139 B1	4641 D3	4920 C6	7652 A4	
2507 C5	2558 D5	2606 D3	2697 C6	2950 A1	3506 B6	3545 C4	3565 C4	3615 C2	3642 D3	3668 A6	3700 C6	4112 D4	4141 B1	4642 D3	4921 C6	7653 A4	
2513 C3	2559 C4	2607 C3	2698 C6	2951 A2	3507 B6	3546 D4	3566 D5	3616 C2	3644 A2	3669 A6	3707 C3	4113 D4	4142 B1	4801 D6	7201 A4	7654 A5	
2514 C3	2560 D5	2608 D3	2707 C4	2952 A2	3508 B6	3547 C4	3567 C4	3619 C2	3645 C4	3671 D4	3708 C3	4114 C2	4143 A4	4802 A2	7402 B3	7661 A6	
2515 C4	2561 B5	2609 C2	2708 C4	2953 A2	3511 B3	3548 D4	3568 D4	3620 C1	3646 C4	3672 D3	3711 B3	4115 D4	4144 B4	4811 C3	7403 B1	7662 A6	
2516 D4	2562 D5	2610 D2	2801 C6	2954 A5	3512 B3	3549 C4	3569 B4	3621 B2	3651 B4	3673 D4	3712 A6	4116 B5	4145 A1	4812 D2	7404 B1	7663 A6	
2521 A5	2563 C3	2622 B2	2802 D6	2955 B1	3513 C3	3550 D4	3570 D4	3622 B2	3652 C1	3674 D3	3801 C6	4119 D4	4146 A4	4813 C6	7485 B5	7681 B2	
2522 A5	2564 D4	2624 D3	2804 D6	3201 A5	3514 C3	3551 C4	3582 D2	3623 B2	3653 A4	3675 D3	3802 D6	4122 C2	4147 A1	4903 A1	7488 D5	7682 B2	



This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3435 pt4 dd wk0123

AF9 BOARD - CIRCUIT DIAGRAM (PART 1)



1501 E1	3511 A3	3565 B11	4642 E14
1502 E3	3512 B3	3566 G11	4813 G5
1503 F1	3513 A3	3567 B11	4920 E1
1504 H1	3514 B3	3568 H11	5403 A1
1505 E4	3521 A3	3569 B13	5404 B1
1506 A1	3522 A3	3570 H11	6201 C6
1510 F1	3523 A3	3571 B13	6202 C6
1531 C1	3524 A3	3572 G13	6641 D13
1532 C2	3525 E6	3590 I10	6642 E13
1691 H5	3526 E7	3591 C11	7201 B6
2201 B7	3531 C2	3592 I10	7485 C14
2202 C7	3532 C3	3593 A10	7488 G14
2203 D7	3533 B3	3594 I10	7501 C8
2204 C6	3534 C3	3641 D14	7585 B13
2205 C5	3541 A7	3642 E14	7586 G11
2206 C7	3542 I7	3643 D12	7661 G2
2501 E2	3543 A9	3644 E11	7662 H2
2502 E2	3544 I9	3645 G3	7663 H3
2503 D3	3545 B9	3646 E11	7693 H6
2504 E3	3546 G9	3660 G12	9618 A1
2505 F5	3547 C9	3661 G3	9654 B1
2506 F7	3548 F9	3662 I3	
2507 E7	3549 B9	3663 G3	
2511 A4	3550 G9	3664 H3	
2512 B4	3551 C11	3665 G14	
2513 A4	3552 F11	3666 H14	
2514 B4	3553 C11	3667 E11	
2515 F6	3554 F11	3668 E12	
2516 F7	3555 C12	3669 I3	
2521 A4	3556 F12	3690 H7	
2522 A4	3557 C12	3699 G6	
2523 F6	3558 G12	3700 H6	
2524 F6	3559 C14	3707 E12	
2531 D4	3560 F14	3708 E12	
2532 C4	3561 B14	3712 I3	
2533 F6	3562 F14	4501 F5	
2534 F7	3563 A12	4641 D14	
2535 B3	3564 G11	4642 E14	
2536 C3	3565 B12	4813 G5	
2541 A8	3566 G11	4920 E1	
2542 H8	3567 B12	5403 A1	
2543 C9	3568 H11	5404 B1	
2544 G9	3569 B13	6201 C6	
2546 F9	3570 H11	6202 C6	
2547 B10	3571 B13	6641 D13	
2548 G10	3572 G13	6642 E13	
2549 C11	3591 A10	7201 B6	
2550 F11	3592 I10	7485 C14	
2551 C11	3593 A10	7488 G14	
2552 F11	3594 I10	7501 C8	
2553 B12	3641 D14	7585 B13	
2554 G11	3642 E14	7586 G11	
2555 B12	3643 D12	7661 G2	
2556 H11	3645 D11	7662 H2	
2557 B13	3646 E11	7663 H3	
2558 G12	3661 G3	7693 H6	
2559 C12	3662 I3	9618 A1	
2560 G12	3663 G3	9654 B1	
2561 C14	3664 H3		
2562 G14	3665 G1		
2563 C14	3666 H1		
2564 G14	3667 G3		
2565 C9	3668 I3		
2567 B9	3669 I3		
2568 G9	3690 H7		
2589 A10	3699 G6		
2590 I9	3700 H6		
2591 A10	3707 E12		
2592 I10	3708 E12		
2593 A11	3712 I3		
2594 I11	4501 F5		
2641 D13	4641 D14		
2642 E13	4642 E14		
2661 G2	4813 G5		
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2665 H2	6201 C6		
2666 H2	6202 C6		
2667 G1	6641 D13		
2669 E1	6642 E13		
2696 G7	7201 B6		
2697 H7	7485 C14		
2698 G5	7488 G14		
2707 E11	7501 C8		
2708 E12	7585 B13		
2904 G1	7586 G11		
2908 E12	7661 G2		
2921 G5	7662 H2		
2923 B1	7663 H3		
2924 F5	7693 H6		
3201 B6	9618 A1		
3202 C6	9654 B1		
3435 D3			
3436 D3			
3437 D3			
3438 D3			
3501 D1			
3502 E1			
3503 D2			
3504 E2			
3505 E2			
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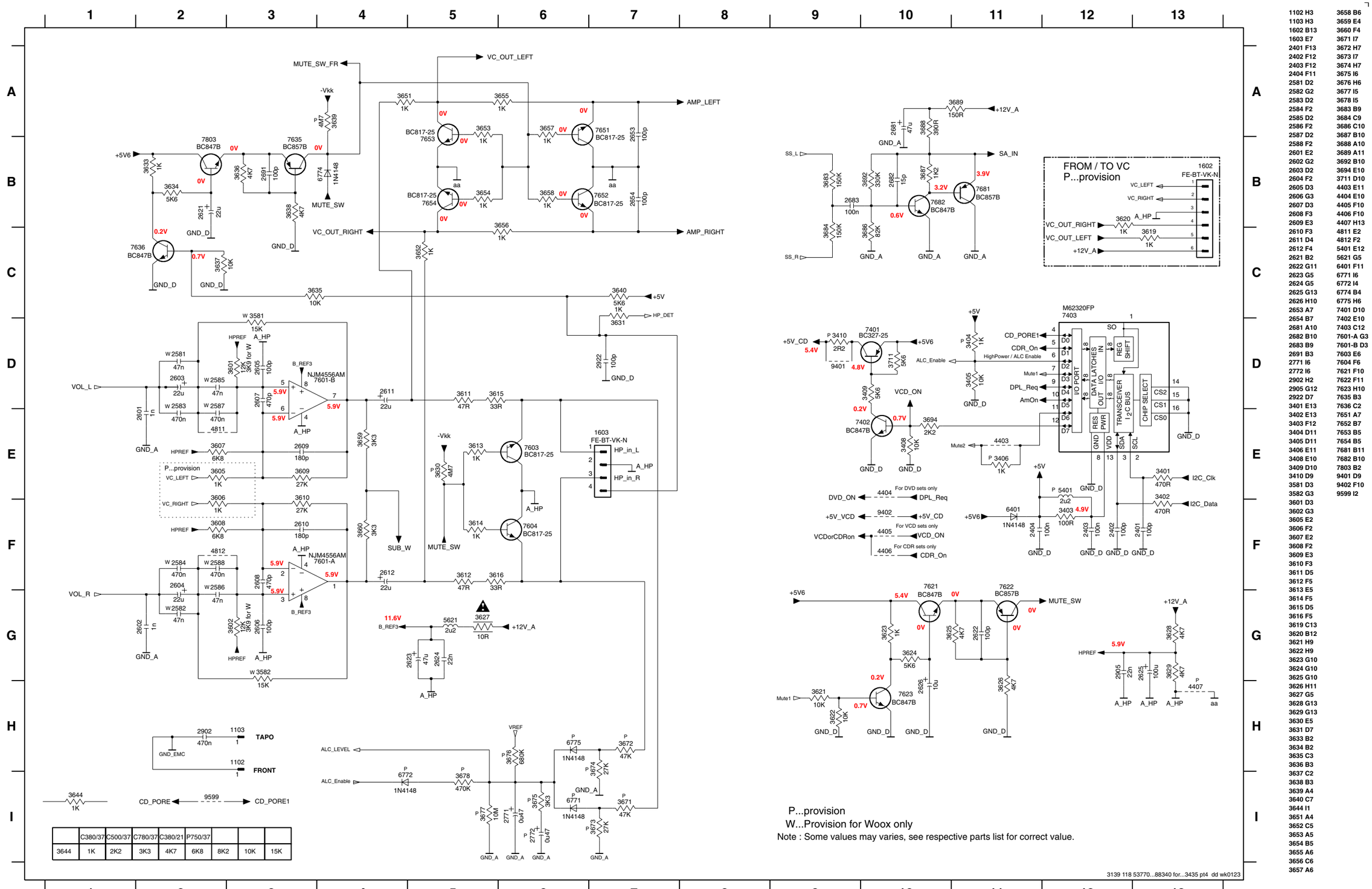
3508 E3			

AF9 BOARD - CIRCUIT DIAGRAM (PART 2)



P...provision
W...Provision for Woox only
Note : Some values may varies, see respective parts list for correct value.

3139 118 53770...88340 for...3435 pt4 dd wk0123

	C380/37	C500/37	C780/37	C380/21	P750/37			
3644	1K	2K2	3K3	4K7	6K8	8K2	10K	15K

AF9 BOARD - CIRCUIT DIAGRAM (PART 3)

1100 F6 1201 C1 1202 E1 1203 C1 1204 E1 1205 C1 1206 C1 1401 A9 1402 D9 1403 A9 1404 D9 1405 A9 1520 E6 1521 A7 1522 A6 1523 D6 1524 A5 1525 B5 1541 D4 1542 D4 1801 A1 2207 D3 2208 F2 2209 E3 2210 F2 2211 F3 2520 E7 2801 B4 2802 C3 2803 B3 2804 B3 2805 B2 2806 B2 2807 B1 2808 B4 2809 B4 2810 A4 2901 F6 2950 E7 2951 E7 2952 E7 2953 E7 2954 E6 2955 E7 3205 D2 3412 A8 3801 B4 3802 A4 3803 B3 3804 A3 3805 B2 3806 A1 3807 B4 3808 A3 3809 B2 3820 E3 3821 E2 3822 F3 4802 C4 4901 B8 4903 B8 4904 F7 4905 C3 4906 A5 4907 C8 4908 C8 4909 A3 4910 A3 4911 A4 4912 B8 4913 B8 4914 B5 4915 C8 4921 B1 5801 B2 5802 A3 6204 F7 6205 D3 6206 F3 6207 C5 6208 C5 6209 F3 7202 E3 7404 F3 7802 A3 9405 C8 9483 F6 9484 D4 9486 E7 9614 E3 9634 E2 9904 F7

Note : Some values may varies, see respective parts list for correct value.
P...provision

P 4909 P 4910 P 4911 P 4906 P 4907 P 4908 P 4915 P 4912 4913 P 4914 P 4801 P 2520 P 3806 75R

+5V_CD 3804 220R 5802 2u2 3808 22K 3802 22K 2810 47p GND_D 2.9V

1801 YKC21-3416 COAX DIGITAL OUT 3809 47R 3805 220R 2806 150p 5801 6RG 2803 1u 2804 100n 2807 100n 2805 100n 4921 GND_EMC

7802 74LVU04D VCC GND 3801 470R 2801 100n 3807 2K2 2809 100n 2808 100n 3803 560R 2802 1n

EH-B 1524 GND_D CD_PORE For VCD version only 4914 GND_M

FE-BT-VK-N 1521 D_Text
FE-BT-VK-N 1522 FROM/TO 3CDC
FE-BT-VK-N 1525 +12V_M 6207 1N4003 6208 1N4003 GND_M +5V_CD CD_Right A_CD CD_Left
FE-BT-VK-N 1523

GND_D CD_PORE DSA_STB GND_D For VCD version only 4802 9484 For Non-VCD version only

3412 1K +5V 4.5V
FE-BT-VK-N 1403 1401 1405
NTC GND_D I2C_Data I2C_Clk GND_D +5V6_Con +12V_M +5V6 -Vkk F1 F2 4903 9405 GND_D 4908 DSA_STB D_Text

FE-BT-VK-N 1206 1203 1201 1205 FROM / TO Power Board
AMP_LEFT aa AMP_RIGHT NTC Low_Pw_Ctrl Pw_Dn Clipping AmOn F1 F2 AMP_CS_DC VCDorCDRon DVD_ON
For CDR version only +5V6 4905 +12V_M

-Vkk 3205 5K6 -32V -10V -CMOS 6205 BZX79-C10 2207 47u GND_D GND_D +5V6_Con
1n 2955 GND_D

1204 EH-B 1202 EH-B FROM / TO Power Board
+12V_A GND_A +12V_M GND_M +5V6 GND_D +5V_VCD

7202 MC78L05 IN GND OUT 3821 10R 9.3V 9634 9614 3820 10R 6206 1N4003 2209 47u 6209 BZX79-C6V8 GND_D GND_D
7404 BC817-25 2208 220n 2210 220n 2211 100n 3822 270R GND_D GND_D GND_D GND_D

1541 FE-BT-VK-N 1542 FE-BT-VK-N FROM / TO DPL Board
AMP_CS_DC AmOn DPL_Clk DPL_Data D_DPL DPL_Vol_Clk DPL_Req +12V_A SS_L A_DPL SS_R DPL_R A_DPL DPL_L

1404 FE-BT-VK-N 1402 FE-BT-VK-N FROM/TO FRONT
TU_STEREO TU_CLK TU_DATA TU_ENAB Tu_Gnd HP_DET SA_IN POWER_DOWN CLIP LOW_PWR_CTRL MIC_DET DPL_VOL_CLK DPL_CLK DPL_DATA GND_D

FROM/TO TUNER
TU_STEREO TU_CLK TU_DATA TU_ENAB +12V_A TU_Right GND_A TU_Left
FE-BT-VK-N 1520
+12V_A 9486 47n 2954 P 2520 10n A_TU 470p 2950 470p 100p 2951 470p 2952 2953

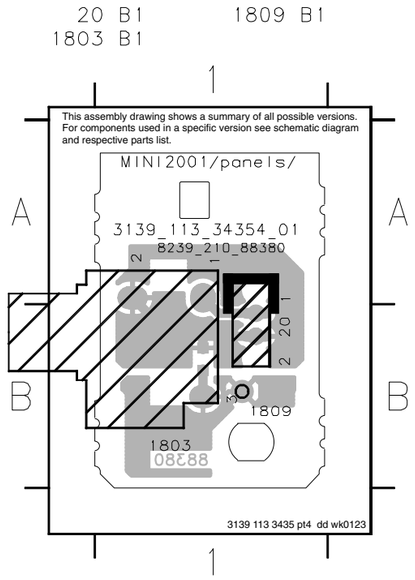
1100 2901 100n GND_D GND_EMC 9483 aa GND_A

MIC_DET 4904 9904 6204 BZX79-B3V3 GND_D

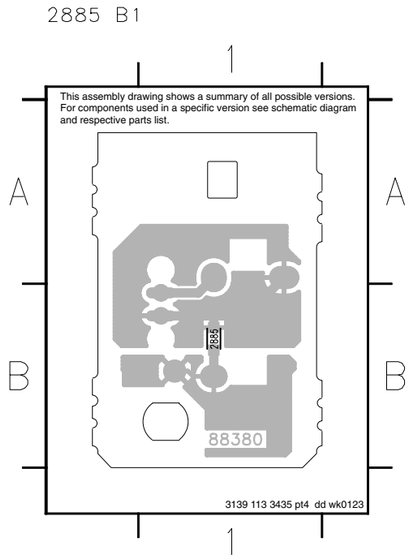
3.5V 8.5V 4.9V

3139 118 53770...88340 for...3435 pt4 dd wk0123

VIDEO OUT CINCH BOARD - COMPONENT LAYOUT

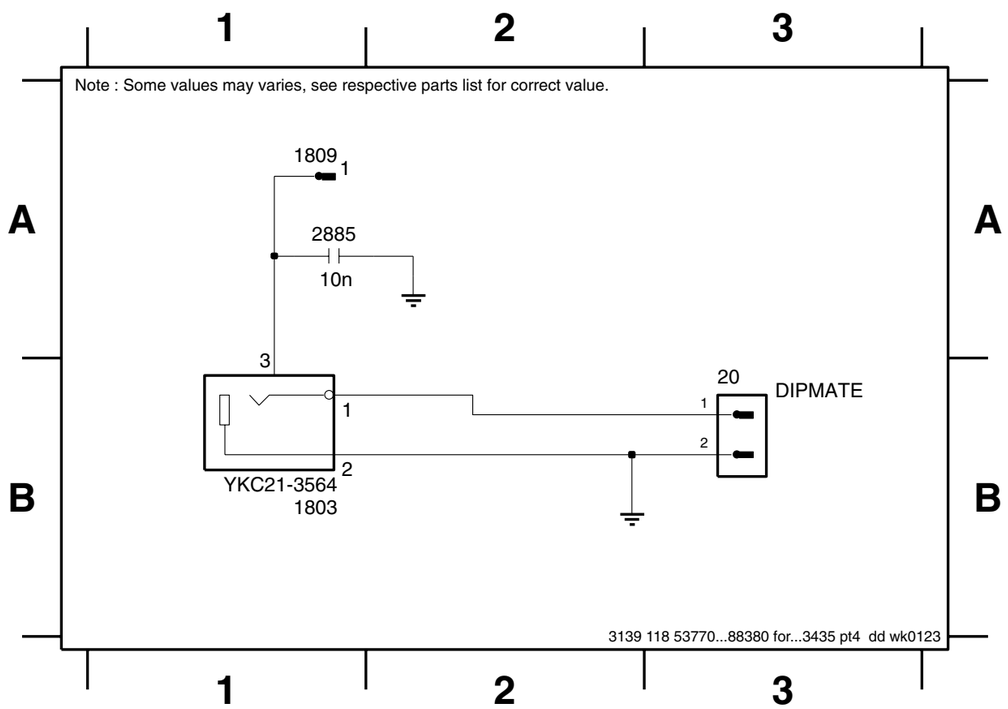


VIDEO OUT CINCH BOARD - CHIP LAYOUT



VIDEO OUT CINCH PART - CIRCUIT DIAGRAM

20 B3 1803 B1 1809 A1 2885 A1



TAPE ADJUSTMENT & CHECK TABLE

	TEST CASSETTE	RECORDER MODE	MEASURE ON	READ ON	ADJUST with	ADJUST to
ADJUST MOTOR SPEED						
NORMAL SPEED	SBC420 3150Hz	PLAY B	◇1 or ◇2 LEFT RIGHT	frequency counter	3620	3150Hz +/- 0.5%
		PLAY A			check	3150Hz -0.8/+1.8%
CHECK WOW & FLUTTER						
DECK A & B	SBC420 3150Hz	PLAY	◇1 or ◇2 LEFT RIGHT	W&F-meter	check	<0.4 % DIN
ADJUST AZIMUTH						
DECK A & B	SBC420 10kHz	PLAY FWD	◇1 or ◇2 LEFT RIGHT	mV-meter	left hand screw	max. output level & left=right
		PLAY REV #			right hand screw	
CHECK PLAYBACK FREQUENCY RESPONSE						
DECK A & B	SBC420	PLAY	◇1 or ◇2 LEFT RIGHT	mV-meter	check	limits see fig.1
ADJUST BIAS CURRENT						
DECK B	SBC419A^	RECORD	◇5 or ◇6 LEFT RIGHT	mV-meter	3773	995mV
	SBC420				check	750mV +/- 1.5dB
CHECK OVERALL FREQUENCY RESPONSE AND DISTORTION						
Inject 3mV signals 100Hz, 250Hz, 1kHz, 10kHz, 12.5kHz via ◇3 or ◇4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	◇1 or ◇2 LEFT RIGHT	mV-meter	check	limits see fig. 2 *
Inject 1kHz 8.85mV via ◇3 or ◇4	SBC419A^ or SBC420	RECORD B				
	RECORDED CASSETTE	PLAY B	◇1 or ◇2 LEFT RIGHT	THD-meter	check	<3% *

SBC419A^ : 4822 397 30069
SBC420 : 4822 397 30071

\# For Auto-reverse version only
* If high frequencies are not within limits, decrease bias and re-measure. If distortion is too high, increase bias and re-meaure
^ Not applicable for Ferro version

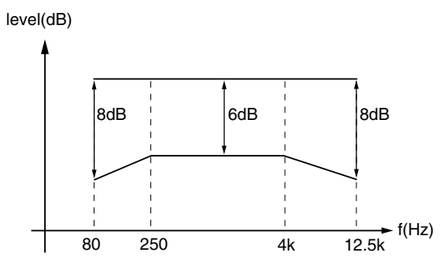


figure. 1

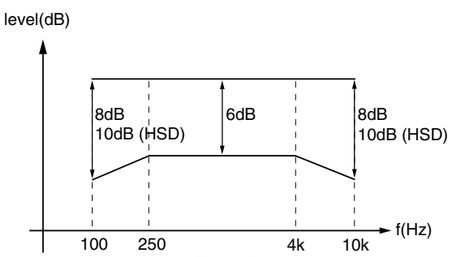
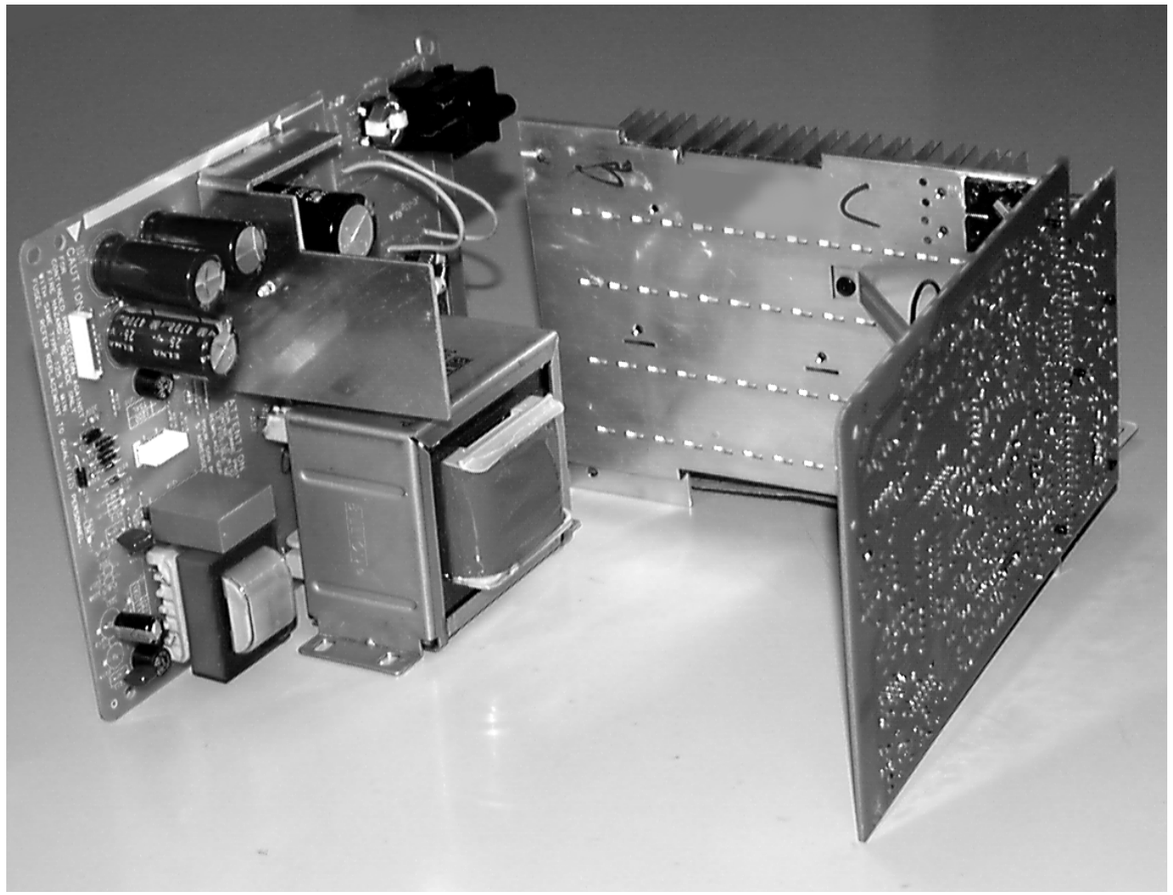


figure. 2



POWER 2001 Module

(30 - 70W Version)

stage .9

TABLE OF CONTENTS

11-1

Circuit details:

Amplifier:

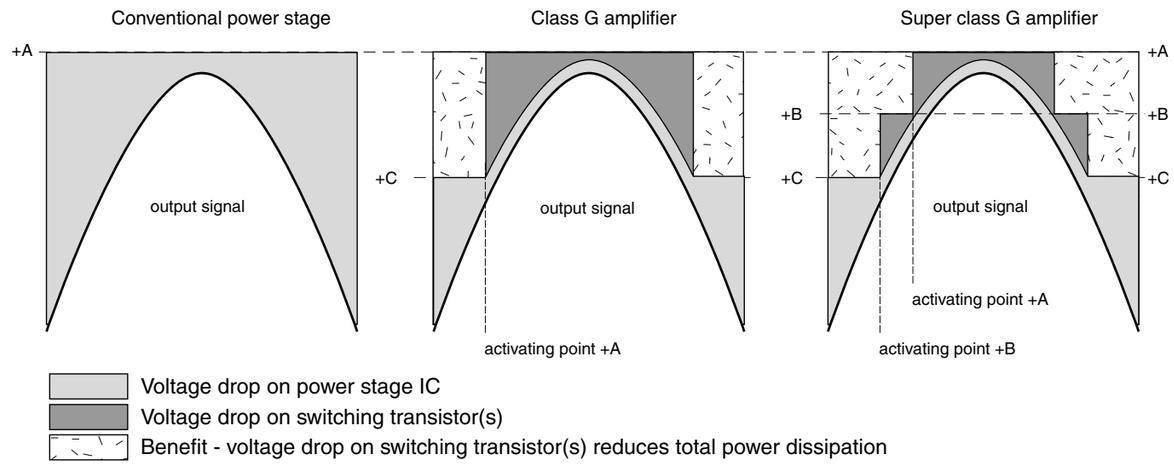
Attention: In the POWER 2001 module the power amplifier IC AN7591 is used as a bridge-amplifier.
Any connection from output to ground will destroy the outpout stages!

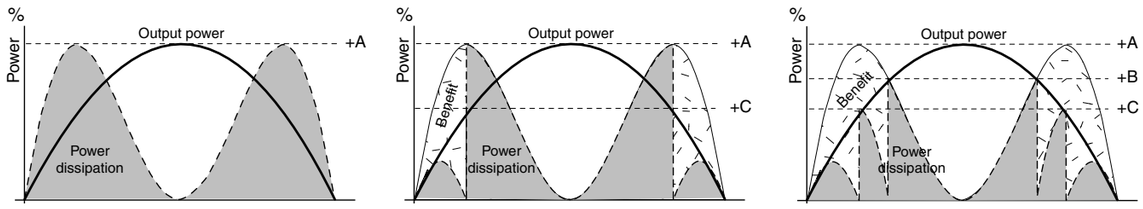
- Via the AMP_ON control line, connected to pins 6 (Stby), the power amplifiers are switched on/off by the µP.
  High level (approx. 4,5V): power amplifiers switched on
  Low level (approx. 0V): power amplifiers switched off

- Super class G - operation

  The power amplifiers operate as so-called super class G - amplifiers:
  The supply pins 12 (Vcc) are not just connected to one fixed DC-supply as in conventional amplifiers.
  Dependent on the output power there are three different DC-voltages supplied to the power amplifiers:
  ⇒ +C1 (+20V) for low output power
  ⇒ +B1 (+29V) for medium output power
  ⇒ +A1 (+41V for high output power

Principle / benefit of Super Class G





Circuit details continued:

- **Low power standby feature**

An additional small standby transformer, reduces power consumption in standby-mode.
In case power is switched on, the control line ECO is low → relay 1210 is activated → contacts 1 and 2 are closed → transformer 5001is connected to mains.
When the set is switched off (standby) the control line ECO is high → relay 1210 is not activated → mainstransformer is disconnected. Via standby transformer and rectifiers 6210-6214 the supply voltage LOW_PWR_SUP is substituted. This voltage is always available and so the microprocessor is kept running.

- **DC voltages +A1, +B1, +C1**

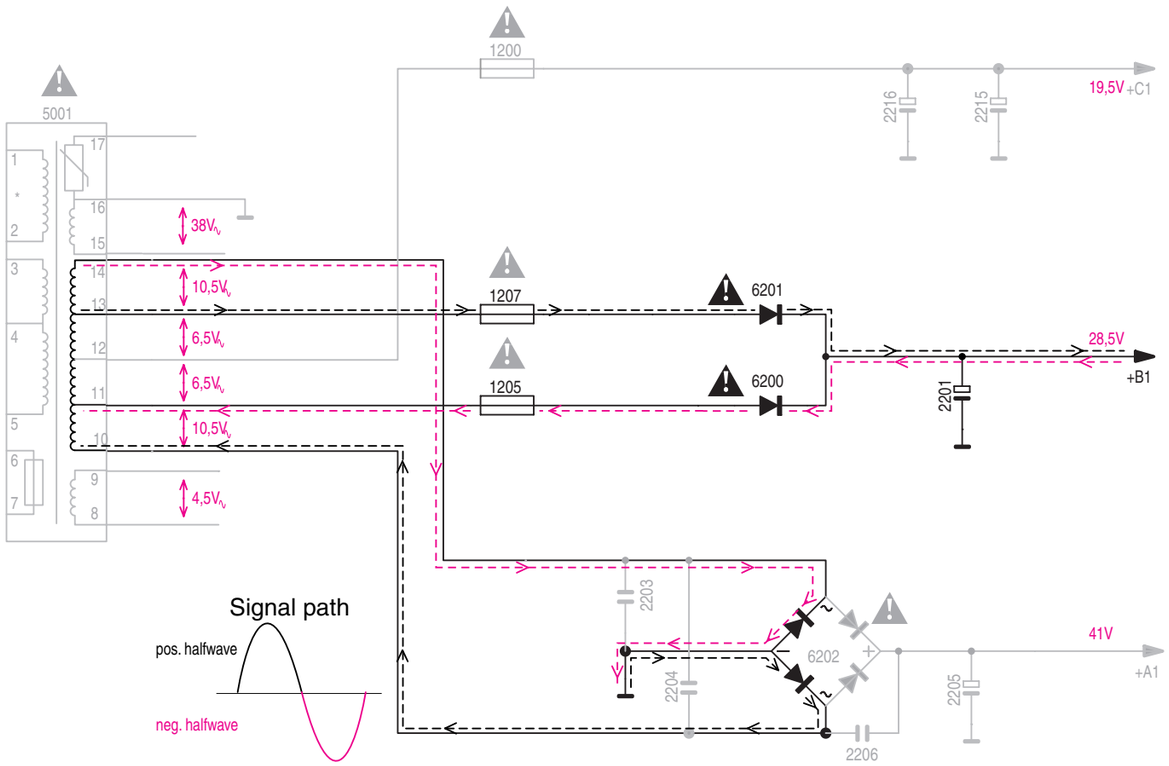
These voltages supply the Super Class G amplifier, described on previous page.
The whole power supply is optimized for the special characteristic of this type of amplifier. For that reason several “tricky” details have been applied to ensure optimal efficiency and symmetrical load to the mains transformer.

Generation of +A1

Common full wave rectifying with bridge rectifier 6202, using 100% secondary winding of mains transformer (pin 10-14).

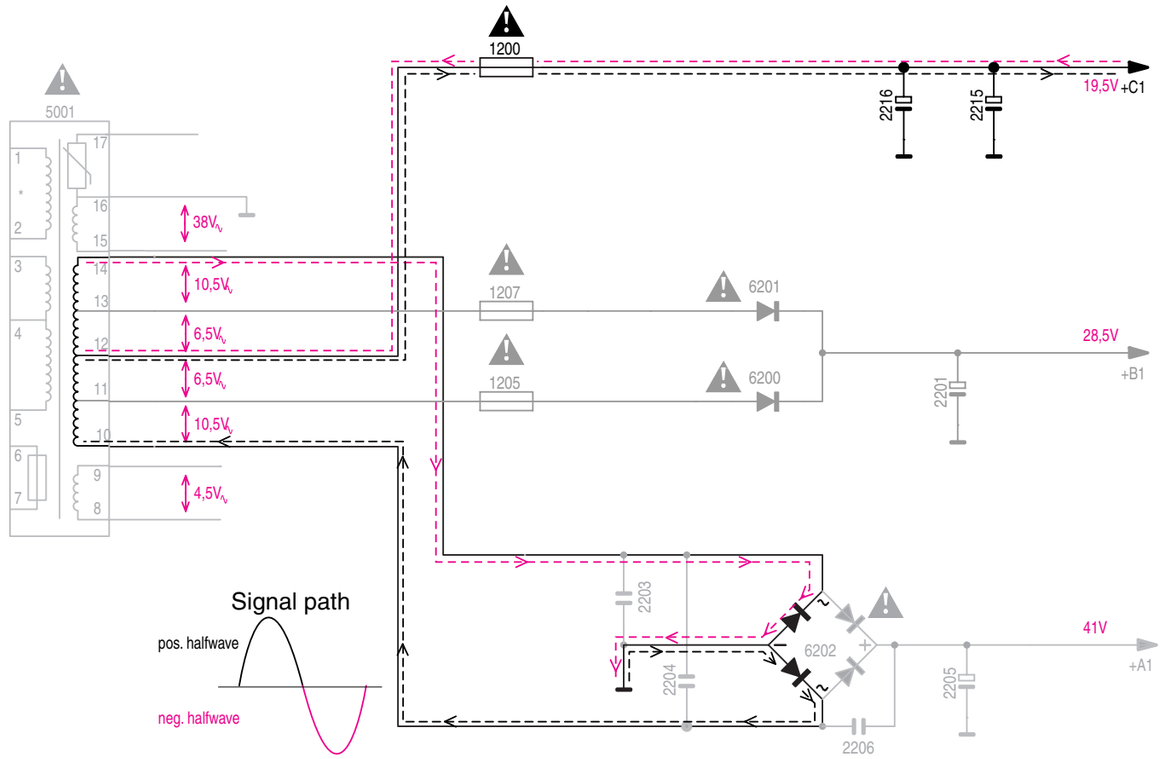
Generation of +B1

The supply for +B1 consists of one full wave rectifier:
– 2 diodes of bridge rectifier 6202, with 6200(6220 in parallel) 6201(6221 in parallel) for generation of +B1using approx. 70% secondary winding of mains transformer (pin 10-13 respectively pin 11-14).
As example for generation of +B1 see picture 1.

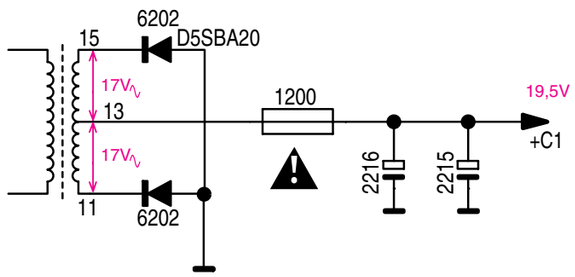


picture 1

Generation of +C1
Full wave rectifying with 2 diodes of bridge rectifier 6202, using 50% secondary winding of mains transformer (pin 13-15/13-11).
See picture 2 below.



simplified:



picture 2

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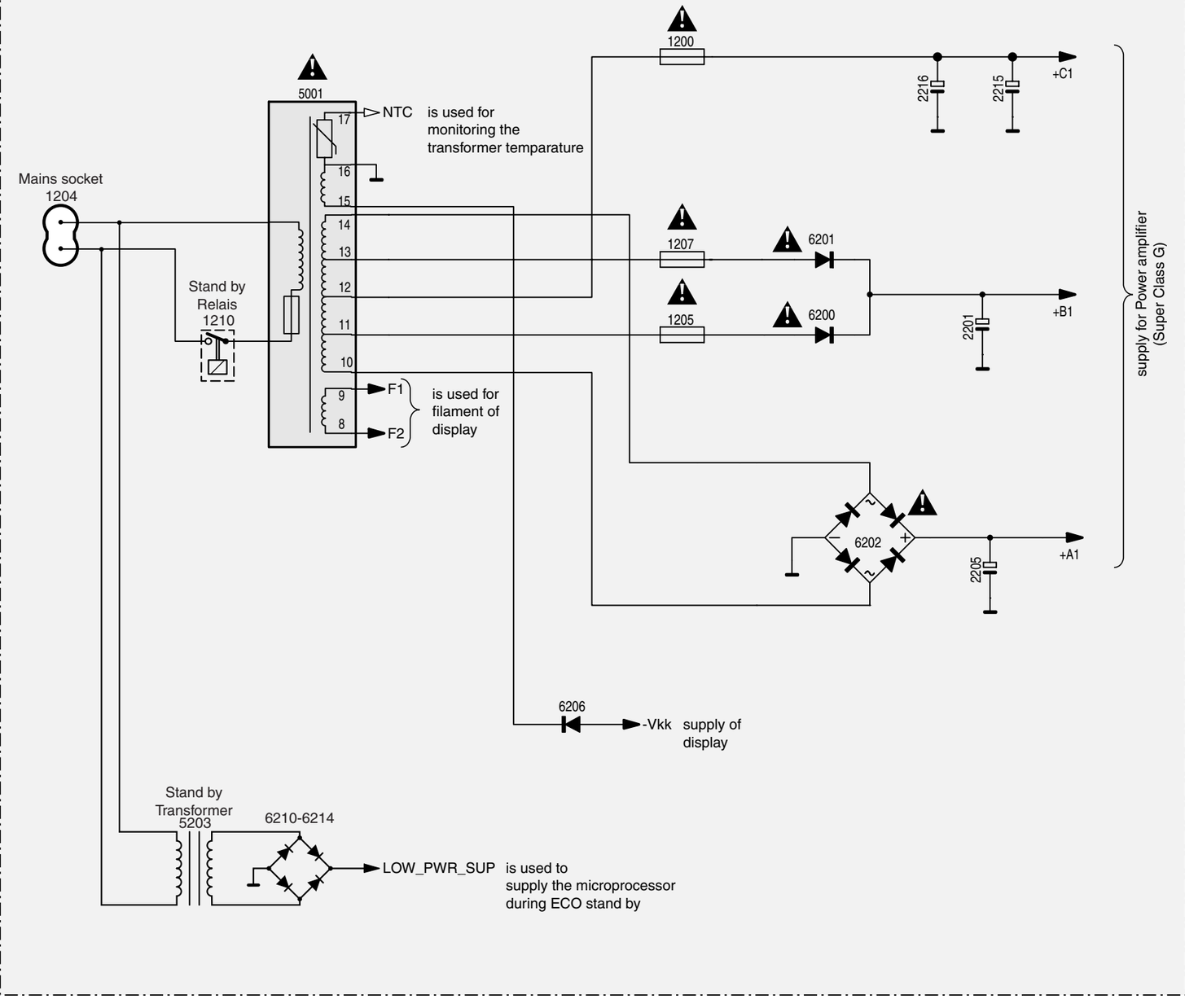
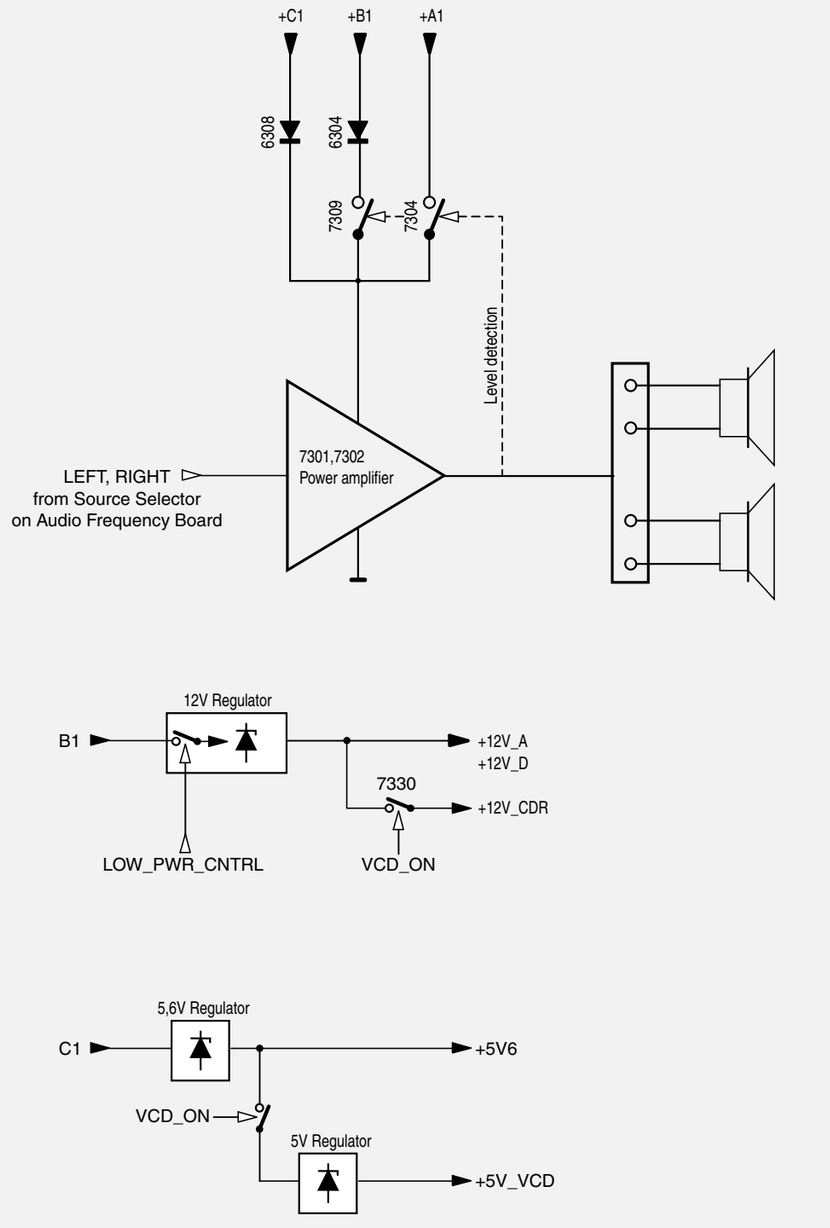
Block Diagram

MAINS BOARD



P2001 BOARD



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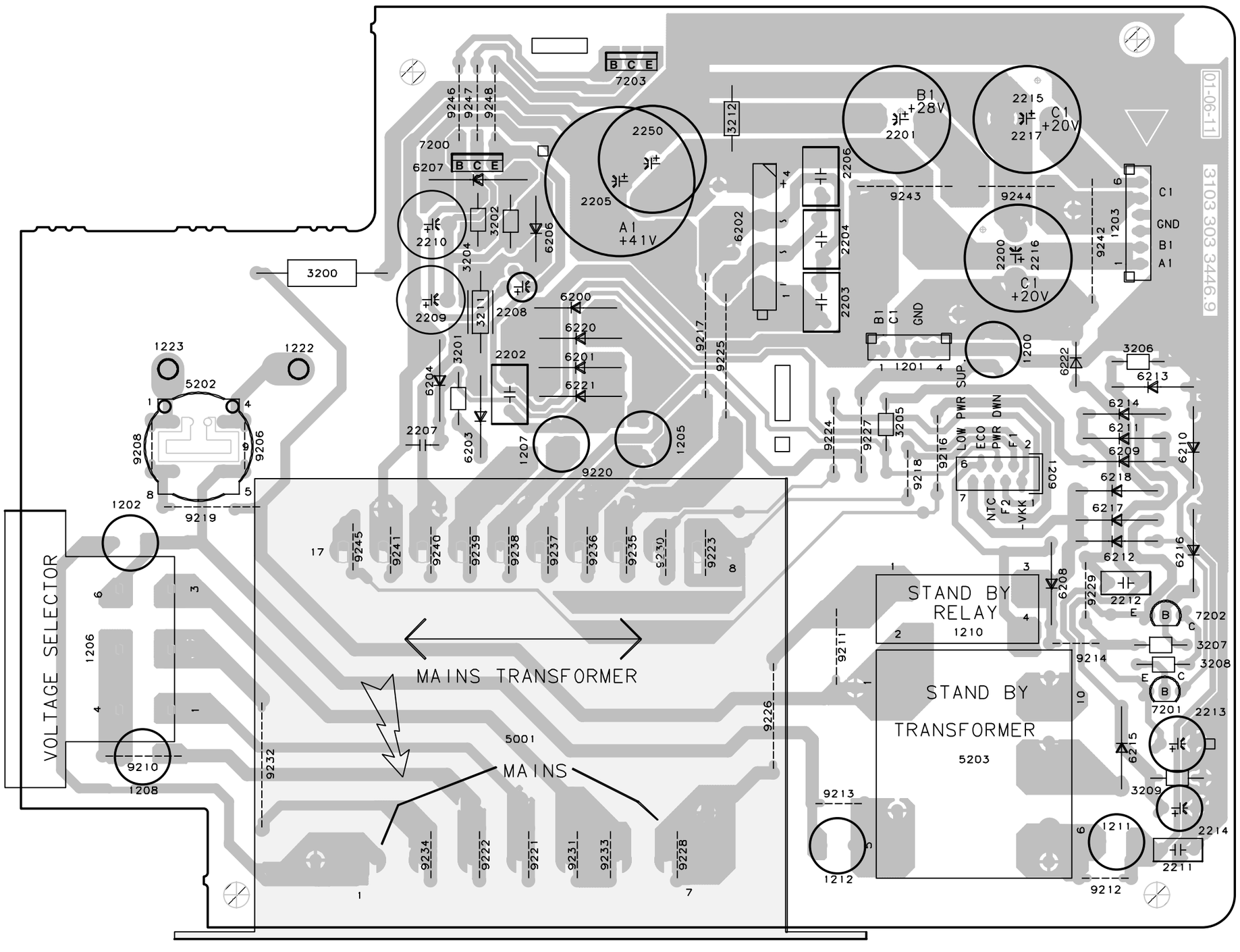
Mains Board Copperside view

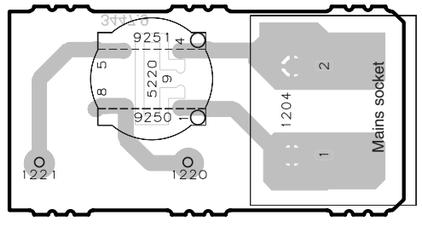


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Mainsboard Layout stage .9 2001-06-26

1200	B5	6210	C5
1201	B4	6211	B5
1202	C1	6212	C5
1203	A5	6213	B5
1205	B3	6214	B5
1206	C1	6215	D5
1207	C3	6216	C5
1208	D1	6217	C5
1209	C5	6218	C5
1210	C5	6220	B3
1211	D5	6221	B3
1212	D4	6222	B5
1222	B2	7200	A2
1223	B1	7201	D5
2200	B5	7202	C5
2201	A4	7203	A3
2202	B3	9206	B2
2203	B4	9208	B1
2204	B4	9210	D1
2205	B3	9211	D4
2206	A4	9212	D5
2207	B2	9213	D4
2208	B3	9214	C5
2209	B2	9216	B4
2210	B2	9217	B3
2211	D5	9218	C4
2212	C5	9219	C1
2213	D5	9220	C3
2214	D5	9221	D3
2215	A5	9222	D3
2216	B5	9223	C4
2217	A5	9224	B4
2250	A3	9225	B4
3200	B2	9226	D4
3201	B2	9227	B4
3202	B3	9228	D3
3204	A3	9229	C5
3205	B4	9230	C3
3206	B5	9231	D3
3207	C5	9232	D2
3208	C5	9233	D3
3209	D5	9234	D2
3211	B3	9235	C3
3212	A4	9236	C3
5001	C2	9237	C3
5202	B1	9238	C3
5203	D5	9239	C3
6200	B3	9240	C2
6201	B3	9241	C2
6202	B4	9242	B5
6203	B2	9243	A4
6204	B2	9244	A5
6206	B3	9245	C2
6207	A2	9246	A2
6208	C5	9247	A2
6209	C5	9248	A3

Mains Socket



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P2001 30-70W MAINS

1204 not on all versions 5201 1220 1222 not on all versions 5202
1221 1223
97TS 97TS
1202 T1,6A T1,25A T4A
1206 SDKGA /21 ONLY Voltage Selector
NOT /21 9210 1208 T1,6A /21 ONLY
5001 Mains Transformer
NTC
T.F.
F2 F1
3200 10M /37 ONLY
9211 SDT
Stand by Relay 1210
LOW_PWR_SUP 6208 1N4148 ECO
13.5V 2,5V
1200 T5A 19372
1205 T4A
1207 T4A
C1 19.5V
2216 6m8 2200 4m7 optional
2215 6m8 2217 4m7 optional
CDR ONLY
6200 1N5392
6220 1N5392
6201 1N5392
6221 1N5392
2202 100n
28.5V
2201 3m3
GBU8D
2203 100n
6202
2204 100n
2206 100n
41V
2205 or 2250 4m7 only for /37 3m3 not for /37
3212 33K
1201 EH-B TO C/S BOARD
GND GND C1 B1
19.5V 28.5V
1203 EH-B TO POWER BOARD
19.5V 28.5V 41V 41V
C1 B1 GND GND A1 A1
6203 1N4148
3201 4K7
7.8V
2207 47n
BZX79-F8V2 6204
6209 1N4148
3205 4K7
7200 or 7203 BD238
-45V -33V -33.5V
3211 4R7
3202 3K9
2208 0u47
6206 1N4003
3204 680R
6207 BZX79-C33
2209 100u
2210 100u
-Vkk regulator
1209 FE-BT-VK-N TO POWER BOARD
-Vkk F1 F2 Power Down NTC ECO Low Power Supply
LOW_PWR_SUP
13.5V 13.5V
ONLY /21 9212
NOT /21 9213
1212 T100mA /21 ONLY
5203 Stand by Transformer
1211 T160mA NOT /21
2211 47n 6210 1N4003* 6211 1N4003*
3206 10K 6213 1N4003* 6214 1N4003* 2212 47n 2213 220u
9214 NOT /21
7201 BC327-25 6212 BYV10-40
28V 14V 0V 14V
3207 4K7 28V 13.4V
3208 4K7 8.4V 8.5V 28V 12.9V
6215 BYV10-40
6216 BZX79-C8V2
7202 BC547B 14V 7.5V
3209 100K 2214 220u
6217 BYV10-40
6218 1N4148
6222 BZX79-C2V7
C1
V... at 120V AC
V... at 240V AC
ONLY /21 version
Low Power supply regulator for /21 version only
EVM .....V DC-voltages measured with low output power
*1N4003** → *for /21 BYV10-40 is used*

Power2001 Mainsboard, 2001-03-21

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0300 B3
1300 A5
1301 B5
1302 A3
1304 C1
1305 A3
1306 C2
1307 B5
1308 A2
1310 A2
1312 B2
1313 B1
1314 A2
1315 C1
1316 C1
2300 B4
2301 C4
2302 B4
2303 C4
2304 B4
2305 C4
2306 A4
2307 C4
2308 A4
2309 B5
2310 A5
2311 B4
2312 A4
2313 B4
2314 A4
2315 C4
2316 A4
2317 C5
2318 B5
2319 B5
2320 A5
2321 C5
2322 A5
2323 A3
2324 B4
2325 B2
2326 C3
2327 B3
2328 A3
2329 A4
2330 A4
2331 A4
2332 A2
2333 B4
2334 C3
2335 C2
2336 A4
2337 A1
2338 A2
2339 A1
2340 C1
2341 B1
2342 B1
2343 A3
2344 C2
2300 C3
2301 C4
2302 B4
2303 C4
2304 B4
2305 C4
2306 A4
2307 C4
2308 A4
2309 B5
2310 A5
2311 B4
2312 A4
2313 B4
2314 A4
2315 C4
2316 A4
2317 C5
2318 B5
2319 B5
2320 A5
2321 C5
2322 A5
2323 A3
2324 B4
2325 B2
2326 C3
2327 B3
2328 A3
2329 A4
2330 A4
2331 A4
2332 A2
2333 B4
2334 C3
2335 C2
2336 A4
2337 A1
2338 A2
2339 A1
2340 C1
2341 B1
2342 B1
2343 A3
2344 C2
2345 C3
2346 A3
2347 A3
2348 C2
2349 A2
2350 A3
2351 C2
2352 C3
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2357 A1
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2364 C5
2365 C5
2366 C1
2367 C1
2368 A4
2369 B1
2370 A1
2371 B1
2372 A1
2373 B1
2374 C2
2375 C1
2376 A1
2377 B3
2378 A3
2379 C5
2380 B2
2381 B3
3382 C2
3383 C1
3391 C1
3392 B1
3393 C2
3394 C1
3395 C2
3396 A1
3397 C2
3398 A4
5300 A5
5301 B5
5302 A5
5303 B5
6300 B5
6301 C5
6302 B5
6303 C5
6304 C4
6305 C2
6306 B3
6307 B4
6308 B3
6309 A3
6310 A4
6311 B3
6312 B3
6313 A2
6314 B3
6315 C3
6316 A2
6317 A4
6318 A3
6319 A3
6320 B2
6321 B1
6322 C2
6323 C4
6324 C4
6325 A1
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6327 A1
6328 C1
6329 B1
6330 A1
6331 A3
6332 A3
6333 C1
6334 A1
6335 C3
7300 A4
7301 C4
7302 A4
7303 A3
7304 C2
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7306 C4
7307 C5
7308 B4
7309 C4
7310 C3
7311 C3
7312 B2
7313 B3
7314 B3
7315 B2
7316 B2
7317 A4
7318 A1
7319 C2
7320 C2
7321 C2
7322 B2
7323 A2
7324 A1
7325 A1
7326 C5
7327 B1
7328 B1
7330 B2
7331 C2
7332 B1
7333 C1
7334 A2
9300 B3
9301 C3
9302 A2
9303 A2
9306 A3
9307 A3
9308 A3
9309 A3
9310 B2
9320 A4
9321 A5
9322 B5
9323 B5
9324 B4
9325 B4
9326 A1
9327 A2
9328 B1
9329 B3
9330 B2
9331 B3
9332 C1
9333 C1
9334 C3
9335 B4
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9341 B4
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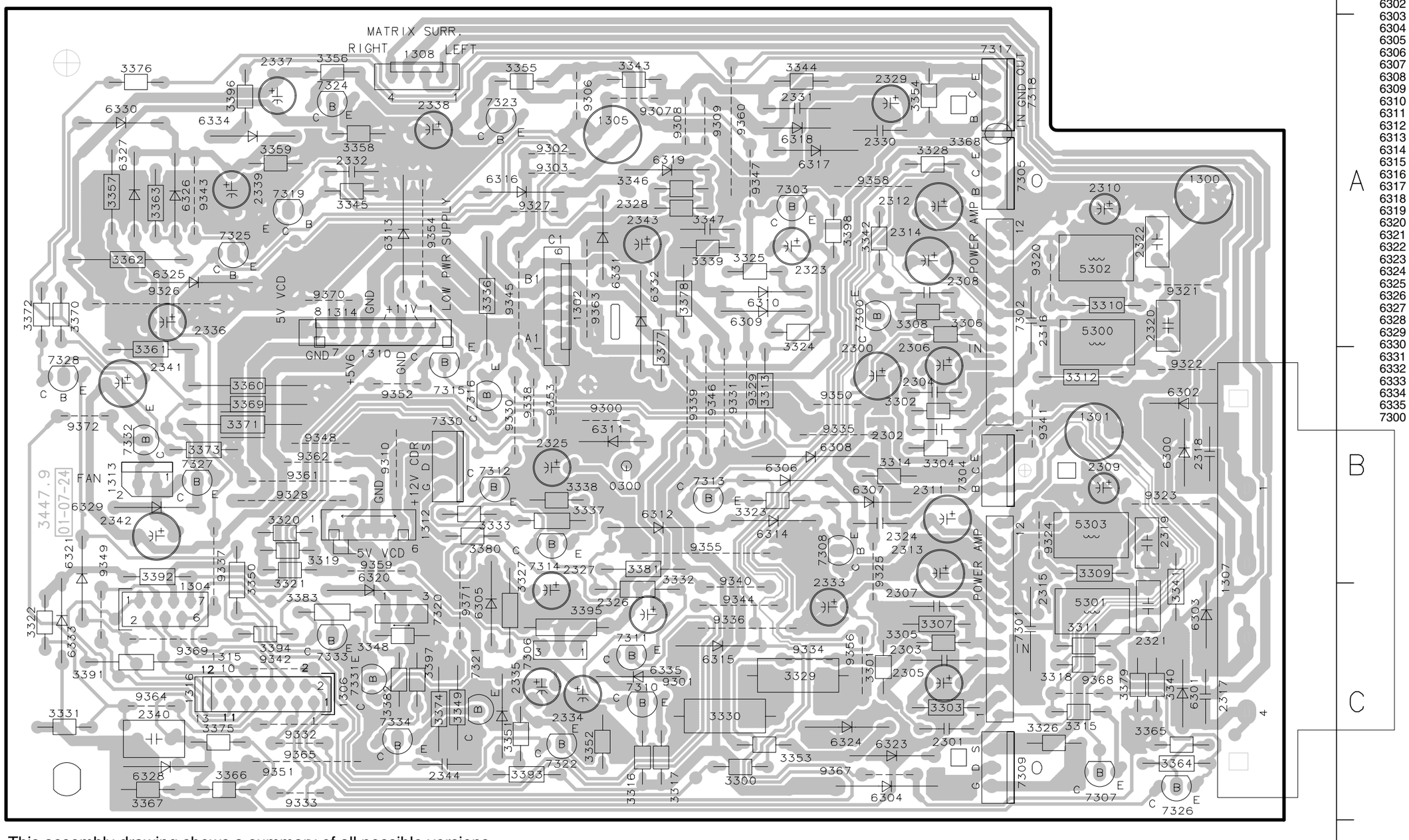
9348 B1
9349 C1
9350 B4
9351 C1
9352 B2
9353 B2
9354 A2
9355 B3
9356 C4
9358 A4
9359 B2
9360 A3
9361 B1
9362 B1
9363 A3
9364 C1
9365 C1
9367 C4
9368 C5
9369 C1
9370 A1
9371 C2
9372 B1

Power Board Copperside view



This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Power 2001, Powerboard Layout stage .9 2001-08-21

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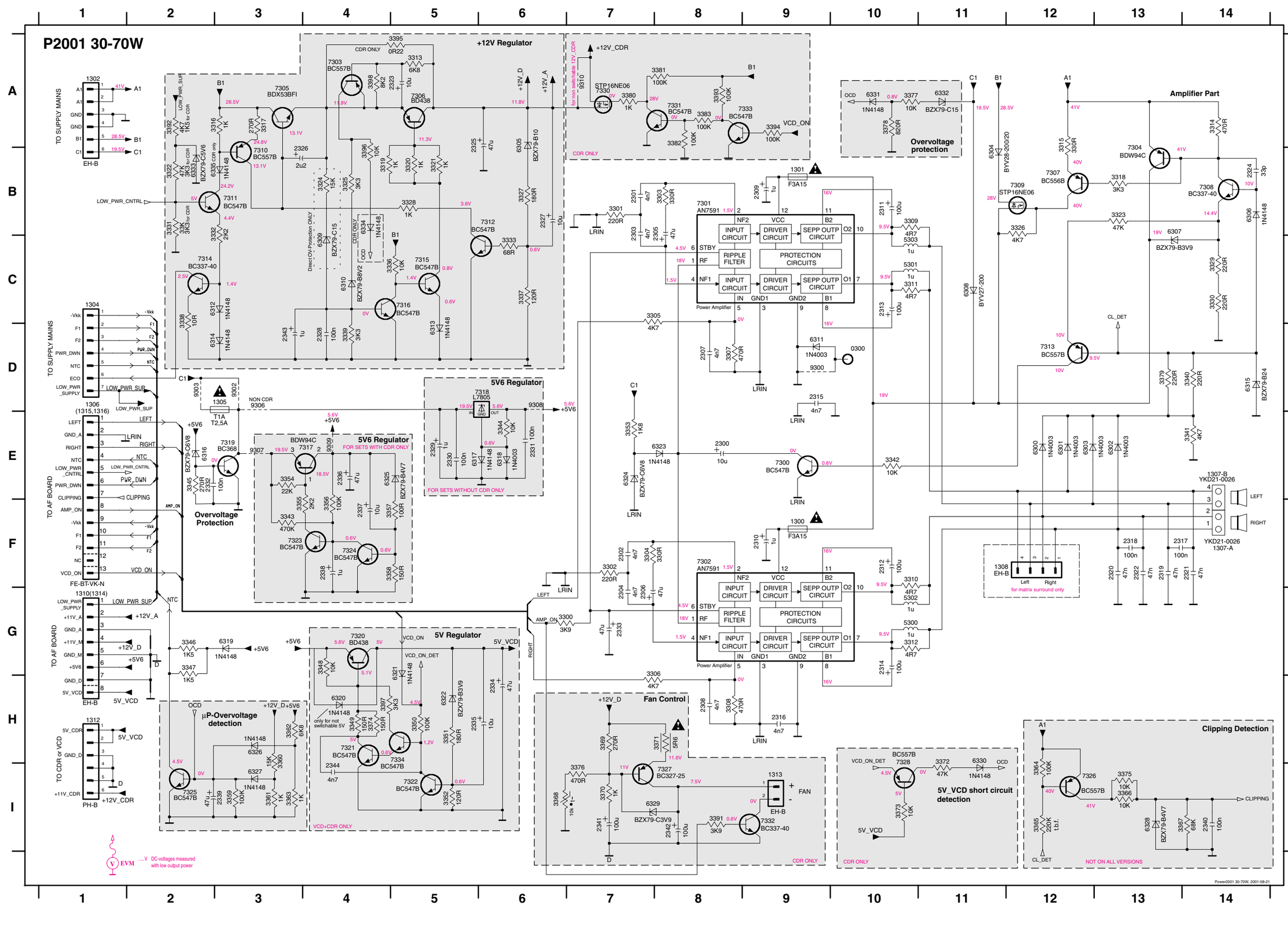

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ELECTRICAL PARTSLIST POWER2001 MODULE

MISCELLANEOUS

1200 ⚠	2422 086 10963	FUSE RAD 5A 250V IEC	
1202 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1202 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1202 ⚠	4822 253 10126	FUSE T4A	
1204 ⚠	2422 030 00328	MAINS SOCKET /37	
1204 ⚠	4822 265 31015	MAINS SOCKET /21, /22	
1205 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1206 ⚠	2422 129 16478	VOLTAGE SELECTOR	
1207 ⚠	2422 086 10786	FUSE RAD 4A 250V IEC	
1208 ⚠	4822 071 51252	FUSE 1.25A	for sets without 5203
1208 ⚠	4822 071 51602	FUSE 1,6A	for sets with 5203
1209	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1210 ⚠	4822 280 10382	STAND 1P **9V**	
1211 ⚠	2422 086 10771	FUSE RAD 160mA 250V IEC	
1212 ⚠	4822 071 51001	FUSE 100mA	
1300 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1301 ⚠	4822 252 11225	FUSE F3.15A IEC 250V	
1304	4822 267 10953	FLEX FOIL CONNECTOR 7P	
1305 ⚠	4822 071 51002	FUSE T1A	for sets without 5203
1305 ⚠	4822 071 52502	FUSE T2,5A	for sets with 5203
1306	4822 267 10738	FFC-CONNECTOR 13P	
1307	4822 267 31176	SPEAKER TERMINAL	
5203 ⚠	3103 308 30600	STANDBY TRANSFORMER /21	
5203 ⚠	3103 308 30610	STANDBY TRANSFORMER /22	
5203 ⚠	3103 308 30800	STANDBY TRANSFORMER /37	
8010	3139 110 34600	FLEX FOIL CABLE 7Pin, 280mm	
	4822 492 11735	SPRING FIXATION TRANSISTOR	

CAPACITORS

2200	4822 124 12012	4700µF	20%	25V	
2201	4822 124 42367	3300µF	20%	35V	
2202	5322 121 42386	100nF	5%	63V	
2203	5322 121 42386	100nF	5%	63V	
2204	5322 121 42386	100nF	5%	63V	
2205	4822 124 80415	4700µF	20%	50V	only for /37
2206	5322 121 42386	100nF	5%	63V	
2207	4822 122 33449	47nF	30%	50V	
2208	5322 124 41948	0,47µF	20%	50V	
2209	2020 012 93547	100µF	20%	63V	
2211	4822 121 43526	47nF	5%	100V	
2212	4822 121 43526	47nF	5%	100V	
2213	4822 124 11769	220µF	20%	50V	
2214	4822 124 40207	100µF	20%	25V	
2217	4822 124 12012	4700µF	20%	25V	
2250	2020 012 93774	3300µF	20%	50V	not for /37
2300	4822 124 40248	10µF	20%	63V	
2301	4822 126 11714	4,7nF	20%	16V	
2302	4822 126 11714	4,7nF	20%	16V	
2303	4822 126 11714	4,7nF	20%	16V	
2304	4822 126 11714	4,7nF	20%	16V	
2305	4822 124 40433	47µF	20%	25V	
2306	4822 124 40433	47µF	20%	25V	
2307	4822 126 11714	4,7nF	20%	16V	
2308	4822 126 11714	4,7nF	20%	16V	
2309	4822 124 21913	1µF	20%	63V	
2310	4822 124 21913	1µF	20%	63V	
2311	4822 124 40207	100µF	20%	25V	
2312	4822 124 40207	100µF	20%	25V	
2313	4822 124 40207	100µF	20%	25V	
2314	4822 124 40207	100µF	20%	25V	
2315	4822 126 11714	4,7nF	20%	16V	
2316	4822 126 11714	4,7nF	20%	16V	
2317	4822 126 12882	100nF	20%	50V	
2318	4822 126 12882	100nF	20%	50V	
2319	4822 121 43526	47nF	5%	100V	
2320	4822 121 43526	47nF	5%	100V	
2321	4822 121 43526	47nF	5%	100V	
2322	4822 121 43526	47nF	5%	100V	
2323	4822 124 40248	10µF	20%	63V	
2324	4822 122 33069	33pF	5%	50V	
2325	4822 124 40433	47µF	20%	25V	
2326	4822 124 22652	2,2µF	20%	50V	
2327	4822 124 40248	10µF	20%	63V	

CAPACITORS

2328	4822 126 12882	100nF	20%	50V	
2329	4822 124 21913	1µF	20%	63V	
2330	4822 126 12882	100nF	20%	50V	
2331	4822 126 12882	100nF	20%	50V	
2332	4822 126 12882	100nF	20%	50V	
2333	4822 124 40433	47µF	20%	25V	
2334	4822 124 40433	47µF	20%	25V	
2335	4822 124 40248	10µF	20%	63V	
2336	4822 124 40433	47µF	20%	25V	
2337	4822 124 40248	10µF	20%	63V	
2338	4822 124 21913	1µF	20%	63V	
2339	4822 124 40433	47µF	20%	25V	
2341	4822 124 23052	100µF	20%	16V	
2342	4822 124 23052	100µF	20%	16V	
2343	4822 124 21913	1µF	20%	63V	

RESISTORS

3200	4822 053 21106	10MΩ	5%	0,5W	
3201	4822 116 52283	4,7kΩ	5%	0,5W	
3202	4822 116 52276	3,9kΩ	5%	0,5W	
3204	4822 116 52228	680Ω	5%	0,5W	
3205	4822 116 52283	4,7kΩ	5%	0,5W	
3206	4822 050 21003	10kΩ	2%	0,25W	
3207	4822 116 52283	4,7kΩ	5%	0,5W	
3208	4822 116 52283	4,7kΩ	5%	0,5W	
3209	4822 116 52234	100kΩ	5%	0,5W	
3211	4822 052 10478	4,7Ω	5%	NFR	
3212	4822 050 23303	33kΩ	1%	0,6W	
3300	4822 116 52276	3,9kΩ	5%	0,5W	
3301	4822 116 83872	220Ω	5%	0,5W	
3302	4822 116 83872	220Ω	5%	0,5W	
3303	4822 116 52219	330Ω	5%	0,5W	
3304	4822 116 52219	330Ω	5%	0,5W	
3305	4822 116 52283	4,7kΩ	5%	0,5W	
3306	4822 116 52283	4,7kΩ	5%	0,5W	
3307	4822 116 83883	470Ω	5%	0,16W	
3308	4822 116 83883	470Ω	5%	0,16W	
3309	4822 050 24708	4,7Ω	1%	0,6W	
3310	4822 050 24708	4,7Ω	1%	0,6W	
3311	4822 050 24708	4,7Ω	1%	0,6W	
3312	4822 050 24708	4,7Ω	1%	0,6W	
3313	4822 116 83961	6,8kΩ	5%	0,16W	
3314	4822 116 83883	470Ω	5%	0,16W	
3315	4822 116 52219	330Ω	5%	0,5W	
3316	4822 050 11002	1kΩ	5%	0,2W	
3317	4822 116 83876	270Ω	5%	0,16W	
3318	4822 116 52269	3,3kΩ	5%	0,5W	
3319	4822 050 11002	1kΩ	5%	0,2W	
3320	4822 050 11002	1kΩ	5%	0,2W	
3321	4822 050 11002	1kΩ	5%	0,2W	
3322	4822 116 83884	47kΩ	5%	0,16W	not for CDR
3322	4822 116 52269	3,3kΩ	5%	0,16W	for CDR only
3323	4822 116 83884	47kΩ	5%	0,16W	
3324	4822 116 52244	15kΩ	5%	0,5W	
3325	4822 116 52269	3,3kΩ	5%	0,5W	
3326	4822 116 52283	4,7kΩ	5%	0,5W	
3327	4822 116 52213	180Ω	5%	0,5W	
3328	4822 050 11002	1kΩ	5%	0,2W	
3329	4822 053 11221	220Ω	5%	2W	
3330	4822 053 11221	220Ω	5%	2W	
3331	4822 050 23303	33kΩ	1%	0,6W	not for CDR
3331	4822 116 52269	3,3kΩ	5%	0,16W	for CDR only
3332	4822 116 52256	2,2kΩ	5%	0,16W	
3333	4822 116 52199	68Ω	5%	0,16W	
3336	4822 050 21003	10kΩ	2%	0,25W	
3337	4822 116 52206	120Ω	5%	0,5W	
3338	4822 116 52176	10Ω	5%	0,5W	
3339	4822 116 52269	3,3kΩ	5%	0,5W	
3340	4822 116 83872	220Ω	5%	0,5W	
3341	4822 116 52283	4,7kΩ	5%	0,5W	
3342	4822 050 21003	10kΩ	2%	0,25W	
3343	4822 116 52285	470kΩ	5%	0,5W	
3344	4822 050 21003	10kΩ	2%	0,25W	

ELECTRICAL PARTSLIST POWER2001 MODULE

RESISTORS

3345	4822 116 83876	270Ω	5%	0.16W	
3346	4822 116 52243	1,5kΩ	5%	0,16W	
3347	4822 116 52243	1,5kΩ	5%	0,16W	
3348	4822 050 21003	10kΩ	2%	0,25W	
3349	4822 116 52213	180Ω	5%	0,5W	
3350	4822 050 21003	10kΩ	2%	0,25W	
3351	4822 116 83868	150Ω	5%	0,5W	
3352	4822 116 52206	120Ω	5%	0,5W	
3353	4822 116 52249	1,8kΩ	5%	0,16W	
3354	4822 116 52257	22kΩ	5%	0,5W	
3355	4822 116 52256	2,2kΩ	5%	0,16W	
3356	4822 116 52234	100kΩ	5%	0,5W	
3357	4822 116 52175	100Ω	5%	0,5W	
3358	4822 116 83868	150Ω	5%	0,5W	
3359	4822 116 52234	100kΩ	5%	0,5W	
3360	4822 116 52244	15kΩ	5%	0,5W	
3361	4822 050 11002	1kΩ	5%	0,2W	
3362	4822 116 83961	6,8kΩ	5%	0,16W	
3363	4822 050 11002	1kΩ	5%	0,2W	
3368	2322 640 63103	10kΩ	NTC		
3369	4822 116 83876	270Ω	5%	0.16W	
3370	4822 050 11002	1kΩ	5%	0,2W	
3371	4822 052 10568	5,6Ω	5%	0,33W	
3372	4822 116 83884	47kΩ	5%	0,16W	
3373	4822 050 21003	10kΩ	2%	0,25W	
3374	4822 116 52213	180Ω	5%	0,5W	
3376	4822 116 83883	470Ω	5%	0,16W	
3377	4822 050 21003	10kΩ	2%	0,25W	
3378	4822 116 52231	820Ω	5%	0,5W	
3379	4822 116 83872	220Ω	5%	0,5W	
3380	4822 050 11002	1kΩ	5%	0,2W	
3381	4822 116 52234	100kΩ	5%	0,5W	
3382	4822 116 52234	100kΩ	5%	0,5W	
3383	4822 116 52234	100kΩ	5%	0,5W	
3391	4822 116 52276	3,9kΩ	5%	0,5W	
3392	4822 116 52283	4,7kΩ	5%	0,5W	not for CDR
3392	4822 116 52243	1,5kΩ	5%	0,5W	for CDR only

COILS

5202	4822 157 11832	400µH
5220	4822 157 11832	400µH
5300	4822 157 62255	COIL 18,5 TURNS
5301	4822 157 62255	COIL 18,5 TURNS
5302	4822 157 62255	COIL 18,5 TURNS
5303	4822 157 62255	COIL 18,5 TURNS

DIODES

6200 ⚠	4822 130 31878	1N4003G	
6201 ⚠	4822 130 31878	1N4003G	
6202	4822 130 11139	GBU8D	
6203	4822 130 30621	1N4148	
6204	3198 010 58280	BZX79-B8V2	
6206	4822 130 31878	1N4003G	
6207	4822 130 34142	BZX79-B33	
6208	4822 130 30621	1N4148	
6209	4822 130 30621	1N4148	
6210	4822 130 31878	1N4003G	not for /21
6210	4822 130 32245	BYV10-40	only for /21
6211	4822 130 31878	1N4003G	not for /21
6211	4822 130 32245	BYV10-40	only for /21
6212	4822 130 32245	BYV10-40	
6213	4822 130 31878	1N4003G	not for /21
6213	4822 130 32245	BYV10-40	only for /21
6214	4822 130 31878	1N4003G	not for /21
6214	4822 130 32245	BYV10-40	only for /21
6215	4822 130 32245	BYV10-40	
6216	4822 130 34382	BZX79-B8V2	
6217	4822 130 32245	BYV10-40	
6218	4822 130 30621	1N4148	
6220 ⚠	4822 130 31878	1N4003G	
6221 ⚠	4822 130 31878	1N4003G	
6222	5322 130 34563	BZX79-C2V7	

DIODES

6300	4822 130 31878	1N4003G
6301	4822 130 31878	1N4003G
6302	4822 130 31878	1N4003G
6303	4822 130 31878	1N4003G
6304	9340 550 66112	BYV28-200/24
6305	4822 130 61219	BZX79-C10
6306	4822 130 30621	1N4148
6307	3198 010 53980	BZX79-B3V9
6308	5322 130 31938	BYV27-200
6309	4822 130 34281	BZX79-C15
6310	3198 010 58280	BZX79-B8V2
6311	4822 130 31878	1N4003G
6312	4822 130 30621	1N4148
6313	4822 130 30621	1N4148
6314	4822 130 30621	1N4148
6315	4822 130 34398	BZX79-C24
6316	4822 130 34278	BZX79-C6V8
6317	4822 130 30621	1N4148
6318	4822 130 31878	1N4003G
6319	4822 130 30621	1N4148
6321	4822 130 30621	1N4148
6322	3198 010 53980	BZX79-B3V9
6323	4822 130 30621	1N4148
6324	4822 130 34278	BZX79-C6V8
6325	4822 130 34174	BZX79-B4V7
6326	4822 130 30621	1N4148
6327	4822 130 30621	1N4148
6329	4822 130 31981	BZX79-B3V9
6330	4822 130 30621	1N4148
6331	4822 130 30621	1N4148
6332	4822 130 34281	BZX79-C15
6333	4822 130 34173	BZX79-B5V6
6335	4822 130 30621	1N4148

TRANSISTORS

7200	4822 130 40917	BD238
7201	4822 130 41246	BC327-25
7202	4822 130 40959	BC547B
7300	4822 130 40959	BC547B
7303	4822 130 44568	BC557B
7304	4822 130 10847	BDW94C
7305	9322 139 23687	BDX53BFP
7306	4822 130 40995	BD438
7307	4822 130 41691	BC556B
7308	4822 130 40855	BC337-40
7309	4822 130 11336	STP16NE06FP
7310	4822 130 44568	BC557B
7311	4822 130 40959	BC547B
7312	4822 130 40959	BC547B
7313	4822 130 44568	BC557B
7314	4822 130 44503	BC547C
7315	4822 130 40959	BC547B
7316	4822 130 40959	BC547B
7317	4822 130 10847	BDW94C
7319	5322 130 44647	BC368
7320	4822 130 40995	BD438
7321	4822 130 40959	BC547B
7322	4822 130 40959	BC547B
7323	4822 130 40959	BC547B
7324	4822 130 40959	BC547B
7325	4822 130 40959	BC547B
7327	4822 130 41246	BC327-25
7328	4822 130 44568	BC557B
7330	4822 130 11336	STP16NE06FP
7331	4822 130 40959	BC547B
7332	4822 130 40855	BC337-40

INTEGRATED CIRCUITS

7301	9322 161 89682	AN7591, Power amplifier
7302	9322 161 89682	AN7591, Power amplifier
7318	4822 209 31841	L7805CP, Stabilizer 5V

SET BLOCK DIAGRAM