

Micro System MC170/21/21M/22

Service
Service
Service



Service Manual

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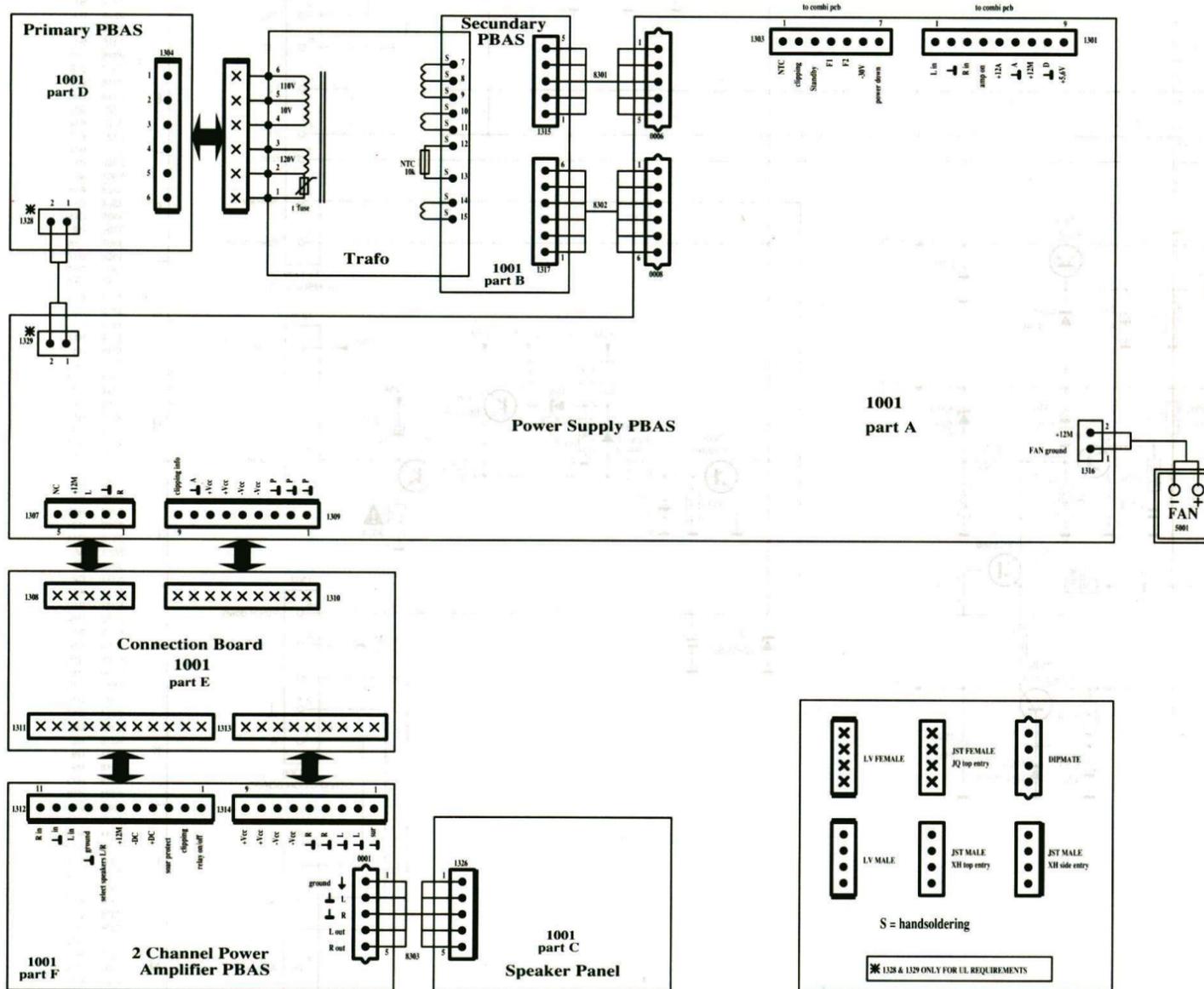
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PHILIPS

POWER BOARD

WIRING DIAGRAM



INTERFACE DESCRIPTION

CONNECTOR 1301

PIN	FUNCTION	DESCRIPTION
1	L	Left input for power amplifier
2	Gnd	Audio input reference ground
3	R	Right input for power amplifier
4	Amp on	Control signal for uP to switch VCD regulator to standby
5	+12A	Supply voltage for analogue electronic circuits
6	LA	Gnd for +12A
7	+12M	supply voltage for tapemotor, CD mechanism and the headphones amplifier
8	LD	ground for +12M and uProcessor
9	+5.6V	supply voltage for uP

CONNECTOR 1303

PIN	FUNCTION	DESCRIPTION
1	NTC	Control line to uP for temperature control of transformer
2	clipping	control line to reduce bass setting in case of overload
3	standby	control signal from the uprocessor
4	F1	AC voltage to FTD filament
5	F2	AC voltage to FTD filament
6	-30V	negative supply voltage to FTD grid
7	power down	control line to uProcessor to detect mains failure

CONNECTOR 1304

PIN	FUNCTION	DESCRIPTION
6	transformer fuse	pin 1 of transformer
5		pin 2 of transformer
4		pin 3 of transformer
3		pin 4 of transformer
2		pin 5 of transformer
1		pin 6 of transformer

CONNECTOR 1315

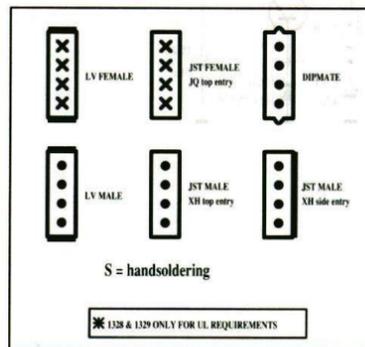
PIN	DESCRIPTION
6 and 5	AC secondary connection to pin 7 of transformer
4 and 3	AC secondary connection to pin 8 of transformer
2 and 1	AC secondary connection to pin 9 of transformer

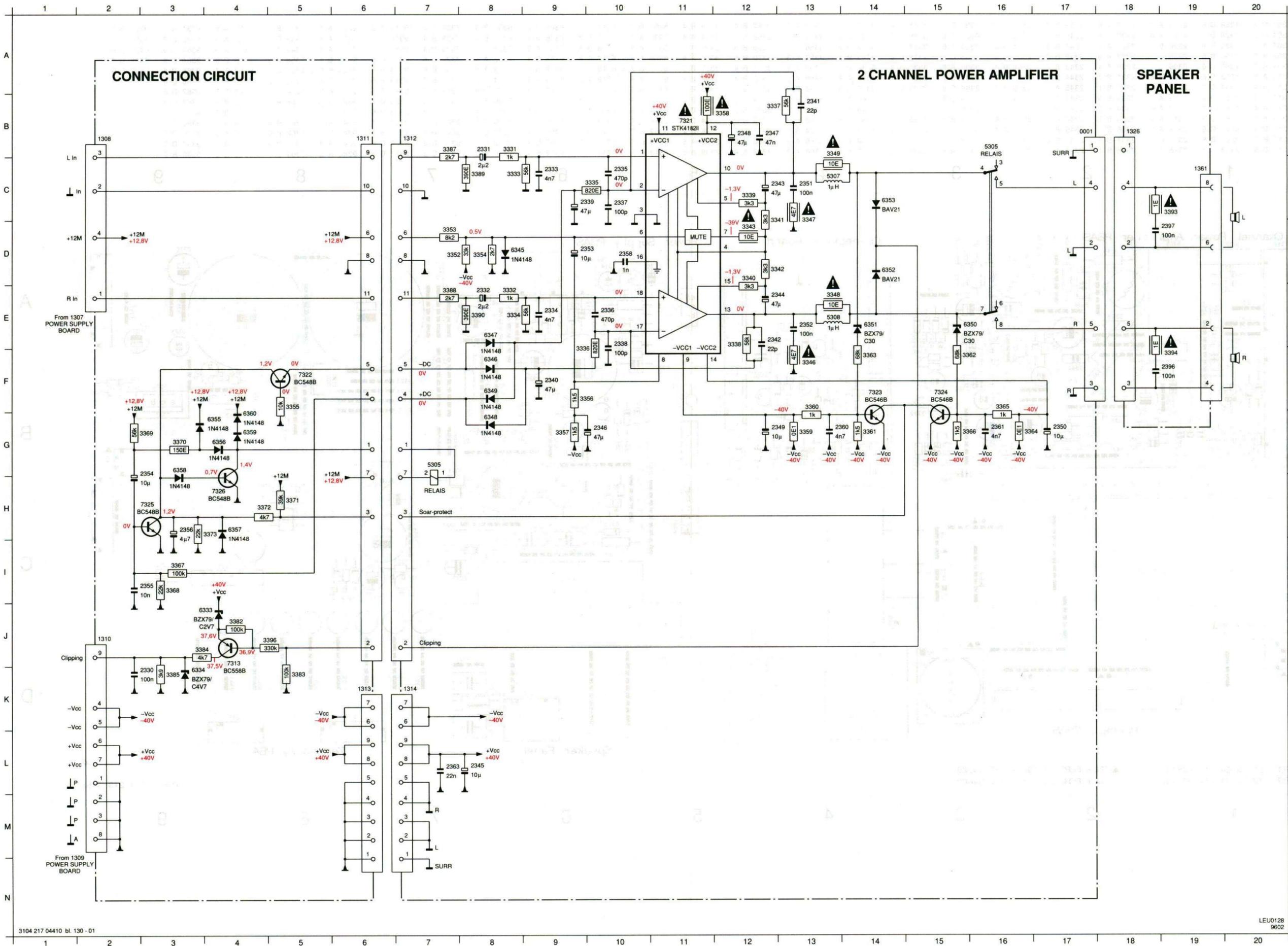
CONNECTOR 1317

PIN	DESCRIPTION
6	Filament voltage F2 to pin 10 of transformer
5	Filament voltage F1 to pin 11 of transformer
4	NTC control line to pin 12 of transformer
3	ground of NTC to pin 13 of transformer
2	AC supply voltage to pin 14 of transformer
1	AC supply voltage to pin 15 of transformer

CONNECTOR 1316

PIN	DESCRIPTION
1	GND to fan
2	Positive supply voltage to fan



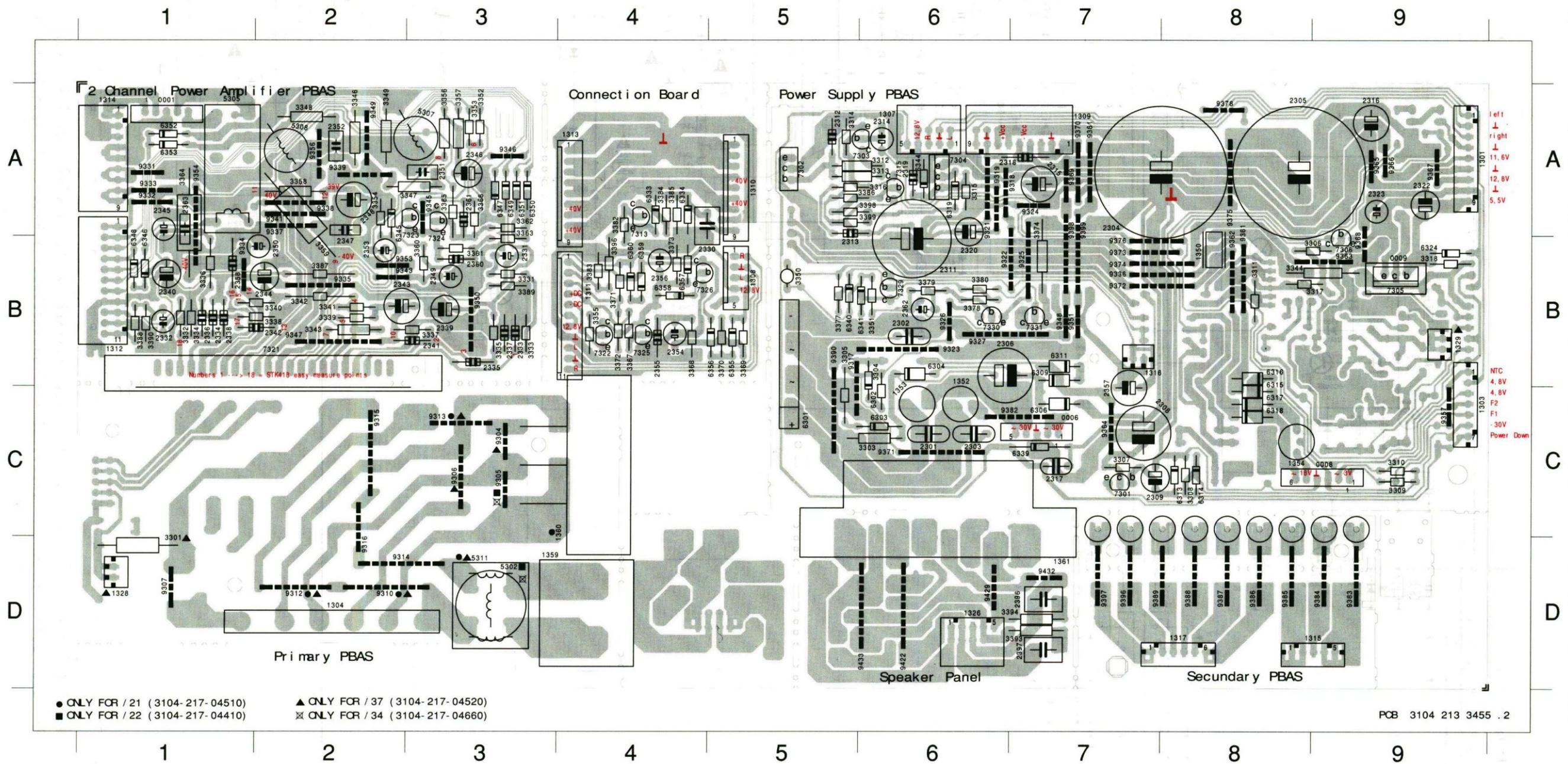


0001	B17	7323	F14
1308	B2	7324	F15
1310	J2	7325	H3
1311	B6	7326	H4
1312	B7		
1313	K6		
1314	K7		
1326	B18		
1361	C19		
2330	K3		
2331	B8		
2332	E8		
2333	C9		
2334	E9		
2335	C10		
2336	E10		
2337	C10		
2338	E10		
2339	C9		
2340	F9		
2341	B13		
2342	E12		
2343	C12		
2344	E12		
2345	L8		
2346	G10		
2347	B12		
2348	B12		
2349	G12		
2350	G17		
2351	C13		
2352	E13		
2353	D9		
2354	G3		
2355	I3		
2356	H3		
2358	D10		
2360	G13		
2361	G16		
2363	L7		
2396	F19		
2397	D19		
3331	B8		
3332	E8		
3333	C8		
3334	E8		
3335	C9		
3336	F9		
3337	B12		
3338	E12		
3339	C12		
3340	D12		
3341	D12		
3342	D12		
3343	D12		
3344	F13		
3347	D13		
3348	E13		
3349	B13		
3352	D7		
3353	D7		
3354	D8		
3355	F5		
3356	F9		
3357	G9		
3358	B12		
3359	G13		
3360	F13		
3361	C14		
3362	F15		
3363	F14		
3364	G16		
3365	F16		
3366	G15		
3367	I3		
3368	I3		
3369	G3		
3370	G3		
3371	H5		
3372	H4		
3373	H4		
3382	J4		
3383	K5		
3384	J3		
3385	K3		
3387	B7		
3388	E7		
3389	C8		
3390	E8		
3393	C19		
3394	F19		
3396	J4		
5305	G7		
5307	C13		
5308	E13		
6333	J3		
6334	K3		
6345	D8		
6346	F8		
6347	E8		
6348	G8		
6349	F8		
6350	E15		
6351	E14		
6352	D14		
6353	C14		
6355	G4		
6356	G4		
6357	H4		
6358	G3		
6359	G4		
6360	G4		
7113	J4		
7321	B11		
7322	F5		

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0001 A 1	1303 C 9	1326 D 6	2304 A 7	2319 A 6	2339 B 3	2352 A 2	3301 D 1	3315 A 6	3340 B 2	3354 A 2	3367 B 4	3383 B 4	5302 D 3	6314 C 8	6345 A 2	6359 B 4	7324 A 3	9314 D 2	9331 A 1	9347 B 2	9365 A 9	9381 A 7	9399 B 7
0006 C 7	1304 D 2	1328 D 1	2305 A 8	2320 A 6	2340 B 1	2353 B 2	3303 C 6	3316 A 5	3341 B 2	3355 B 4	3368 B 4	3384 A 4	5305 A 1	6315 C 8	6346 B 1	6360 B 4	7325 B 4	9315 C 2	9332 A 1	9348 B 7	9366 A 9	9382 C 7	9422 D 6
0008 C 9	1307 A 6	1329 B 9	2306 B 6	2322 A 9	2341 B 3	2354 B 4	3304 C 6	3317 B 8	3342 B 2	3356 A 3	3369 B 5	3385 A 4	5307 A 3	6316 B 8	6347 A 3	7301 C 7	7326 B 4	9316 C 2	9333 A 1	9349 A 2	9367 A 9	9383 D 9	9429 D 6
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0112 C 8	1313 A 4	1360 C 3	2314 A 6	2334 B 1	2347 A 2	2361 A 3	3310 C 9	3335 B 3	3349 A 2	3362 A 3	3377 B 5	3393 D 7	6304 B 6	6334 A 4	6353 A 1	7313 A 4	9306 C 3	9323 B 6	9339 A 2	9357 C 9	9375 B 7	9389 D 8	
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0115 C 7	1316 B 7	2302 B 6	2317 C 7	2337 B 3	2350 B 2	2396 D 7	3313 A 5	3338 B 2	3352 A 3	3365 A 3	3380 B 6	3398 A 5	6311 B 7	6341 B 6	6357 B 4	7322 B 4	9312 D 2	9326 B 6	9345 A 3	9363 B 9	9376 B 7	9397 D 7	
1301 A 9	1317 D 8	2303 C 6	2318 A 7	2338 B 1	2351 A 3	2397 D 7	3314 A 5	3339 B 2	3353 A 3	3366 A 3	3382 A 4	3399 A 5	6313 C 8	6344 A 6	6358 B 4	7323 A 3	9313 C 3	9327 B 6	9346 A 3	9364 C 7	9378 A 8	9398 B 7	



POWER BOARD PARTSLIST

MISCELLANEOUS			CAPACITORS		
	4822 255 10271	HEATSINK	2349	4822 124 41402	10µF 20% 50V
1350	4822 252 51169	FUSE 0.25A 65V	2350	4822 124 41402	10µF 20% 50V
1352	4822 071 55002	FUSE 5A 250V	2351	5322 121 42386	100nF 5% 63V
1353	4822 071 55002	FUSE 5A 250V	2352	5322 121 42386	100nF 5% 63V
1354	4822 071 52002	FUSE 2A 250V	2353	4822 124 41579	10µF 20% 50V
1359	4822 265 31015	CONNECTOR ELECT	2354	4822 124 41579	10µF 20% 50V
1360	4822 272 10315	VOLTAGE SELECTOR -/21	2355	4822 121 51387	10nF 20% 16V
1361	4822 267 31176	CONNECTOR ELECT	2356	4822 124 40246	4.7µF 20% 63V
5011	4822 146 10441	MAINS TRANSFORMER	2357	4822 124 41525	100µF 20% 25V
		- /21/21M	2358	4822 122 33197	1nF 10% 50V
5011	4822 146 10378	MAINS TRANSFORMER /22			
5001	4822 361 10689	MOTOR DC FAN	2360	4822 126 11714	4.7nF 20%
			2361	4822 126 11714	4.7nF 20%
			2362	4822 124 41579	10µF 20% 50V
			2363	4822 121 41856	22nF 100V
			2396	5322 121 42386	100nF 5% 63V
			2397	5322 121 42386	100nF 5% 63V
CAPACITORS			RESISTORS		
2301	4822 121 41853	100nF 10% 100V	3303	4822 052 10108	1R 5% 0.33W
2302	4822 121 41853	100nF 10% 100V	3304	4822 116 52283	4K7 5% 0.5W
2303	4822 121 41853	100nF 10% 100V	3305	4822 116 52283	4K7 5% 0.5W
2304	4822 124 11504	6800µF 50V 20%	3306	4822 116 52283	4K7 5% 0.5W
2305	4822 124 11504	6800µF 50V 20%	3307	4822 116 52296	6K8 5% 0.5W
2306	4822 124 41751	47µF 20% 50V	3308	4822 116 52257	22K 5% 0.5W
2308	4822 124 11505	100µF 100V	3309	4822 116 52215	220E 5% 0.5W
2309	4822 124 41596	22µF 20% 50V	3310	4822 116 52215	220E 5% 0.5W
2311	4822 124 42119	4700µF 20% 25V	3311	4822 116 52228	680E 5% 0.5W
2311	4822 124 42367	3300µF 35V /21	3312	4822 050 25601	560R 1% 0.6W
2312	4822 126 11585	22nF +80-20% Y5V 25V	3313	4822 050 25601	560R 1% 0.6W
2313	4822 122 33197	1nF 10% 50V	3314	4822 116 52284	47K 5% 1/6W
2314	4822 124 40242	1µF 20% 63V	3315	4822 116 52296	6K8 5% 1/6W
2315	4822 124 41525	100µF 20% 25V	3316	4822 116 52219	330E 5% 0.5W
2316	4822 124 41525	100µF 20% 25V	3317	4822 116 83864	10K 5% 0.5W
2317	4822 121 43526	47nF 5% 250V	3318	4822 050 11002	1K 1% 0.4W
2318	4822 126 11585	22nF +80-20% Y5V 25V	3331	4822 050 11002	1K 1% 0.4W
2319	4822 122 33197	1nF 10% 50V	3332	4822 050 11002	1K 1% 0.4W
2320	4822 124 40433	47µF 20% 25V	3333	4822 116 52291	56K 5% 0.5W
2322	4822 124 40433	47µF 20% 25V	3334	4822 116 52291	56K 5% 0.5W
2323	4822 124 41579	10µF 20% 50V	3335	4822 116 52231	820E 5% 0.5W
2330	5322 121 42386	100nF 5% 63V	3336	4822 116 52231	820E 5% 0.5W
2331	4822 124 41576	2.2µF 20% 50V	3337	4822 116 52291	56K 5% 0.5W
2332	4822 124 41576	2.2µF 20% 50V	3338	4822 116 52291	56K 5% 0.5W
2333	4822 126 11714	4.7nF 20%	3339	4822 116 52269	3K3 5% 0.5W
2334	4822 126 11714	4.7nF 20%	3340	4822 116 52269	3K3 5% 0.5W
2335	4822 122 33519	470pF 10% 50V	3341	4822 116 52269	3K3 5% 0.5W
2336	4822 122 33519	470pF 10% 50V	3342	4822 116 52269	3K3 5% 0.5W
2337	4822 122 33195	100pF 10% 50V	3343	4822 052 10109	10R 5% 0.33W
2338	4822 122 33195	100pF 10% 50V	3344	4822 053 10159	15R 5% 1W
2339	4822 124 80952	47µF 25V	3346	4822 052 10478	4R7 5% 0.33W
2340	4822 124 80952	47µF 25V	3347	4822 052 10478	4R7 5% 0.33W
2341	4822 122 33191	22pF 5% 50V	3348	4822 052 10109	10R 5% 0.33W
2342	4822 122 33191	22pF 5% 50V	3349	4822 052 10109	10R 5% 0.33W
2343	4822 124 80196	47µF 20% 50V	3350	4822 117 12063	NTC DC
2344	4822 124 80196	47µF 20% 50V			
2345	4822 124 41402	10µF 20% 50V			
2346	4822 124 40433	47µF 20% 25V			
2347	4822 121 43526	47nF 5% 250V			
2348	4822 124 80196	47µF 20% 50V			

POWER BOARD PARTSLIST

RESISTORS

3351	4822 116 52276	3K9 5% 0.5W
3352	4822 116 52271	33K 5% 0.5W
3353	4822 116 52303	8K2 5% 0.5W
3354	4822 116 52263	2K7 5% 0.5W
3355	4822 116 83864	10K 5% 0.5W
3356	4822 116 52243	1K5 5% 0.5W
3357	4822 116 52243	1K5 5% 0.5W
3358	4822 052 10101	100R 5% 0.33W
3359	4822 113 80633	0R1 5% 3W
3360	4822 050 11002	1K 1% 0.4W
3361	4822 116 52243	1K5 5% 0.5W
3362	4822 116 52297	68K 5% 0.5W
3363	4822 116 52297	68K 5% 0.5W
3364	4822 113 80633	0R1 5% 3W
3365	4822 050 11002	1K 1% 0.4W
3366	4822 116 52243	1K5 5% 0.5W
3367	4822 116 52234	100K 5% 0.5W
3368	4822 116 52257	22K 5% 0.5W
3369	4822 116 52291	56K 5% 0.5W
3370	4822 116 83868	150R 5% 0.5W
3371	4822 116 83882	39K 5% 0.5W
3372	4822 116 52283	4K7 5% 0.5W
3373	4822 116 52257	22K 5% 0.5W
3374	4822 052 10109	10R 5% 0.33W
3377	4822 116 83864	10K 5% 0.5W
3378	4822 116 52269	3K3 5% 0.5W
3379	4822 116 52207	1K2 5% 0.5W
3380	4822 116 52243	1K5 5% 0.5W
3382	4822 116 52234	100K 5% 0.5W
3383	4822 116 52234	100K 5% 0.5W
3384	4822 116 52283	4K7 5% 0.5W
3385	4822 116 52276	3K9 5% 0.5W
3386	4822 116 52304	82K 5% 0.5W
3387	4822 116 52263	2K7 5% 0.5W
3388	4822 116 52263	2K7 5% 0.5W
3389	4822 116 52222	390E 5% 0.5W
3390	4822 116 52222	390E 5% 0.5W
3393	4822 052 10108	1R 5% 0.33W
3394	4822 052 10108	1R 5% 0.33W
3396	4822 116 52272	330K 5% 0.5W
3398	4822 116 52257	22K 5% 0.5W
3399	4822 116 52215	220E 5% 0.5W

COILS

5302	4822 157 71285	COIL 400 μ H 30% /22
5305	4822 280 80777	RELAY VB-12STBU
5307	4822 157 70599	COIL
5308	4822 157 70599	COIL
5311	4822 157 10417	COIL MAIN CHOKE 6A /21

DIODES

6301	4822 130 82078	D5SBA20
6302	4822 130 30621	1N4148
6303	4822 130 30621	1N4148
6304	5322 130 30684	1N4002GP
6306	5322 130 30684	1N4002GP

DIODES

6309	5322 130 30684	1N4002GP
6311	5322 130 30684	1N4002GP
6313	4822 130 34328	BZX79-C30
6314	4822 130 34174	BZX79-C4V7
6315	5322 130 80686	1N5392
6316	5322 130 80686	1N5392
6317	5322 130 80686	1N5392
6318	5322 130 80686	1N5392
6319	4822 130 34197	BZX79-B12
6324	4822 130 34167	BZX79-C6V2
6333	5322 130 34563	BZX79-C2V7
6334	4822 130 34174	BZX79-C4V7
6339	4822 130 34382	BZX79-C8V2
6340	4822 130 34488	BZX79-C11
6341	4822 130 34278	BZX79 F6V8
6344	4822 130 30621	1N4148
6345	4822 130 30621	1N4148
6346	4822 130 30621	1N4148
6347	4822 130 30621	1N4148
6348	4822 130 30621	1N4148
6349	4822 130 30621	1N4148
6350	4822 130 34328	BZX79-C30
6351	4822 130 34328	BZX79-C30
6352	4822 130 30842	BAV21
6353	4822 130 30842	BAV21
6355	4822 130 30621	1N4148
6356	4822 130 30621	1N4148
6357	4822 130 30621	1N4148
6358	4822 130 30621	1N4148
6359	4822 130 30621	1N4148

TRANSISTORS

7301	4822 130 41646	BF423
7302	4822 130 63575	BD242BFI
7303	4822 130 40937	BC548B
7304	4822 130 63539	BD241A
7305	4822 130 63539	BD241A
7306	4822 130 44197	BC558B
7313	4822 130 44197	BC558B
7315	4822 130 40937	BC548B
7322	4822 130 40937	BC548B
7323	4822 130 44461	BC546B
7324	4822 130 44461	BC546B
7325	4822 130 40937	BC548B
7326	4822 130 40937	BC548B
7329	4822 130 44197	BC558B
7330	4822 130 40937	BC548B
7331	5322 130 44779	BC338-40

INTEGRATED CIRCUITS

7321	4822 209 12929	IC HYBRID AMPLI STK4182II
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