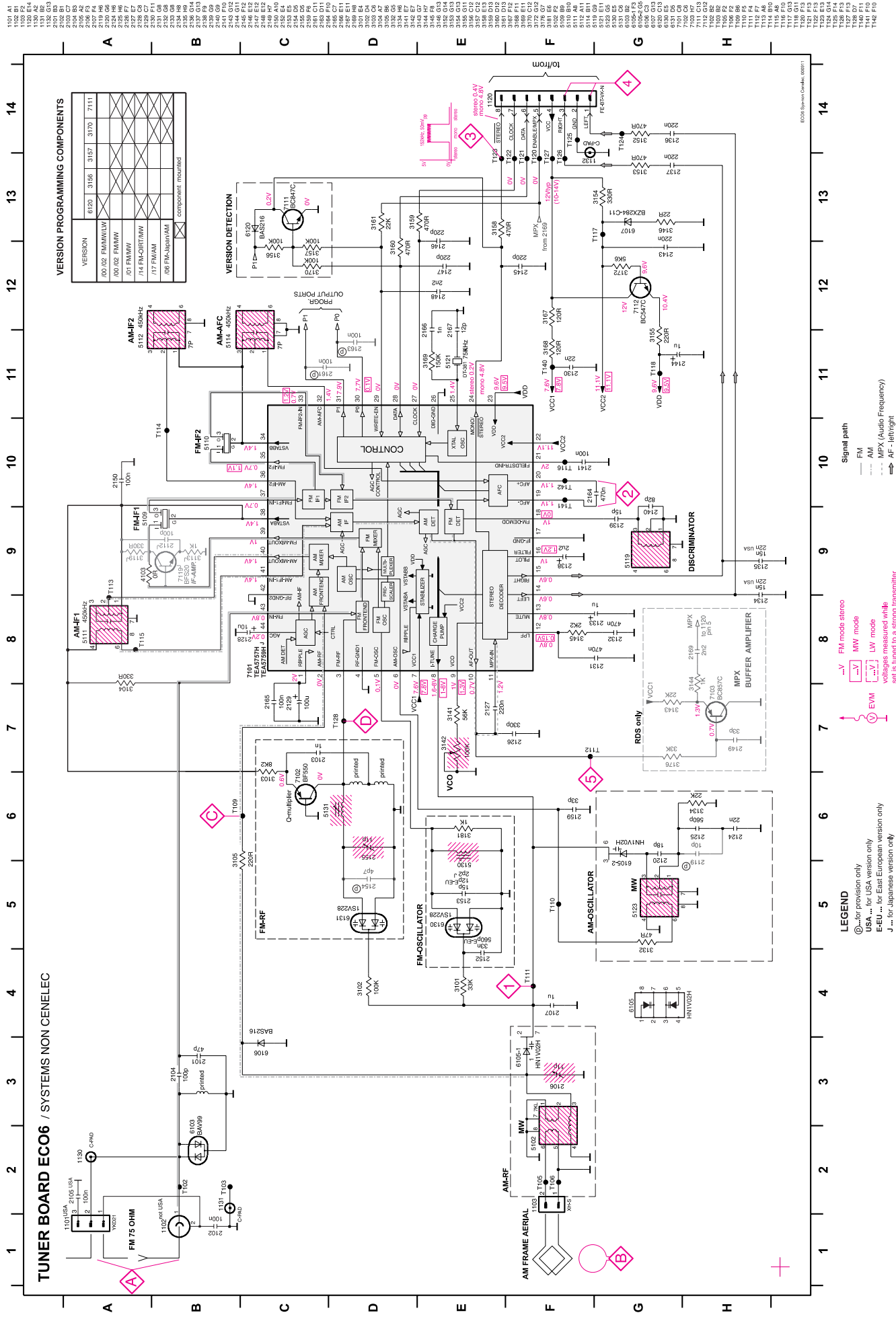


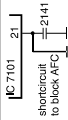
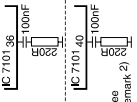
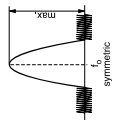
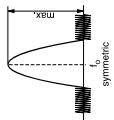
ECO6 Tuner Board

version: **SYSTEMS non-CENELEC**

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TUNER ADJUSTMENT TABLE (ECO6 FM/MW- and FM/MW/LW - versions with AM-frame aerial)

Wavrange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz 87.5MHz (65.81MHz)	5130 check		8V ±0.2V 4.3V ±0.5V (1.2V ±0.5V)
MW FM AM-version, 10kHz grid 530 - 1700kHz			1700kHz 530kHz	5123 check		8V ±0.2V 1.1V ±0.4V
FM MW-version, 9kHz grid 531 - 1602kHz			1602kHz 531kHz	5123 check	1	6.9V ±0.2V 1.1V ±0.4V
LW 153 - 279kHz			279kHz 153kHz	5122 check		8V ±0.2V 1.1V ±0.4V
MW FM MW/LW-version, 9kHz grid 531 - 1602kHz			1602kHz 531kHz	5123 check		8V ±0.2V 1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	D		5119	2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz 87.5MHz (65.81MHz)	A	108MHz 87.5MHz (65.81MHz)	2155 5131	4	MAX
VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz ¹⁾
AM / F						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C	 Δf = ±10kHz V _{RF} = 0.5mV (as low as possible) see remark 2)	5111 5112	5	
AM AFC		C	continuous wave V _{RF} = 2mV	5114	2	0 ± 2 mV DC
AM RF ³⁾						
MW ⁴⁾ FM MW/LW-version (9kHz grid) 531 - 1602kHz	149kHz 558kHz	B	149kHz 558kHz	2106 5102	5	
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz 560kHz		1500kHz 560kHz	2106 5102		

Use Service Testprogram. By selecting the TUNER TEST test frequencies will be stored as preset frequencies automatically.

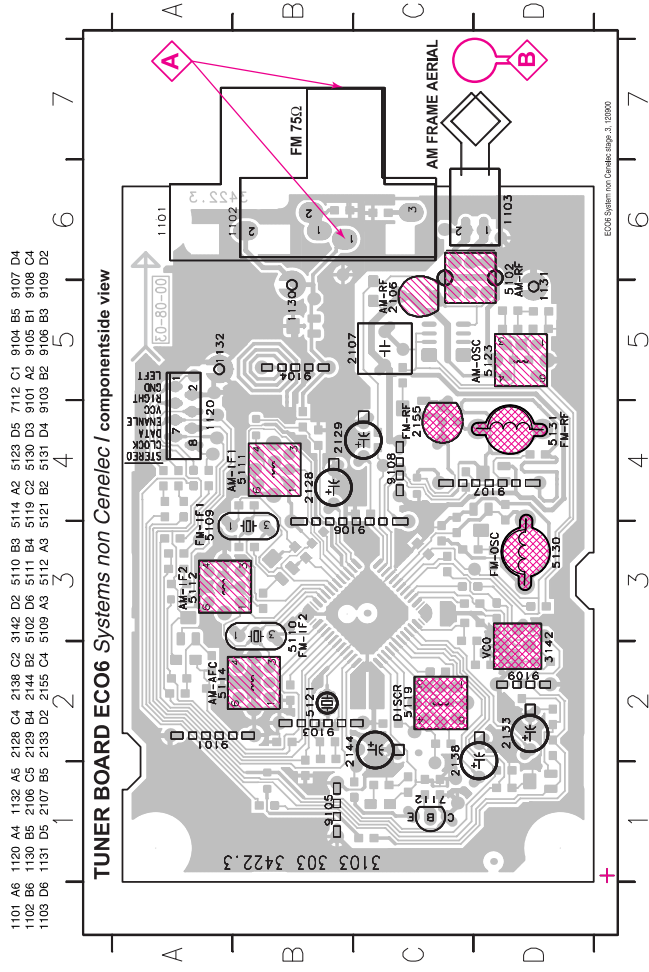
- 1) If sensitivity of frequency counter is too low adjust to max. channel separation
- 2) RC network serves for damping the **F-filter** while adjusting the other one.

• Sensitivity of frequency counter is too low adjust to max; channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

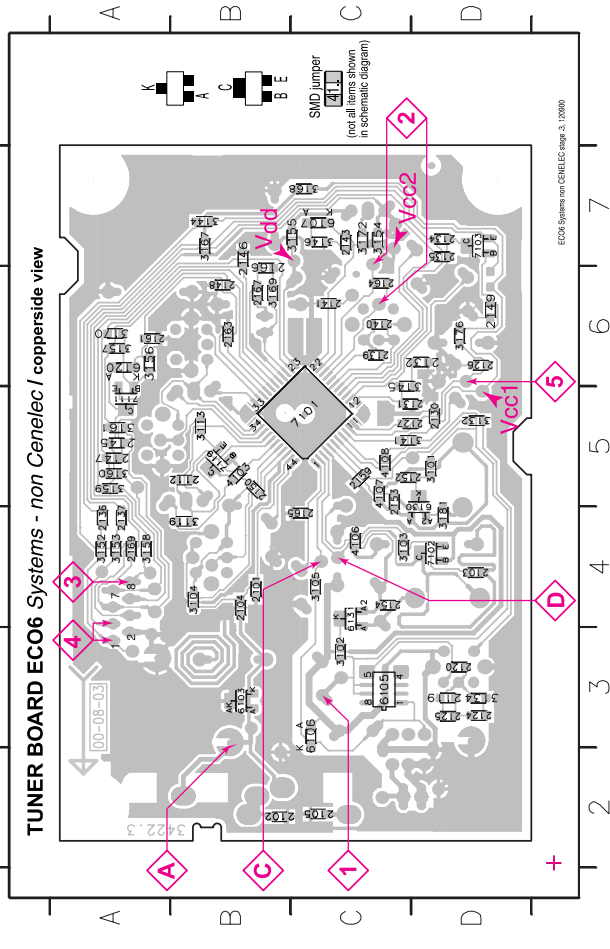
3) For AM RF adjustments the **original** frame antenna has to be used !

1

Repeat



201	B4	2119	D3	2330	D5	2337	A4	2446	B7	2453	C5	2465	C4	3103	C4	3104	D3	3152	A4	3158	A4	3169	B6	4106	C4	6107	C7	7103	D7
202	B1	2120	D3	2331	C5	2338	C6	2447	B5	2456	B6	2466	B6	3104	C4	3143	C3	3153	C7	3159	A5	3170	B5	4108	A4	6108	A4	7110	B5
203	B1	2121	D3	2332	C5	2339	C6	2448	B5	2457	A6	2467	B6	3105	C4	3144	C3	3154	C7	3160	A5	3171	B5	4109	A4	6109	C7	7111	B5
204	B1	2122	D3	2333	D7	2340	C6	2449	B6	2458	A6	2468	B6	3106	C4	3145	C3	3155	C7	3161	A5	3172	B5	4110	A4	6110	C7	7112	B5
205	C1	2126	D8	2335	D7	2343	C7	2450	B5	2459	B6	2469	B6	3110	B5	3149	B5	3156	A6	3168	C7	3174	B4	4105	C3	6113	A4	7115	B5
206	C1	2127	D8	2336	D7	2344	C7	2451	B6	2460	B6	2470	B6	3111	B5	3150	B5	3157	A6	3169	C7	3175	B4	4106	C3	6114	A4	7116	B5
207	C1	2128	D8	2337	D7	2345	C7	2452	B6	2461	B6	2471	B6	3112	B5	3151	B5	3158	A6	3170	C7	3176	B4	4107	C3	6115	A4	7117	B5
208	C1	2129	D8	2338	D7	2346	C7	2453	B6	2462	B6	2472	B6	3113	B5	3152	B5	3159	A6	3171	C7	3177	B4	4108	C3	6116	A4	7118	B5
209	C1	2130	D8	2339	D7	2347	C7	2454	B6	2463	B6	2473	B6	3114	B5	3153	B5	3160	A6	3172	C7	3178	B4	4109	C3	6117	A4	7119	B5
210	C1	2131	D8	2340	D7	2348	C7	2455	B6	2464	B6	2474	B6	3115	B5	3154	B5	3161	A6	3173	C7	3179	B4	4110	C3	6118	A4	7120	B5



These assembly drawings show a summary of all possible versions. For components used in a specific version see schematic diagram respectively partlist.

MISCELLANEOUS

1101	2422 015 19376	SOCKET 2P CLICKFIT	USA only
1102	4822 267 10283	SOCKET COAX. IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR 2 POLE	
1120	4822 265 11515	FFC SOCKET, 8P	

CAPACITORS

2101	Ⓞ 4822 126 13692	47pF	1%	63V	
2102	Ⓞ 4822 126 13838	100nF	10%	50V	not USA
2103	Ⓞ 5322 122 31647	1nF	10%	63V	
2104	Ⓞ 5322 122 32531	100pF	5%	50V	
2105	Ⓞ 4822 126 13838	100nF	10%	50V	USA only

2106	2020 800 00191	3-11pF TRIMCAP.,N450
2107	4822 121 51319	1uF 20% 50V
2120	4822 126 13689	18pF 1% 63V
2124	5322 122 32654	22nF 10% 63V
2125	2020 552 96199	560pF 1% 50V

2126	Ⓞ 5322 122 31863	330pF	5%	50V	
2127	Ⓞ 4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10μF	20%	63V	
2129	4822 124 41584	100μF	20%	10V	
2130	Ⓞ 5322 122 32654	22nF	10%	63V	

2131	Ⓞ 4822 126 13482	470nF	20%	16V	
2132	Ⓞ 4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1μF	20%	63V	
2134	Ⓞ 4822 126 13188	15nF	5%	63V	not USA
2134	Ⓞ 5322 122 32654	22nF	10%	63V	USA only

2135	Ⓞ 4822 126 13188	15nF	5%	63V	not USA
2135	Ⓞ 5322 122 32654	22nF	10%	63V	USA only
2136	Ⓞ 4822 126 14076	220nF	20%	25V	
2137	Ⓞ 4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2μF	20%	50V	

2139	Ⓞ 4822 126 14236	15pF	5%	50V	
2140	Ⓞ 4822 126 13695	82pF	1%	63V	
2141	Ⓞ 4822 126 13838	100nF	10%	50V	
2143	Ⓞ 4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1μF	20%	63V	

2145	Ⓞ 4822 122 33575	220pF	5%	50V	
2146	Ⓞ 4822 122 33575	220pF	5%	50V	
2147	Ⓞ 4822 122 33575	220pF	5%	50V	
2148	Ⓞ 4822 122 33127	2,2nF	10%	63V	
2149	Ⓞ 5322 122 32659	33pF	5%	50V	RDS only

2150	Ⓞ 4822 126 13838	100nF	10%	50V	
2152	Ⓞ 4822 126 12105	33nF	5%	63V	not for East Europe
2152	Ⓞ 5322 116 80853	560pF	5%	63V	for East Europe only
2153	Ⓞ 4822 126 13486	15pF	2%	63V	not for East Europe
2153	Ⓞ 4822 122 33926	12pF	2%	50V	for East Europe only

2155	2020 800 00191	3-11pF TRIMCAP., N450			
2159	Ⓞ 5322 122 32659	33pF	5%	50V	
2164	Ⓞ 4822 126 13482	470nF	20%	16V	
2165	Ⓞ 4822 126 13838	100nF	10%	50V	
2166	Ⓞ 5322 122 31647	1nF	10%	63V	

2167	Ⓞ 4822 122 33926	12pF	5%	50V	
2169	Ⓞ 4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101	Ⓞ 4822 051 20333	33kΩ	5%	0,1W	
3102	Ⓞ 4822 117 10837	100kΩ	1%	0,1W	
3103	Ⓞ 4822 051 20822	8,2kΩ	5%	0,1W	
3104	Ⓞ 4822 117 13577	330Ω	1%	0,1W	
3105	Ⓞ 4822 117 11503	220Ω	5%	0,1W	

3132	Ⓞ 4822 051 20479	47Ω	5%	0,1W	
3134	Ⓞ 4822 051 20223	22kΩ	5%	0,1W	
3141	Ⓞ 4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			

RESISTORS

3143	Ⓞ 4822 051 20223	22kΩ	5%	0,1W	
3144	Ⓞ 4822 051 10102	1kΩ	2%	0,25W	RDS only
3145	Ⓞ 4822 117 11449	2,2kΩ	1%	0,1W	
3146	Ⓞ 4822 051 20229	22Ω	5%	0,1W	
3152	Ⓞ 4822 051 20471	470Ω	5%	0,1W	

3153	Ⓞ 4822 051 20471	470Ω	5%	0,1W	
3154	Ⓞ 4822 117 13577	330Ω	1%	0,1W	
3155	Ⓞ 4822 117 11503	220Ω	5%	0,1W	
3156	Ⓞ 4822 117 10837	100kΩ	1%	0,1W	
3157	Ⓞ 4822 117 10837	100kΩ	1%	0,1W	

3158	Ⓞ 4822 051 20471	470Ω	5%	0,1W	
3159	Ⓞ 4822 051 20471	470Ω	5%	0,1W	
3160	Ⓞ 4822 051 20471	470Ω	5%	0,1W	
3161	Ⓞ 4822 051 20223	22kΩ	5%	0,1W	
3167	Ⓞ 4822 051 20121	120Ω	5%	0,1W	

3168	Ⓞ 4822 051 20121	120Ω	5%	0,1W	
3169	Ⓞ 4822 051 20154	150kΩ	5%	0,1W	
3170	Ⓞ 4822 117 10837	100kΩ	1%	0,1W	
3172	Ⓞ 4822 051 20562	5,6kΩ	5%	0,1W	
3176	Ⓞ 4822 051 20333	33kΩ	5%	0,1W	RDS only

3181	Ⓞ 4822 051 10102	1kΩ	2%	0,25W	
4103	Ⓞ 4822 051 20008	CHIP JUMPER 0805			
4106	Ⓞ 4822 051 20008	CHIP JUMPER 0805			
4107	Ⓞ 4822 051 20008	CHIP JUMPER 0805			
4108	Ⓞ 4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW			
5109	4822 242 70665	FM-IF FILTER 10,7MHz			
5110	4822 242 70665	FM-IF FILTER 10,7MHz			
5111	2422 549 44023	AM-IF FILTER 450kHz			
5112	4822 157 70302	AM-IF FILTER 450kHz			
5114	4822 157 70302	AM-IF FILTER 450kHz			
5119	4822 157 11443	DISCRIMINATOR COIL			
5121	4822 242 10261	QUARTZ 75kHz			
5123	2422 549 44108	RF-COIL, AM-OSCILLATOR			
5130	4822 157 11843	RF COIL 1,5 TURNS			
5131	4822 157 11843	RF COIL 1,5 TURNS			

DIODES

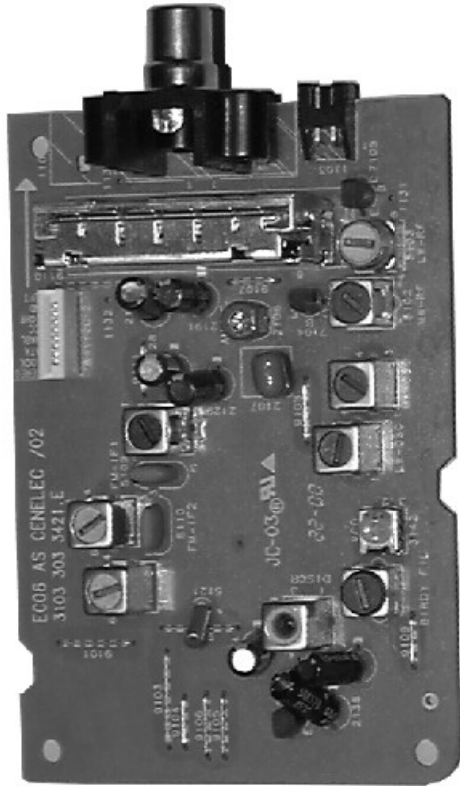
6103	Ⓞ 5322 130 34337	BAV99			
6105	Ⓞ 4822 130 83075	HN1V02H			
6106	Ⓞ 4822 130 83757	BSZ216			
6107	Ⓞ 9340 386 90115	BZX284-C11			
6120	Ⓞ 4822 130 83757	BSZ216			
6130	Ⓞ 4822 130 82833	1SV228			
6131	Ⓞ 4822 130 82833	1SV228			

TRANSISTORS

7102	4822 130 42131	BF550			
7103	Ⓞ 5322 130 42756	BC857C			RDS only
7111	Ⓞ 5322 130 42756	BC847C			
7112	4822 130 44503	BC547C			

INTEGRATED CIRCUITS

7101	Ⓞ 9351 740 80557	TEA575HV1, RADIO IC			
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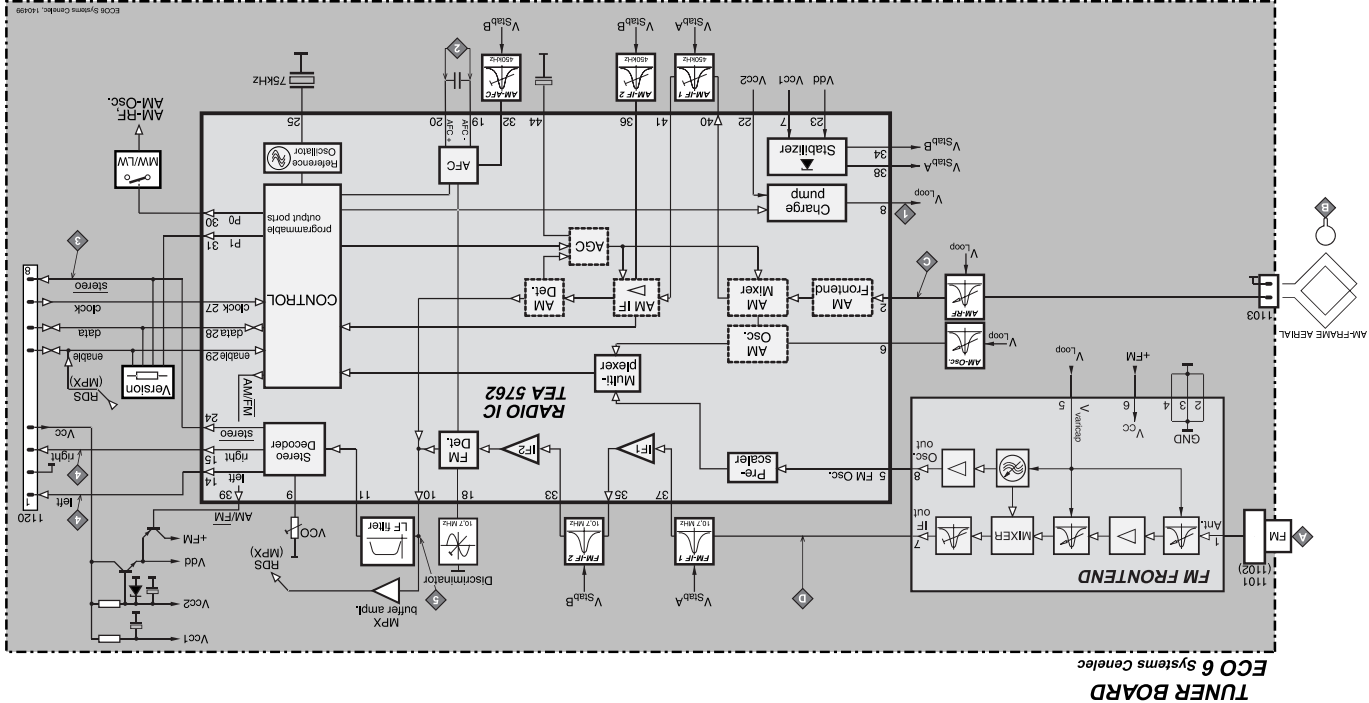
ECO6 Tuner Board

version: SYSTEMS CENELEC

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BLOCK DIAGRAM





1101 B5	1110 B4	1131 C5	2107 B3	2133 C1	2162 A4	5102 C4	5110 A2	5114 A2	5121 B2	7104 C4	9101 A2	9104 B1	9107 B4	9110 A4
1102 B5	1120 A4	1132 A4	2128 A3	2138 B1	2149 B4	5109 B3	5111 A3	5115 C2	5122 C3	7105 C2	9102 B2	9105 B1	9108 B3	9111 A3
1103 B5	1130 A5	2106 B4	2129 B3	2144 B1	3142 C2	5109 B3	5112 A1	5119 B2	5123 C3	7112 B1	9103 A1	966 B1	9109 C2	

[illegible]

- 1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90° + 9%, adjust output on right channel to minimum)
- 2) RC network serves for damping the IF-filter while adjusting the other one.
- 3) For AM RF adjustments the original frame antenna has to be used!
MW has to be aligned before LW.

These assembly drawings show a summary of **all** possible versions. For components used in a specific version see schematic diagram respectively partslist.



Electrical Partlist *ECO6* SYSTEMS-CENELEC

MISCELLANEOUS

1101	2422 015 19376	SOCKET CLICKFIT 2P	USA only
1102	4822 267 10283	SOCKET COAX, IEC 75Ω	not USA
1103	4822 265 31184	JST CONNECTOR, 2 POLE	not USA
1110	2422 542 90071	FM FRONTEND	
1120	4822 265 11515	FFC SOCKET, 1, 8P	

2102	4822 126 13838	100nF	10%	50V	not USA
2105	4822 126 13838	100nF	10%	50V	not USA
2106	2020 800 00204	TRIMCAP 4.2 - 20pF	N750		LW only
2107	2020 800 00191	TRIMCAP, 3 - 11pF	N450		FM/AM only
2107	4822 121 51319	1μF	20%	50V	
2108	5322 122 32531	100pF	5%	50V	LW only
2109	5322 122 32448	10pF	5%	50V	LW only
2120	4822 126 13689	18pF	1%	63V	FM/AM only
2120	5322 122 32658	22pF	5%	50V	LW only
2122	4822 122 33891	3.3nF	10%	63V	LW only
2123	2020 552 93494	390pF	1%	50V	LW only
2124	4822 122 33177	10nF	20%	50V	FM/AM only
2125	2020 552 96199	560pF	1%	50V	
2127	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10μF	20%	63V	
2129	4822 124 41584	100μF	20%	10V	
2130	5322 122 32854	22nF	10%	63V	
2131	4822 126 13482	470nF	20%	16V	
2132	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1μF	20%	63V	
2134	3198 017 31530	15nF	10%	50V	not USA
2134	5322 122 32854	22nF	10%	63V	USA only
2135	3198 017 31530	15nF	10%	50V	not USA
2135	3198 017 32230	22nF	10%	25V	USA only
2136	4822 126 14076	220nF	20%	25V	
2137	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2.2μF	20%	50V	
2139	4822 126 14236	15pF	5%	50V	
2140	4822 126 13695	82pF	1%	63V	
2141	4822 126 13838	100nF	10%	50V	
2143	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1μF	20%	63V	
2145	4822 122 33575	220pF	5%	50V	
2146	4822 122 33575	220pF	5%	50V	
2147	4822 122 33575	220pF	5%	50V	
2148	4822 122 33127	2.2nF	10%	63V	
2149	5322 122 32659	33pF	5%	50V	
2150	4822 126 13838	100nF	10%	50V	RDS only
2159	5322 122 31151	22μF	20%	50V	

COILS

5102	4822 157 71634	RF-COIL MW	
5103	2422 549 44107	RF-COIL LW	LW only
5109	4822 157 71639	FM-IF FILTER 10.7MHz	
5110	4822 242 70665	FM-IF FILTER 10.7MHz	
5111	2422 549 44023	AM-IF FILTER 450kHz	
5112	4822 157 70302	AM-IF FILTER 450kHz	
5114	4822 157 70302	AM-IF FILTER 450kHz	
5115	4822 157 71636	ANTI BIRDY FILTER	
5118	2422 535 95881	100nH	
5119	4822 157 11443	DISCRIMINATOR COIL	

RESISTORS

3105	4822 117 11503	220Ω	5%	0.1W	
3108	4822 117 11449	2.2kΩ	1%	0.1W	LW only
3109	4822 051 20472	4.7kΩ	5%	0.1W	LW only
3123	4822 051 20472	4.7kΩ	5%	0.1W	LW only
3125	4822 117 10833	10kΩ	1%	0.1W	LW only

RESISTORS

3128	4822 117 11449	2.2kΩ	1%	0.1W	LW only
3130	3198 021 38210	820Ω	5%	0.06W	
3131	3198 021 38210	820Ω	5%	0.06W	
3132	4822 051 20479	47Ω	5%	0.1W	
3134	4822 051 20223	22kΩ	5%	0.1W	
3135	3198 021 31020	1kΩ	5%	0.06W	
3137	4822 051 20223	22kΩ	5%	0.1W	LW only
3141	4822 117 11148	56kΩ	1%	0.1W	
3142	4822 100 12159	TRIMPOT, 100kΩ			RDS only
3143	4822 051 20223	22kΩ	5%	0.1W	
3144	4822 051 10102	1kΩ	2%	0.25W	RDS only
3145	4822 117 11449	2.2kΩ	1%	0.1W	
3146	4822 051 20229	22Ω	5%	0.1W	
3150	4822 117 10833	10kΩ	1%	0.1W	
3151	4822 051 20683	68kΩ	5%	0.1W	
3152	4822 051 20471	470Ω	5%	0.1W	
3153	4822 051 20471	470Ω	5%	0.1W	
3154	4822 117 13577	330Ω	1%	0.1W	
3155	4822 117 10353	150Ω	5%	0.1W	
3156	4822 117 10837	100kΩ	1%	0.1W	
3157	4822 117 10837	100kΩ	1%	0.1W	
3158	4822 051 20471	470Ω	5%	0.1W	
3159	4822 051 20471	470Ω	5%	0.1W	
3160	4822 051 20471	470Ω	5%	0.1W	
3161	4822 051 20223	22kΩ	5%	0.1W	
3167	4822 051 20121	120Ω	5%	0.1W	
3168	4822 051 20121	120Ω	5%	0.1W	
3169	4822 051 20154	150kΩ	5%	0.1W	
3170	4822 117 10837	100kΩ	1%	0.1W	
3171	4822 117 10834	47kΩ	1%	0.1W	
3172	4822 051 20562	5.6kΩ	5%	0.1W	
3176	4822 051 20333	33kΩ	5%	0.1W	RDS only
3180	4822 117 10833	10kΩ	1%	0.1W	LW only
3190	4822 051 20121	120Ω	5%	0.1W	
3191	4822 051 20121	120Ω	5%	0.1W	
3192	4822 117 13577	330Ω	1%	0.1W	
3193	4822 117 13577	330Ω	1%	0.1W	
3194	4822 117 11449	2.2kΩ	1%	0.1W	
3195	4822 051 20101	100Ω	5%	0.1W	
4101	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4102	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4104	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4105	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4106	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4107	4822 051 20008	CHIP JUMPER 0805			FM/AM only

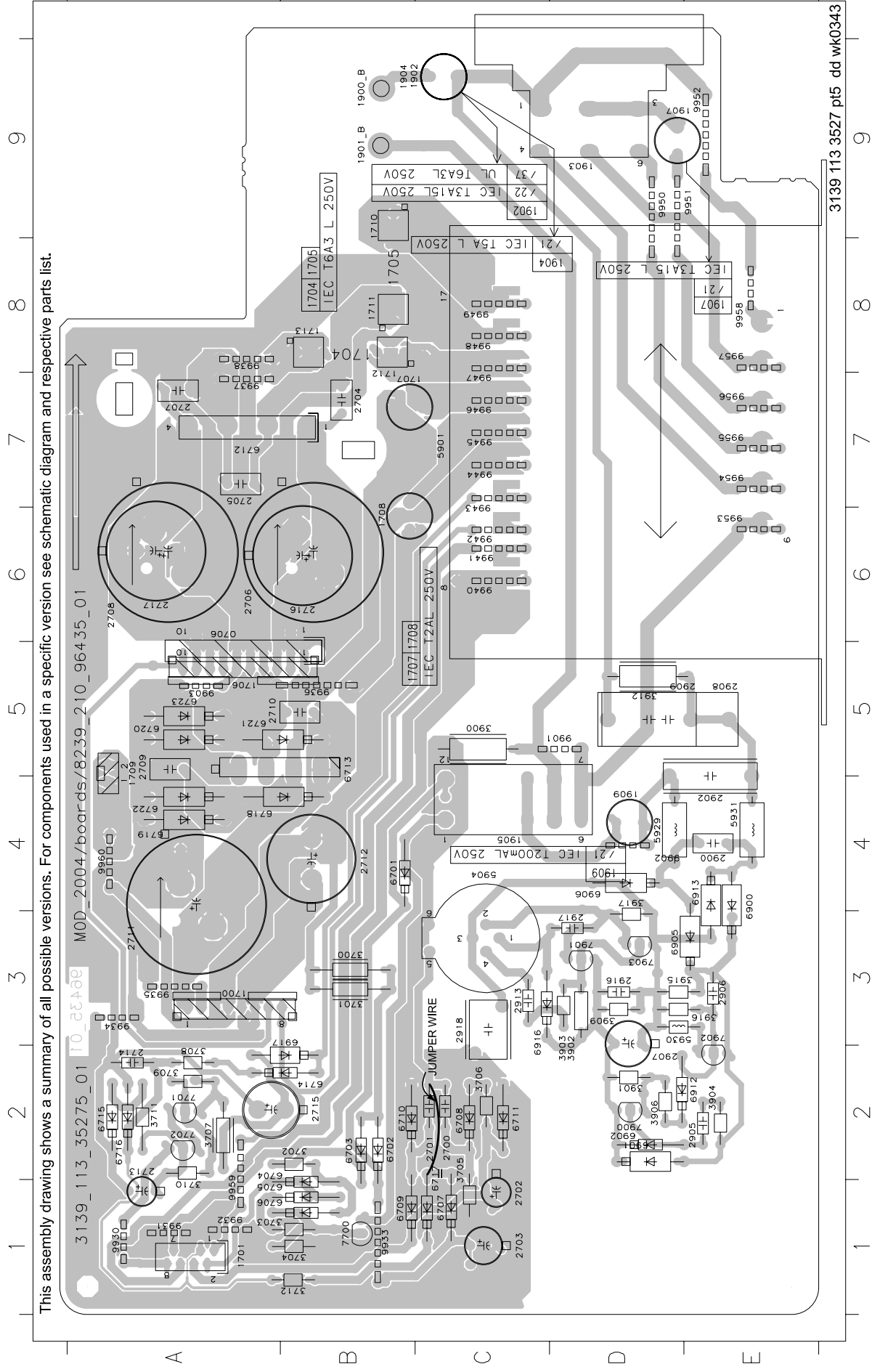
DIODES

6105	4822 130 83075	HN1V02H	
6106	4822 130 83757	BAS216	
6107	9340 386 90115	BZX284-C11	
6120	4822 130 83757	BAS216	

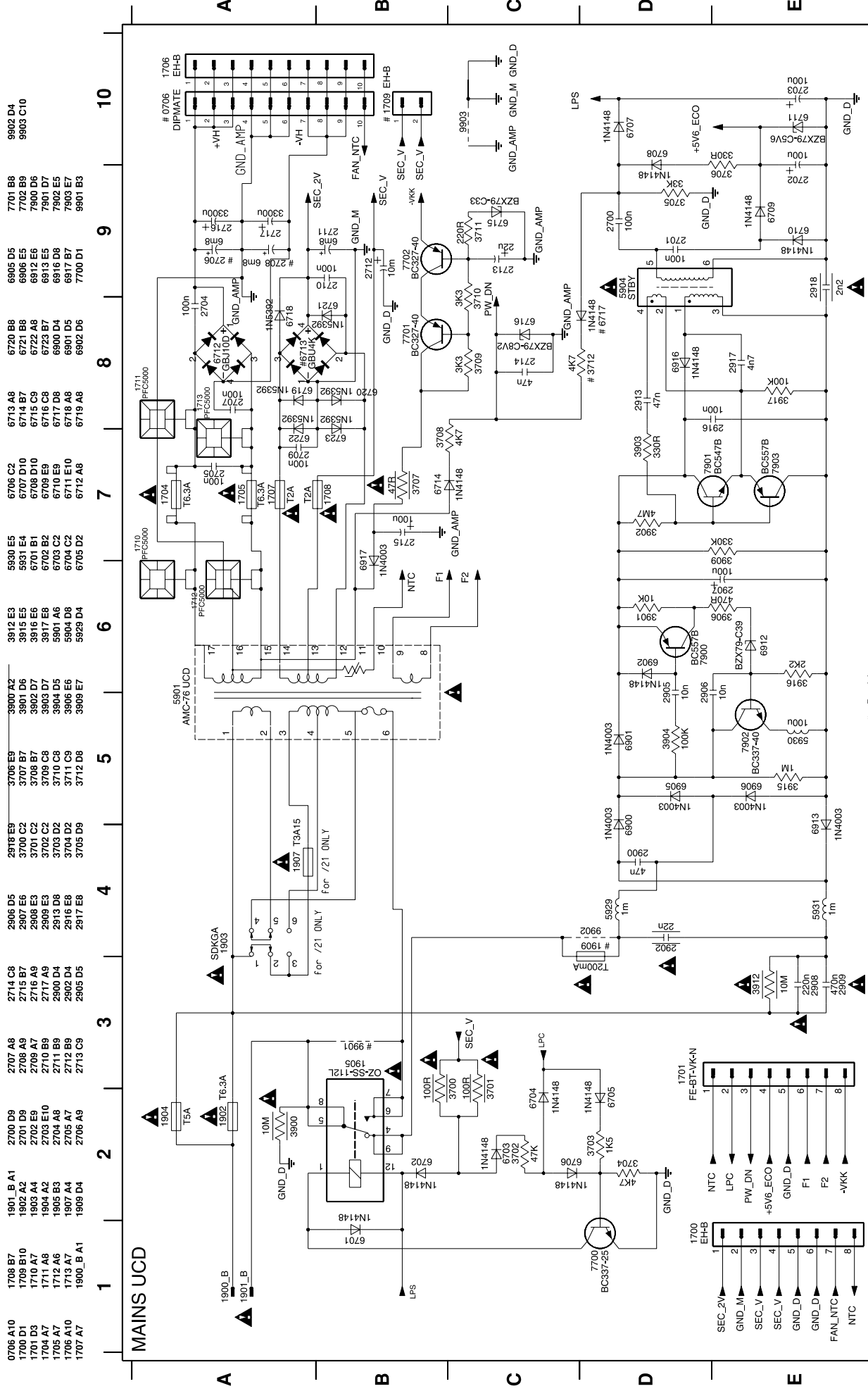
7103	5322 130 42756	BC857C	RDS only
7104	9322 003 64676	TBC337-40	LW only
7105	9322 003 64676	TBC337-40	LW only
7109	4822 130 60373	BC856B	LW only
7110	4822 130 60373	BC856B	
7111	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	LW only
7122	5322 130 42755	BC847C	LW only
7124	5322 130 42755	BC847C	

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762HV1, RADIO IC	
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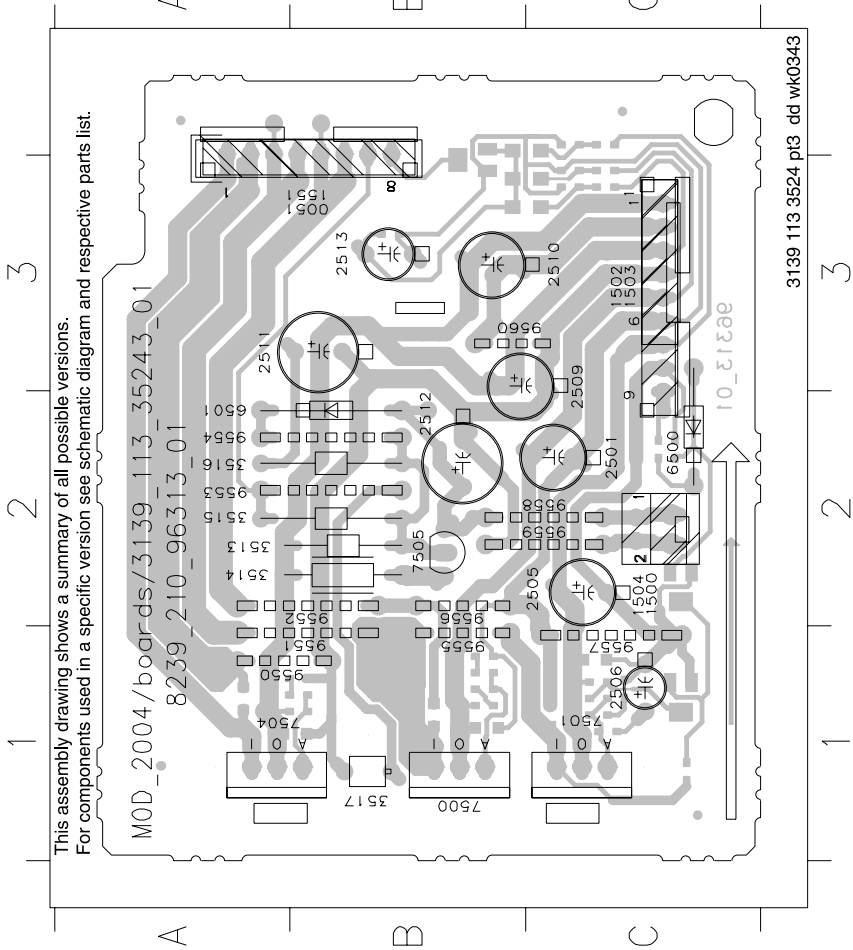
[illegible]

MAINS UCD BOARD - CIRCUIT DIAGRAM



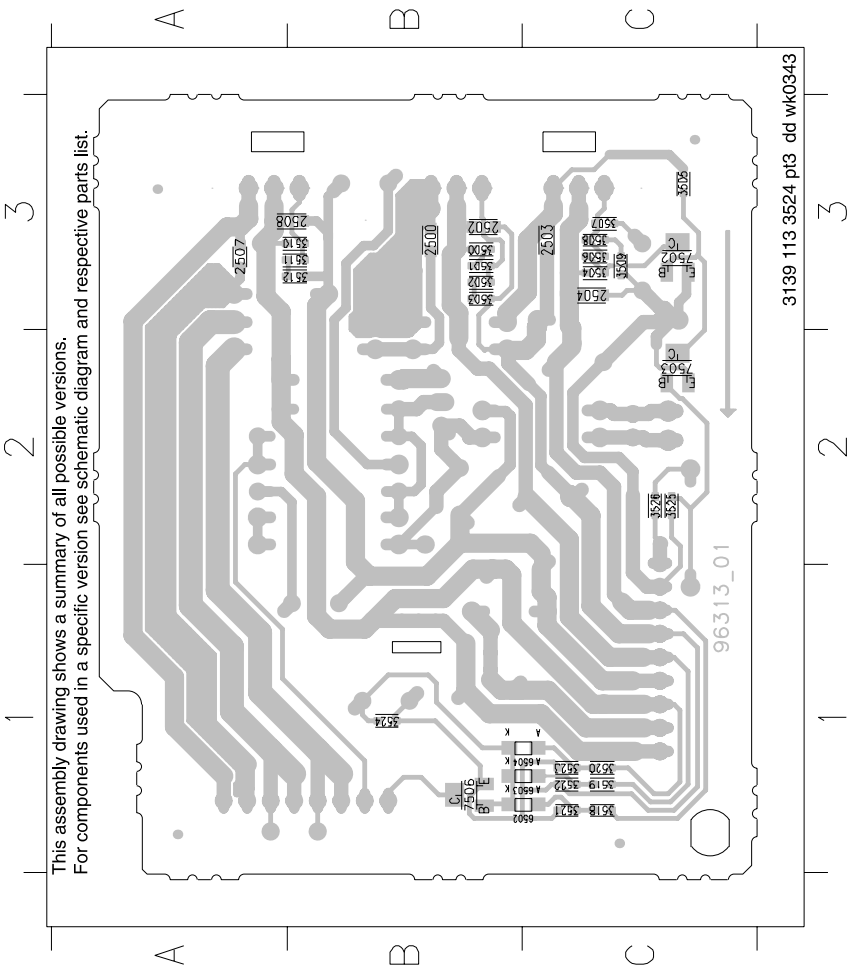
REGULATOR UCD BOARD - COMPONENT LAYOUT

- | | | | | | |
|---------|---------|---------|---------|---------|---------|
| 0051 B3 | 2501 C2 | 2512 B2 | 3517 B1 | 7505 B2 | 9555 B1 |
| 1500 C2 | 2505 C2 | 2513 B3 | 6500 C2 | 9550 A1 | 9556 B2 |
| 1502 C3 | 2506 C1 | 3513 A2 | 6501 A2 | 9551 B1 | 9557 C1 |
| 1503 C3 | 2509 C3 | 3514 A2 | 7500 B1 | 9552 B2 | 9558 C2 |
| 1504 C2 | 2510 C3 | 3515 A2 | 7501 C1 | 9553 A2 | 9559 C1 |
| 1551 B3 | 2511 A3 | 3516 A2 | 7504 A1 | 9554 A2 | 9560 B3 |



REGULATOR UCD BOARD - CHIP LAYOUT

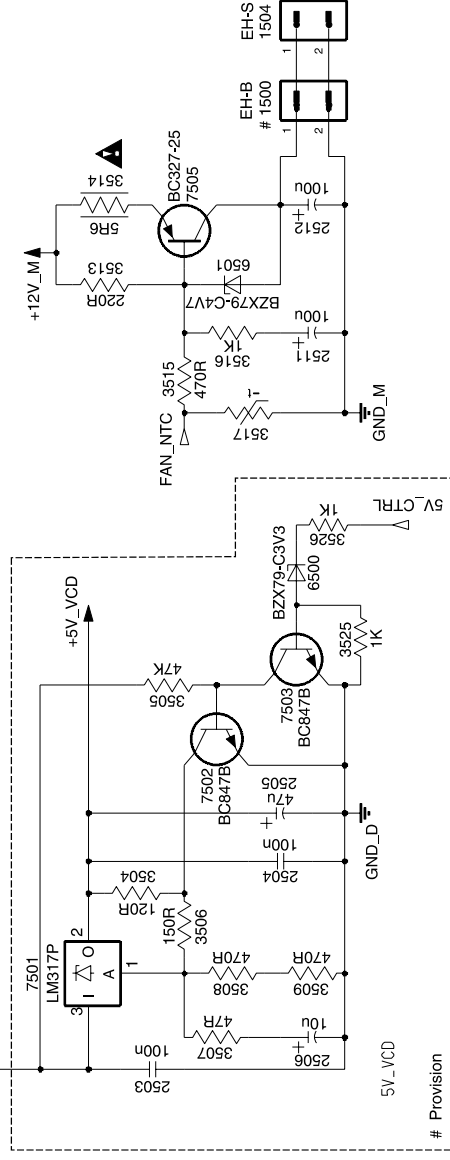
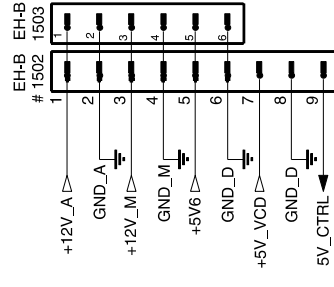
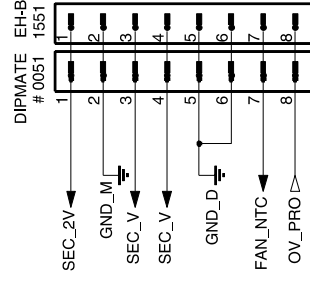
- | | | | | | | |
|---------|---------|---------|---------|---------|---------|---------|
| 2500 B3 | 2508 B3 | 3504 C3 | 3509 C3 | 3519 C1 | 3524 B1 | 6504 C1 |
| 2502 B3 | 3500 B3 | 3505 C3 | 3510 B3 | 3520 C1 | 3525 C2 | 7502 C3 |
| 2503 C3 | 3501 B3 | 3506 C3 | 3511 B3 | 3521 C1 | 3526 C2 | 7503 C2 |
| 2504 C3 | 3502 B3 | 3507 C3 | 3512 B3 | 3522 C1 | 6502 C1 | 7506 B1 |
| 2507 A3 | 3503 B3 | 3508 C3 | 3518 C1 | 3523 C1 | 6503 C1 | |



REGULATOR UCD BOARD - CIRCUIT DIAGRAM

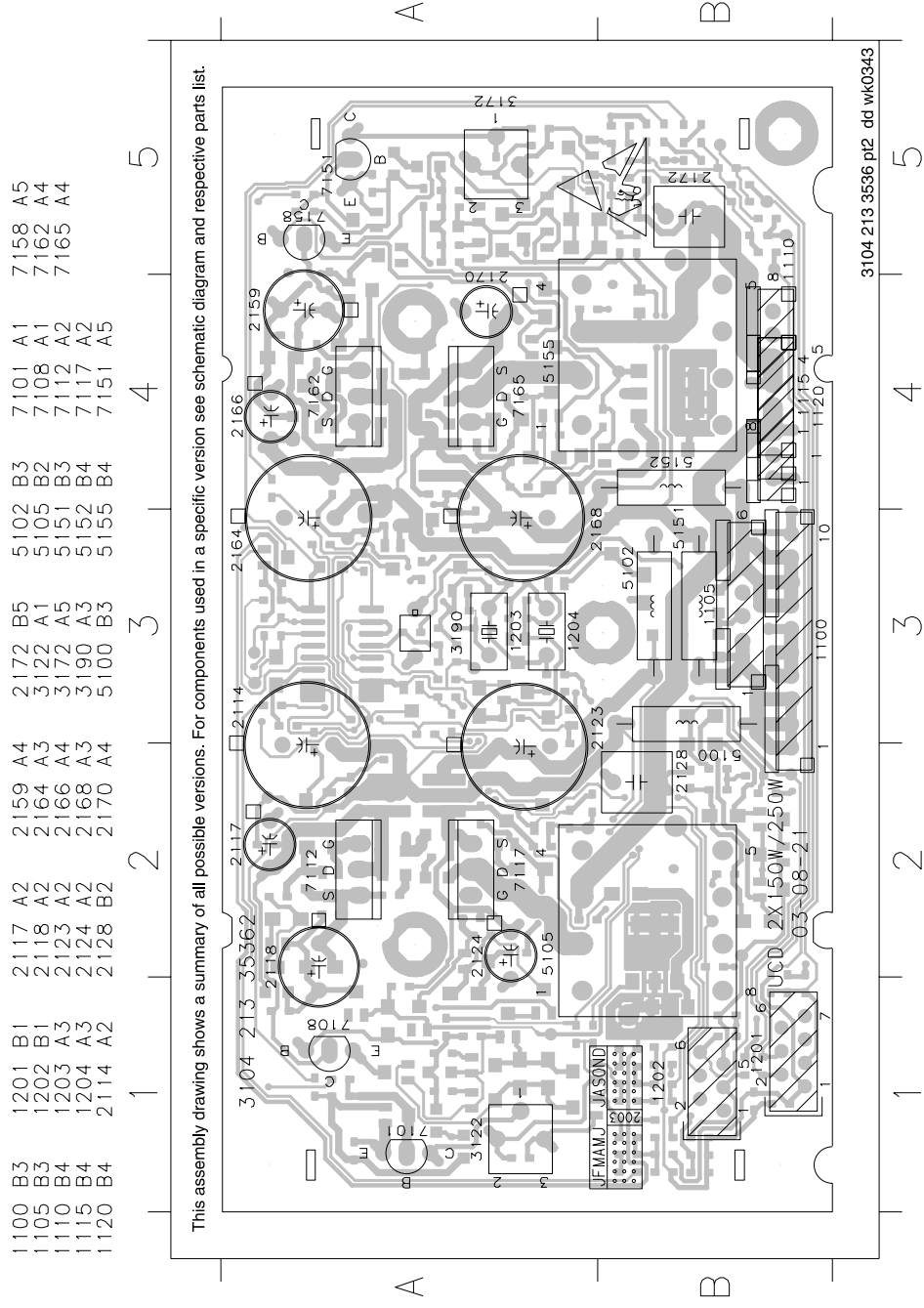
0051 B8	1503 C8	2500 B2	2503 D1	2506 E1	2509 C5	2512 E5	3501 B2	3504 D2	3507 D1	3510 B5	3513 D5	3516 D4	3519 A4	3522 A4	3525 E3	6501 D5	7502 D2	7505 D5
1500 E5	1504 E6	2501 C3	2504 E2	2507 C4	2510 C5	2513 A5	3502 C2	3505 D3	3508 D2	3511 C4	3514 D5	3517 E4	3520 A4	3523 E4	6502 A5	7500 B2	7503 E3	7506 A6
1502 C8	1551 B8	2502 C3	2505 E2	2508 C5	2511 E4	3500 B2	3503 C2	3506 D2	3509 E2	3512 C4	3515 D4	3518 A4	3521 A4	3524 A5	6500 E3	7501 D1	7504 B4	

REGULATOR UCD



8239_210_96313_01 for...3524 pt3 dd wk0343

AMPLIFIER UCD BOARD (SE) - COMPONENT LAYOUT



AMPLIFIER UCD BOARD (SE) - CHIP LAYOUT

2100 B5	2122 A5	2161 A2	2208 B4	3106 B1	3127 A5	3144 A4	3164 A1	3180 A2	6158 A2
2101 B3	2125 A4	2162 B2	2209 B4	3112 B5	3128 A5	3145 A5	3165 B1	3181 A2	6159 A2
2102 B3	2126 A4	2163 A2	2210 A3	3113 B5	3129 A5	3150 B1	3166 A1	3182 A2	6160 A2
2107 B5	2127 A4	2165 A2	2211 A3	3114 B5	3130 A5	3151 B1	3167 A1	3183 A5	6200 B4
2108 B5	2129 A4	2167 A3	2212 B5	3115 B5	3131 A4	3152 B1	3168 A1	3184 A2	6201 B3
2109 B5	2150 B1	2169 A2	2213 B5	3116 B5	3132 A4	3153 B1	3169 A1	3185 A2	6202 A2
2110 B5	2151 B1	2171 A3	2214 B5	3117 B5	3134 A5	3154 B1	3170 A1	3186 A1	6203 B3
2111 B5	2152 B1	2173 A2	2215 B4	3118 B5	3135 A4	3155 B1	3171 B1	3187 A2	6204 B4
2112 A5	2153 B1	2201 B5	2216 B5	3119 A5	3136 A4	3156 B1	3173 A2	3188 A1	6205 A3
2113 A5	2154 B1	2202 B5	3100 B5	3120 A5	3137 A4	3157 B1	3174 A2	3192 B1	6206 A3
2115 A4	2155 B1	2203 A3	3101 B5	3121 A5	3138 A4	3158 B1	3175 A2	3193 B3	6210 B4
2116 A4	2156 A1	2204 A3	3102 B5	3123 A5	3139 A4	3160 B1	3176 A2	3194 B2	6211 B4
2119 A4	2157 A1	2205 A3	3103 A1	3124 A5	3140 A4	3161 B1	3177 A2	3195 A4	7100 A5
2120 A4	2158 A2	2206 A3	3104 A1	3125 A5	3141 A4	3162 A1	3178 A2	3196 A4	7102 A5
2121 A4	2160 A2	2207 A3	3105 B1	3126 A5	3142 A4	3163 A1	3179 A2	3197 A3	7103 A5

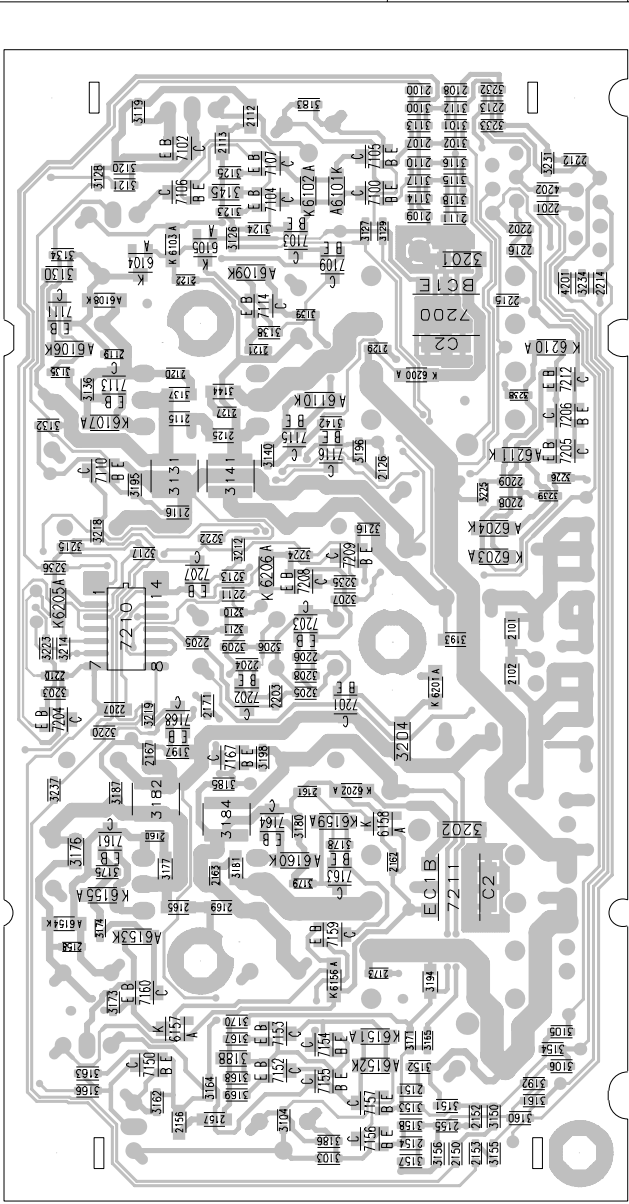
A

A

B

B

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



1

2

3

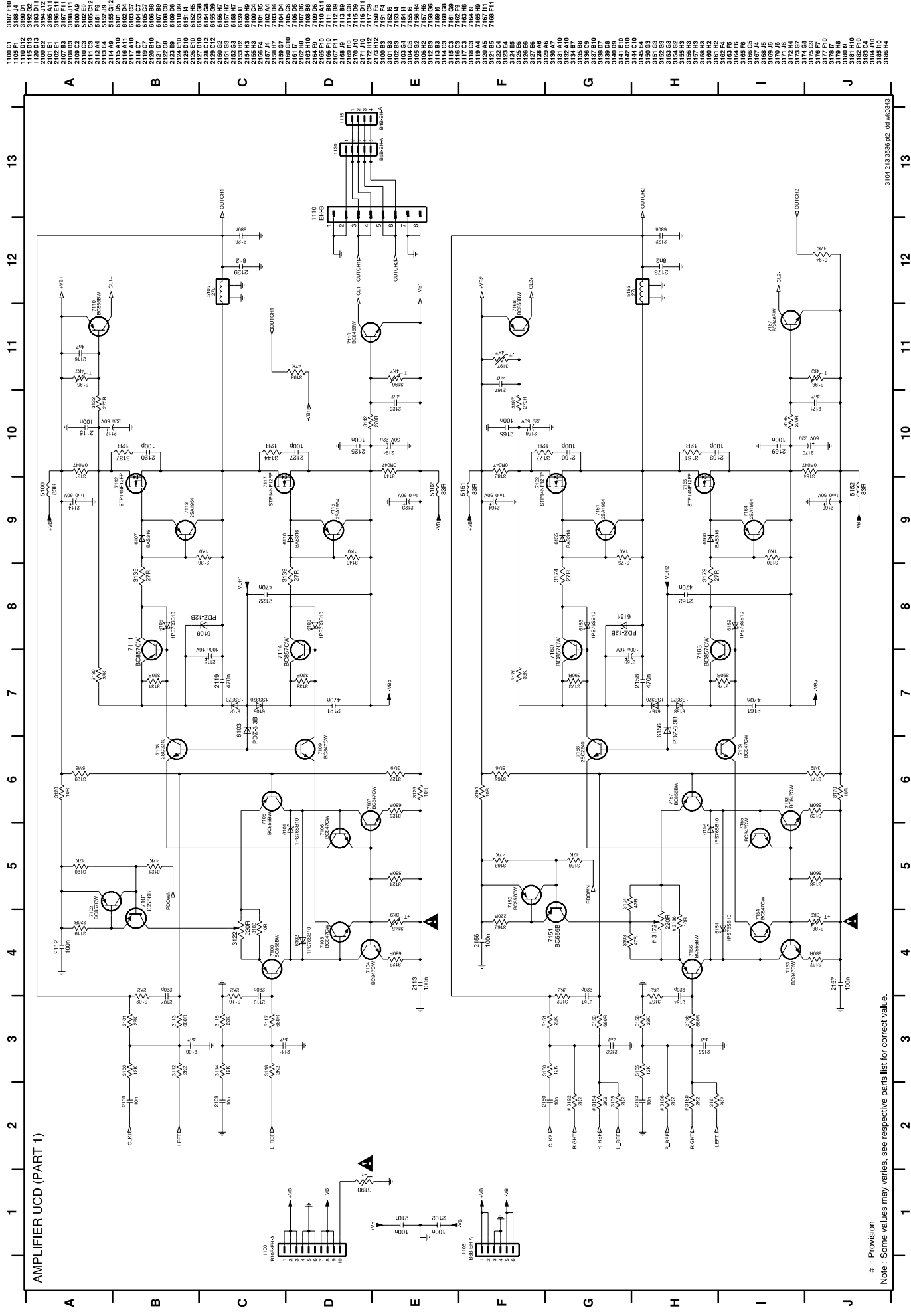
4

5

3104 213 3536 pt2 dd wk0343

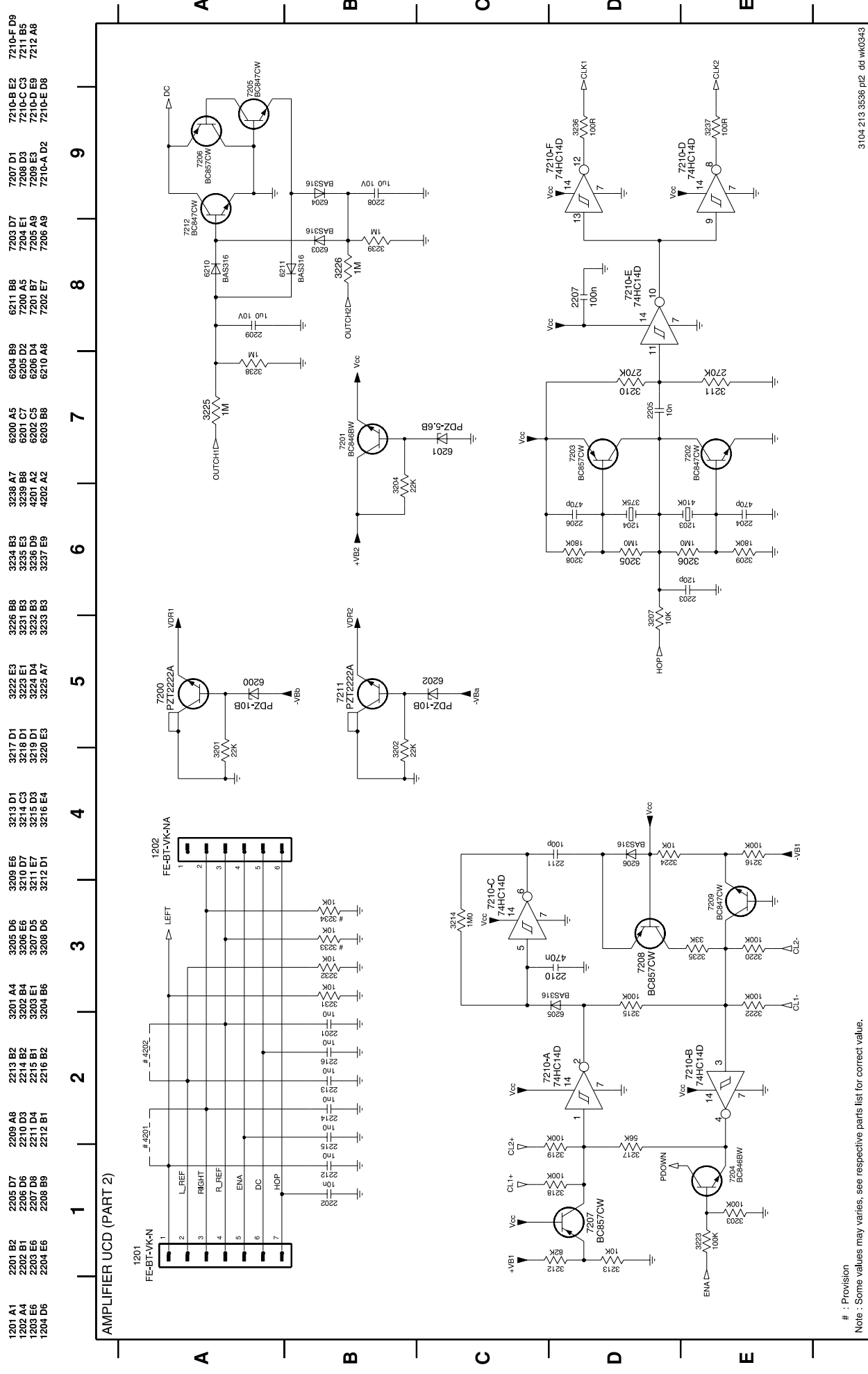
3198 A3	3199 A3	6158 A2	F101 B3
3201 B5	3202 B2	6159 A2	F102 B3
3202 B2	3203 B3	6160 A2	F103 B2
3204 B3	3205 A3	6200 B4	F104 B2
3205 A3	3206 A3	6201 B3	F105 B2
3206 A3	3207 A3	6202 A2	F106 B3
3207 A3	3208 A3	6203 B3	F107 A4
3208 A3	3209 A3	6204 B4	F108 A4
3209 A3	3210 A3	6205 A3	F109 A2
3210 A3	3211 A3	6206 A3	F110 A3
3211 A3	3212 A3	6210 B4	F111 A5
3212 A3	3213 A3	6211 B4	F112 B2
3213 A3	3214 A3	7100 A5	F113 A3
3214 A3	3215 A3	7102 A5	F114 B1
3215 A3	3216 A4	7103 A5	F115 B1
3216 A4	3217 A3	7104 A5	F116 B1
3217 A3	3218 A3	7105 A5	F117 B1
3218 A3	3219 A3	7106 A5	F118 B4
3219 A3	3220 A3	7107 A5	F119 B4
3220 A3	3221 A3	7109 A5	F120 B4
3221 A3	3222 A3	7110 A4	F121 A3
3222 A3	3223 A3	7111 A4	F122 A3
3223 A3	3224 A3	7113 A4	
3224 A3	3225 B4	7114 A4	
3225 B4	3226 B4	7115 A4	
3226 B4	3227 A2	7116 A4	
3227 A2	3228 B4	7150 A1	
3228 B4	3229 B4	7152 A1	
3229 B4	3230 B5	7153 A1	
3230 B5	3231 B5	7154 A1	
3231 B5	3232 B5	7155 A1	
3232 B5	3233 B5	7156 A1	
3233 B5	3234 B5	7157 A1	
3234 B5	3235 A3	7159 A2	
3235 A3	3236 A3	7160 A2	
3236 A3	3237 A2	7161 A2	
3237 A2	3238 B4	7163 A2	
3238 B4	4201 B5	7164 A2	
4201 B5	4202 B5	7167 A3	
4202 B5	6101 A5	7168 A3	
6101 A5	6102 A5	7200 B4	
6102 A5	6103 A3	7201 A3	
6103 A3	6104 A5	7202 A3	
6104 A5	6105 A5	7203 A3	
6105 A5	6106 A4	7204 A3	
6106 A4	6107 A4	7205 B4	
6107 A4	6108 A4	7206 B4	
6108 A4	6109 A5	7207 A3	
6109 A5	6110 A4	7208 A3	
6110 A4	6151 A1	7209 A3	
6151 A1	6152 A2	7210 A3	
6152 A2	6153 A2	7211 B2	
6153 A2	6154 A2	7212 B4	
6154 A2	6155 A2	F100 B3	
6155 A2	6156 A2		
6156 A2	6157 A1		

AMPLIFIER UCD BOARD (SE) - CIRCUIT DIAGRAM PART 1



: Provision

AMPLIFIER UCD BOARD (SE) - CIRCUIT DIAGRAM PART 2



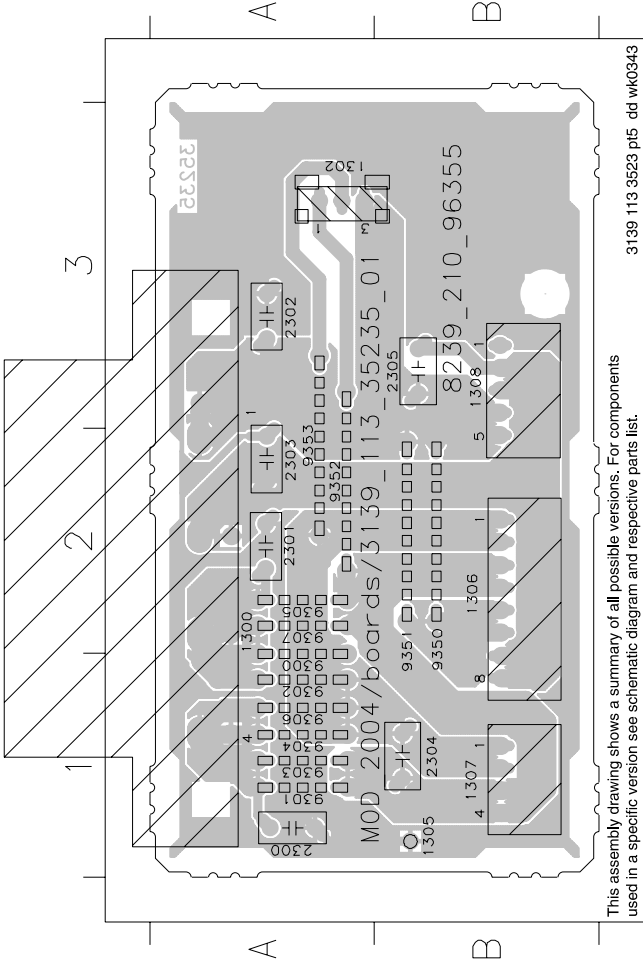
: Provision

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

3104 213 3536 pt2 dd wk0343

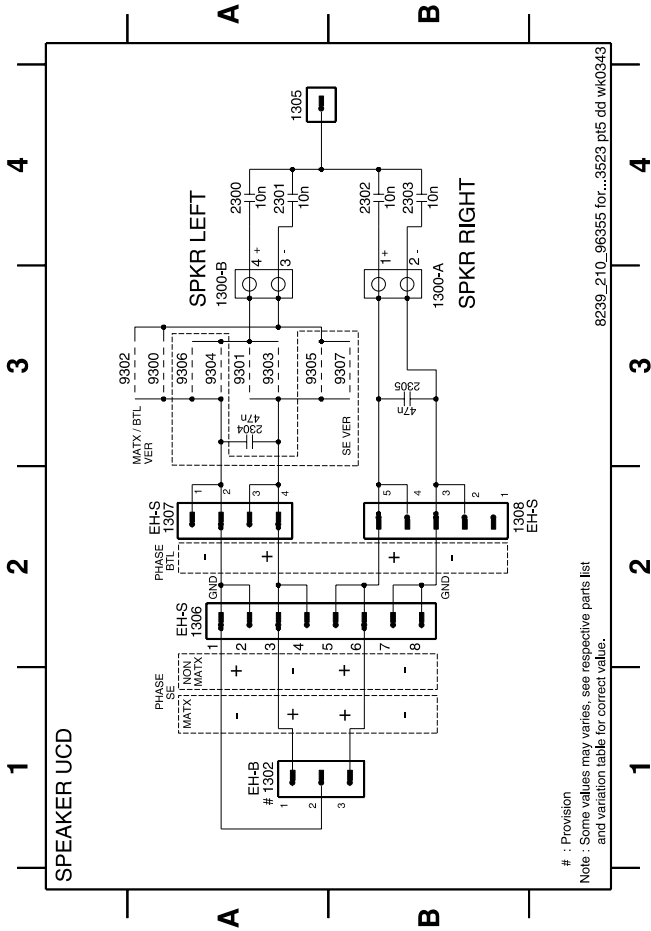
SPEAKER UCD BOARD - COMPONENT LAYOUT

- 1300 A2 1307 B1 2302 A3 9300 A1 9304 A1 9350 B2
- 1302 A3 1308 B3 2303 A2 9301 A1 9305 A2 9351 B2
- 1305 B1 2300 A1 2304 B1 9302 A1 9306 A1 9352 A2
- 1306 B2 2301 A2 2305 B3 9303 A1 9307 A2 9353 A2



SPEAKER UCD BOARD - CIRCUIT DIAGRAM

- 1300-A B3 1302 A1 1306 A2 1308 B2 2301 A4 2303 B4 2305 B3 9301 A3 9303 A3 9305 A3 9307 B3
- 1300-B A3 1305 A4 1307 A2 2300 A4 2302 B4 2304 A3 9300 A3 9302 A3 9304 A3 9306 A3



SPEAKER UCD BOARD - VARIATION TABLE

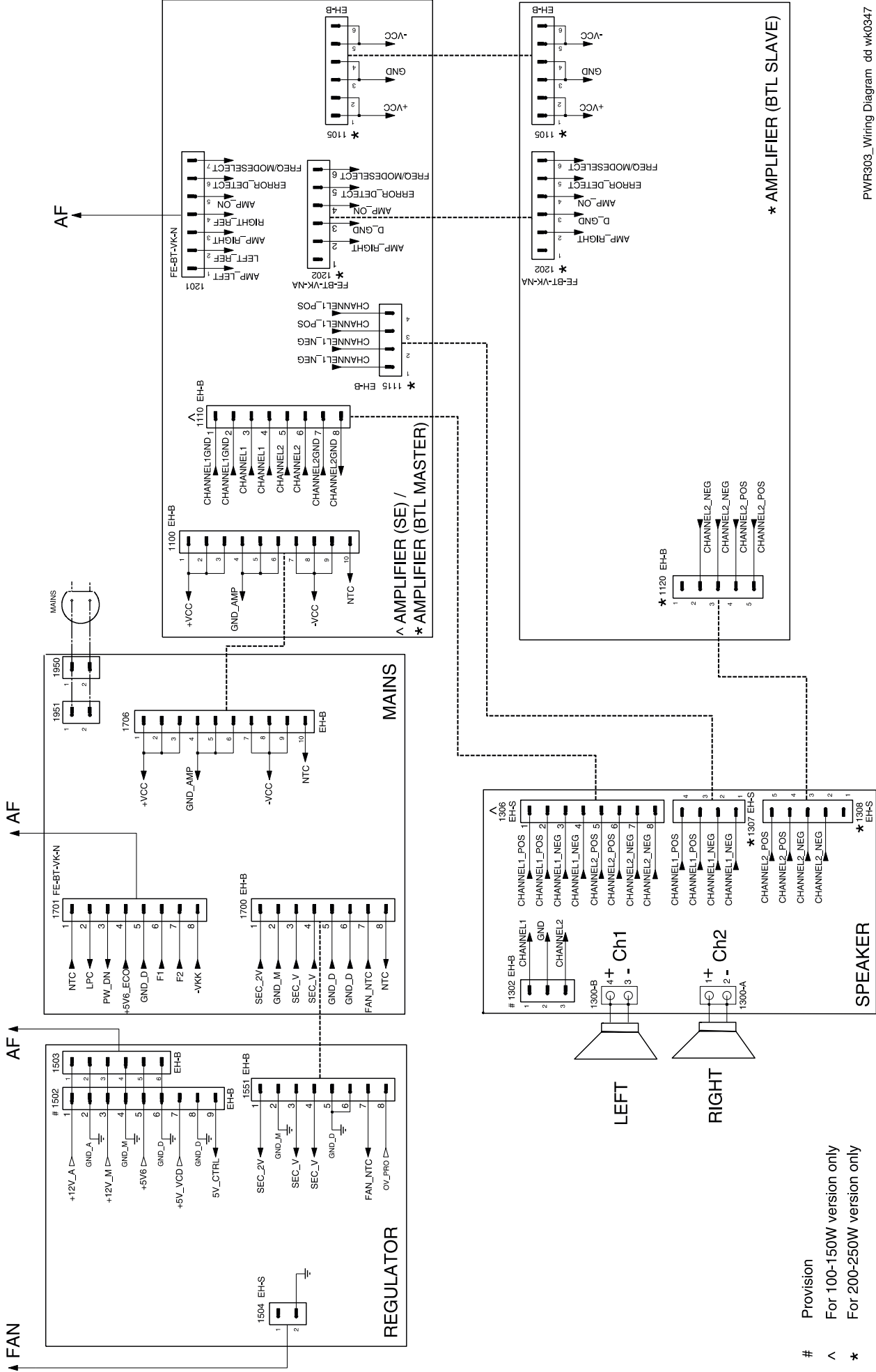
SPEAKER UCD BOARD		
Item No.	100-150W (Non Matrix Version)	200-250W
1302	-	-
1306	X	-
1307 , 1308	-	X
2304 , 2305	-	X
9300 , 9301	-	X
9302 , 9303	-	X
9304 , 9305	X	-
9306 , 9307	X	-

X - item in use.

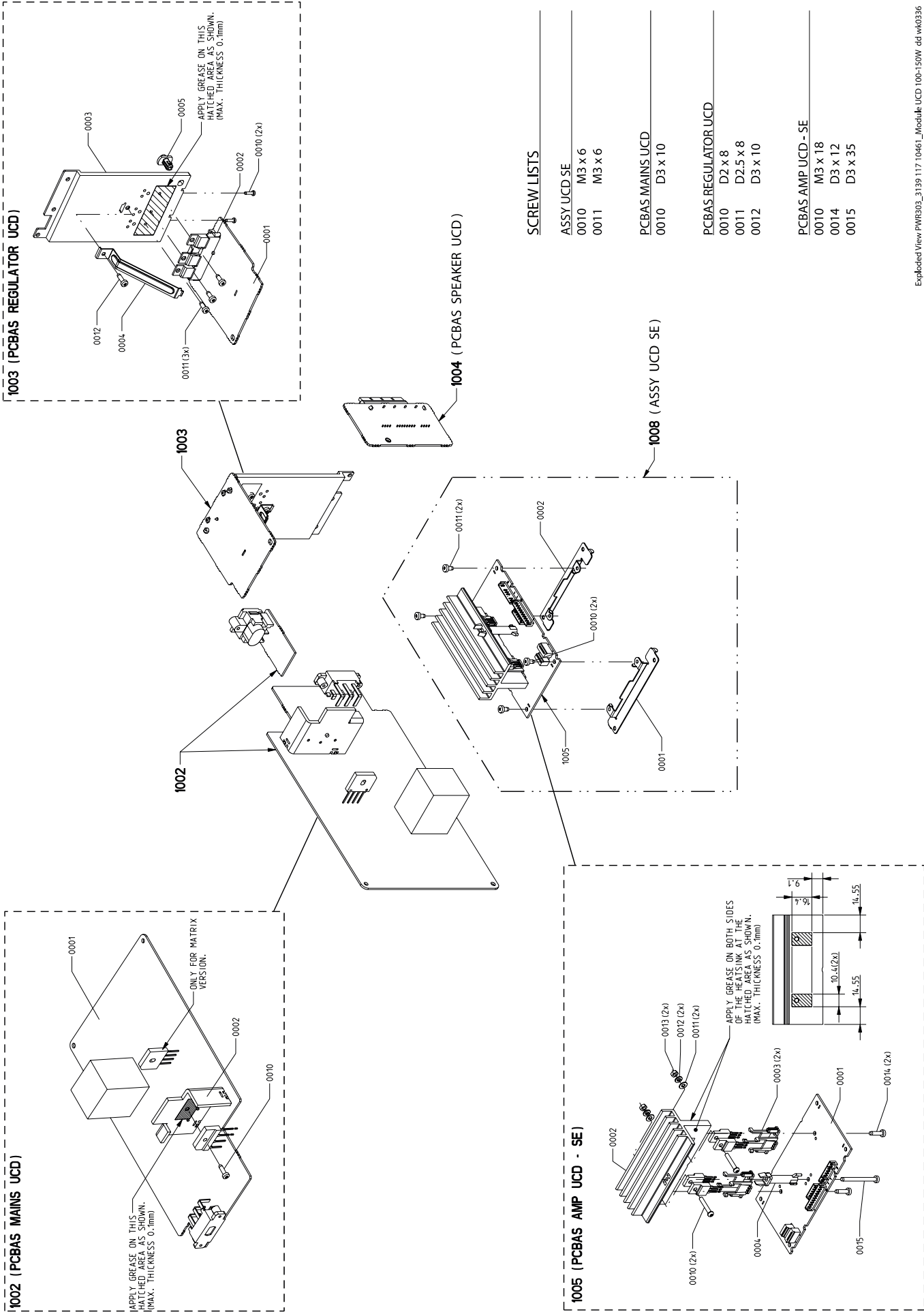
WIRING DIAGRAM

8-11

8-11



EXPLODED VIEW



ELECTRICAL PARTS LIST - MAINS UCD BOARD

MISCELLANEOUS		
1701	4822 265 11515	FLEX CONNECTOR 8P
1704	4822 070 36302	△ FUSE 5X20 T 6.3A 250V
1705	4822 070 36302	△ FUSE 5X20 T 6.3A 250V
1707	9965 000 07788	△ FUSE RAD LT 2A 250V
1708	9965 000 07788	△ FUSE RAD LT 2A 250V
1710	2422 090 01101	SOC FUSE V 1P F
1711	2422 090 01101	SOC FUSE V 1P F
1712	2422 090 01101	SOC FUSE V 1P F
1713	2422 090 01101	SOC FUSE V 1P F
1902	4822 071 53152	△ FUSE RAD LT 3,15A 250V/22
1902	4822 252 51123	△ FUSE RAD LT 6.3A 250V /37
1903	9965 000 07789	△ VOLTAGE SELECTOR /21
1904	4822 071 55002	△ FUSE RAD LT 5A 250V /21
1905	2422 132 07519	△ RELAY 1P 12V 16A OZ-SS L
1907	4822 071 53152	△ FUSE RAD LT 3,15A 250V/21
1950	4822 265 31015	△ MAINS SOCKET /21/22
1951	2422 030 00328	△ MAINS SOCKET /37
CAPACITORS		
2700	2020 561 90365	100nF +80/-20% 50V
2701	2020 561 90365	100nF +80/-20% 50V
2702	4822 124 41584	100uF 20% 10V
2703	4822 124 40207	100uF 20% 25V
2704	5322 121 42578	100nF 5% 250V
2705	5322 121 42578	100nF 5% 250V
2707	5322 121 42578	100nF 5% 250V
2709	5322 121 42578	100nF 5% 250V
2710	5322 121 42578	100nF 5% 250V
2711	2022 020 00782	6800uF 20% 35V
2712	2020 012 93745	10000uF 20% 16V
2713	4822 124 81151	22uF 50V
2714	4822 126 12785	47nF 50V
2715	2020 012 93741	100uF 20% 100V
2716	2022 020 00644	3300uF 20% 50V
2717	2022 020 00644	3300uF 20% 50V
2900	4822 121 43526	47nF 5% 250V
2902	2222 336 19106	△ 22nF 20% 275V
2905	4822 121 51387	10nF 20% 16V
2906	4822 121 51387	10nF 20% 16V
2907	4822 124 40255	100uF 20% 63V
2908	4822 121 10512	△ 220nF 20% 275V /22
2909	4822 126 13589	△ 470nF 20% 275V /21/37
2913	4822 126 12785	47nF 50V
2916	2020 561 90365	100nF +80/-20% 50V
2917	4822 126 11714	4.7nF 20%
2918	4822 126 14088	△ 2,2nF 20% 250V
RESISTORS		
3700	4822 052 10101	△ 100R 5% 0.33W
3701	4822 052 10101	△ 100R 5% 0.33W
3702	4822 116 83884	47k 5% 0.5W
3703	4822 116 52243	1k5 5% 0.5W

ELECTRICAL PARTS LIST - MAINS UCD BOARD

6905	4822 130 31878	1N4003G	7701	4822 130 41327	BC327-40
6906	4822 130 31878	1N4003G	7702	4822 130 41327	BC327-40
6912	4822 130 34145	BZX79-C39	7900	4822 130 44568	BC557B
6913	4822 130 31878	1N4003G	7901	4822 130 40959	BC547B
6916	4822 130 30621	1N4148	7902	4822 130 40855	BC337-40
6917	4822 130 31878	1N4003G	7903	4822 130 44568	BC557B
TRANSISTORS & INTEGRATED CIRCUITS					
7700	4822 130 40981	BC337-25	Note : Only the parts mentioned in this list are normal service spare parts.		

ELECTRICAL PARTS LIST - REGULATOR UCD BOARD					
MISCELLANEOUS					
0002	3139 114 75361	HOLDER IC	3514	4822 052 10568	△ 5R6 5% 0.33W
0005	3139 114 71010	STOPPER HEATSINK	3515	4822 116 83883	470R 5% 0.5W
CAPACITORS					
2500	4822 126 14585	100nF 10% 50V	3516	4822 050 11002	1k 1% 0.4W
2501	4822 124 81286	47uF 20% 16V	3517	4822 117 12063	NTC DC 5W 10k 5%
2502	4822 126 14585	100nF 10% 50V	3519	4822 051 30682	6k8 5% 0.062W
2507	2222 580 15649	100nF 10% 50V	3520	4822 051 30153	15k 5% 0.062W
2508	4822 126 14585	100nF 10% 50V	3522	4822 051 30102	1k 5% 0.062W
2509	4822 124 81286	47uF 20% 16V	3523	4822 051 30102	1k 5% 0.062W
2510	4822 124 81286	47uF 20% 16V	3524	4822 117 13632	100k 1% 0.62W
2511	4822 124 41643	100uF 20% 16V	DIODES		
2512	4822 124 41643	100uF 20% 16V	6501	4822 130 34174	BZX79-CAV7
2513	4822 124 80231	47uF 20% 16V	6502	4822 130 11397	BAS316
RESISTORS					
3500	4822 051 30121	120R 5% 0.062W	6503	4822 130 11397	BAS316
3501	4822 051 30151	150R 5% 0.062W	6504	4822 130 11397	BAS316
3502	4822 051 30471	470R 5% 0.062W	TRANSISTORS & INTEGRATED CIRCUITS		
3503	4822 051 30471	470R 5% 0.062W	7500	4822 209 81351	IC LM317P
3510	4822 051 30181	180R 5% 0.062W	7504	4822 209 81351	IC LM317P
3511	4822 051 30152	1k5 5% 0.062W	7505	4822 130 41246	BC327-25
3512	4822 051 30479	47R 5% 0.062W	7506	5322 130 60159	BC847B
3513	4822 116 83872	220R 5% 0.5W	Note : Only the parts mentioned in this list are normal service spare parts.		

ELECTRICAL PARTS LIST - SPEAKER UCD BOARD					
MISCELLANEOUS					
1300	4822 267 31176	SOC CLICK 4P	2302	4822 121 41857	10nF 5% 250V
CAPACITORS					
2300	4822 121 41857	10nF 5% 250V	2303	4822 121 41857	10nF 5% 250V
2301	4822 121 41857	10nF 5% 250V	Note : Only the parts mentioned in this list are normal service spare parts.		

ELECTRICAL PARTS LIST - AMPLIFIER UCD BOARD (SE)

ELECTRICAL PARTS LIST - AMPLIFIER UCD BOARD (SE)

MISCELLANEOUS											
0003	3104	214 39321	TO-220 HOLDER	100nF 10% 50V	2169	2222 580 15649	100nF 10% 50V	3139	2322 702 60279	RST SM 0603 27R 5%	
0004	3104	214 39331	SPACER	22uF 50V	2170	4822 124 81151	22uF 50V	3140	4822 051 30102	1k 5% 0.062W	
1201	4822	267 10953	FLEX CONNECTOR 7P	4.7nF 10% 63V	2171	4822 126 13193	4.7nF 10% 63V	3141	2122 118 06384	RST SM 1218 R047 5%	
1203	2422	540 98578	RES CER 410kHz	680nF 5% 63V	2172	5322 121 42498	680nF 5% 63V	3142	4822 051 30271	270R 5% 0.062W	
1204	2422	540 98552	RES CER 375kHz	8.2nF 10% 50V	2173	2238 586 15635	8.2nF 10% 50V	3144	4822 051 20129	12R 5% 0.1W	
CAPACITORS				1nF 10% 50V	2201	5322 126 11578	1nF 10% 50V	3145	2122 663 00025	PTC SM 0805 40V 3k9 10%	
2100	5322	126 11583	10nF 10% 50V	10nF 10% 50V	2202	5322 126 11583	10nF 10% 50V	3150	4822 051 30123	12k 5% 0.062W	
2101	2222	580 15649	100nF 10% 50V	120pF 10% 50V	2203	5322 122 33861	120pF 10% 50V	3151	4822 051 30223	22k 5% 0.062W	
2102	2222	580 15649	100nF 10% 50V	470pF 5% 50V	2204	4822 126 13881	470pF 5% 50V	3152	4822 051 30222	2k2 5% 0.062W	
2107	4822	126 13883	220pF 5% 50V	10nF 10% 50V	2205	5322 126 11583	10nF 10% 50V	3153	4822 051 30681	680R 5% 0.062W	
2108	4822	126 13193	4.7nF 10% 63V	470pF 5% 50V	2206	4822 126 13881	470pF 5% 50V	3154	4822 051 30222	2k2 5% 0.062W	
2109	5322	126 11583	10nF 10% 50V	100nF 10% 50V	2207	2222 580 15649	100nF 10% 50V	3155	4822 051 30123	12k 5% 0.062W	
2110	4822	126 13883	220pF 5% 50V	1uF 10V	2208	3198 017 41050	1uF 10V	3156	4822 051 30223	22k 5% 0.062W	
2111	4822	126 13193	4.7nF 10% 63V	470nF 10V	2209	3198 017 41050	1uF 10V	3157	4822 051 30222	2k2 5% 0.062W	
2112	2222	580 15649	100nF 10% 50V	470nF 10V	2210	3198 017 44740	470nF 10V	3158	4822 051 30681	680R 5% 0.062W	
2113	2222	580 15649	100nF 10% 50V	100pF 5% 50V	2211	2020 552 94427	100pF 5% 50V	3160	4822 051 30222	2k2 5% 0.062W	
2114	3198	026 51020	1000uF 20% 50V	1nF 10% 50V	2212	5322 126 11578	1nF 10% 50V	3162	4822 051 30221	220R 5% 0.062W	
2115	2222	580 15649	100nF 10% 50V	1nF 10% 50V	2213	5322 126 11578	1nF 10% 50V	3163	4822 117 12925	47k 1% 0.063W	
2116	4822	126 13193	4.7nF 10% 63V	1nF 10% 50V	2214	5322 126 11578	1nF 10% 50V	3164	4822 051 30109	10R 5% 0.062W	
2117	4822	124 81151	22uF 50V	1nF 10% 50V	2215	5322 126 11578	1nF 10% 50V	3165	2322 702 60565	RST SM 0603 5M6 5%	
2118	4822	124 41643	100uF 20% 16V	1nF 10% 50V	2216	5322 126 11578	1nF 10% 50V	3166	4822 117 12925	47k 1% 0.063W	
2119	3198	017 44740	470nF 10V	RESISTORS					3167	4822 051 30681	680R 5% 0.062W
2120	2020	557 90726	100pF 5% 100V	12k 5% 0.062W	3100	4822 051 30123	12k 5% 0.062W	3168	4822 051 30561	560R 5% 0.062W	
2121	3198	017 44740	470nF 10V	22k 5% 0.062W	3101	4822 051 30223	22k 5% 0.062W	3169	4822 051 30681	680R 5% 0.062W	
2122	3198	017 44740	470nF 10V	2k2 5% 0.062W	3102	4822 051 30222	2k2 5% 0.062W	3170	4822 051 30109	10R 5% 0.062W	
2123	3198	026 51020	1000uF 20% 50V	2k2 5% 0.062W	3112	4822 051 30222	2k2 5% 0.062W	3171	2322 702 60395	RST SM 0603 3M9 5%	
2124	4822	124 81151	22uF 50V	680R 5% 0.062W	3113	4822 051 30681	680R 5% 0.062W	3172	4822 101 11382	220R 30% 1W	
2125	2222	580 15649	100nF 10% 50V	12k 5% 0.062W	3114	4822 051 30123	12k 5% 0.062W	3173	4822 051 30391	390R 5% 0.062W	
2126	4822	126 13193	4.7nF 10% 63V	22k 5% 0.062W	3115	4822 051 30223	22k 5% 0.062W	3174	2322 702 60279	RST SM 0603 27R 5%	
2127	2020	557 90726	100pF 5% 100V	2k2 5% 0.062W	3116	4822 051 30222	2k2 5% 0.062W	3175	4822 051 30102	1k 5% 0.062W	
2128	5322	121 42498	680nF 5% 63V	680R 5% 0.062W	3117	4822 051 30681	680R 5% 0.062W	3176	4822 051 20333	33k 5% 0.1W	
2129	2238	586 15635	8.2nF 10% 50V	2k2 5% 0.062W	3118	4822 051 30222	2k2 5% 0.062W	3177	4822 051 20129	12R 5% 0.1W	
2150	5322	126 11583	10nF 10% 50V	220R 5% 0.062W	3119	4822 051 30221	220R 5% 0.062W	3178	4822 051 30391	390R 5% 0.062W	
2151	4822	126 13883	220pF 5% 50V	47k 1% 0.063W	3120	4822 117 12925	47k 1% 0.063W	3179	2322 702 60279	RST SM 0603 27R 5%	
2152	4822	126 13193	4.7nF 10% 63V	47k 1% 0.063W	3121	4822 117 12925	47k 1% 0.063W	3180	4822 051 30102	1k 5% 0.062W	
2153	5322	126 11583	10nF 10% 50V	220R 30% 1W	3122	4822 101 11382	220R 30% 1W	3181	4822 051 20129	12R 5% 0.1W	
2154	4822	126 13883	220pF 5% 50V	680R 5% 0.062W	3123	4822 051 30681	680R 5% 0.062W	3182	2122 118 06384	RST SM 1218 R047 5%	
2155	4822	126 13193	4.7nF 10% 63V	560R 5% 0.062W	3124	4822 051 30561	560R 5% 0.062W	3183	4822 051 30109	10R 5% 0.062W	
2156	2222	580 15649	100nF 10% 50V	680R 5% 0.062W	3125	4822 051 30681	680R 5% 0.062W	3184	2122 118 06384	RST SM 1218 R047 5%	
2157	2222	580 15649	100nF 10% 50V	10R 5% 0.062W	3126	4822 051 30109	10R 5% 0.062W	3185	4822 051 30271	270R 5% 0.062W	
2158	3198	017 44740	470nF 10V	RST SM 0603 3M9 5%	3127	2322 702 60395	RST SM 0603 3M9 5%	3186	4822 051 30271	270R 5% 0.062W	
2159	4822	124 41643	100uF 20% 16V	10R 5% 0.062W	3128	4822 051 30109	10R 5% 0.062W	3187	4822 051 30271	270R 5% 0.062W	
2160	2020	557 90726	100pF 5% 100V	RST SM 0603 27R 5%	3129	2322 702 60565	RST SM 0603 5M6 5%	3188	2122 663 00025	PTC SM 0805 40V 3k9 10%	
2161	3198	017 44740	470nF 10V	33k 5% 0.1W	3130	4822 051 20333	33k 5% 0.1W	3190	4822 117 12063	NTC DC 5W 10k 5%	
2162	3198	017 44740	470nF 10V	RST SM 1218 R047 5%	3131	4822 051 30681	680R 5% 0.062W	3193	4822 117 10834	47k 1% 0.1W	
2163	2020	557 90726	100pF 5% 100V	270R 5% 0.062W	3132	4822 051 30271	270R 5% 0.062W	3194	4822 117 10834	47k 1% 0.1W	
2164	3198	026 51020	1000uF 20% 50V	390R 5% 0.062W	3134	4822 051 30391	390R 5% 0.062W	3195	2322 615 33472	NTC SM 0603 0W125 4k7 5%	
2165	2222	580 15649	100nF 10% 50V	RST SM 0603 27R 5%	3135	2322 702 60279	RST SM 0603 27R 5%	3196	2322 615 33472	NTC SM 0603 0W125 4k7 5%	
2166	4822	124 81151	22uF 50V	1k 5% 0.062W	3136	4822 051 30102	1k 5% 0.062W	3197	2322 615 33472	NTC SM 0603 0W125 4k7 5%	
2167	4822	126 13193	4.7nF 10% 63V	12R 5% 0.1W	3137	4822 051 20129	12R 5% 0.1W	3198	2322 615 33472	NTC SM 0603 0W125 4k7 5%	
2168	3198	026 51020	1000uF 20% 50V	390R 5% 0.062W	3138	4822 051 30391	390R 5% 0.062W	3201	4822 051 10223	22k 2% 0.25W	
								3202	4822 051 10223	22k 2% 0.25W	

ELECTRICAL PARTS LIST - AMPLIFIER UCD BOARD (SE)

DIODES			
6151	4822 130 11528	1PS76SB10	7163 9340 218 60115 TRA SIG SM BC857CW
6152	4822 130 11528	1PS76SB10	7164 9322 198 96685 TRA SIG SM 2SA1954B
6153	4822 130 11528	1PS76SB10	7165 9322 173 29687 FET POW STP14NF12FP
6154	9340 548 61115	DIO REG SM PDZ12B	7167 9340 217 40135 TRA SIG SM BC846BW
6155	4822 130 11397	BA5316	7168 9340 218 20135 TRA SIG SM BC856BW
6156	9340 548 47115	PDZ3.3B	7200 9339 753 30135 TRA POW SM PZT2222A
6157	9322 198 95685	DIO SIG SM 1SS370	7201 9340 217 40135 TRA SIG SM BC846BW
6158	9322 198 95685	DIO SIG SM 1SS370	7202 3198 010 42310 TRA SIG SM BC847BW
6159	4822 130 11528	1PS76SB10	7203 3198 010 42320 TRA SIG SM BC857BW
6160	4822 130 11397	BA5316	7204 9340 217 40135 TRA SIG SM BC846BW
6200	4822 130 11551	PDZ10B	7205 9340 217 80115 TRA SIG SM BC847CW
6201	3198 020 55680	DIO REG SM PDZ5.6B	7206 9340 218 60115 TRA SIG SM BC857CW
6202	4822 130 11551	PDZ10B	7207 9340 218 60115 TRA SIG SM BC857CW
6203	4822 130 11397	BA5316	7208 9340 218 60115 TRA SIG SM BC857CW
6204	4822 130 11397	BA5316	7209 9340 217 80115 TRA SIG SM BC847CW
6205	4822 130 11397	BA5316	7210 5322 209 11548 IC SM 74HC14D
6206	4822 130 11397	BA5316	7211 9339 753 30135 TRA POW SM PZT2222A
6210	4822 130 11397	BA5316	7212 9340 217 80115 TRA SIG SM BC847CW
6211	4822 130 11397	BA5316	

Note : Only the parts mentioned in this list are normal service spare parts.

TRANSISTORS & INTEGRATED CIRCUITS			
7100	9340 218 20135	TRA SIG SM BC856BW	
7101	4822 130 41691	TRA SIG BC556B	
7102	9340 218 60115	TRA SIG SM BC857CW	
7103	9340 217 80115	TRA SIG SM BC847CW	
7104	9340 217 80115	TRA SIG SM BC847CW	
7105	9340 218 20135	TRA SIG SM BC856BW	
7106	9340 217 80115	TRA SIG SM BC847CW	
7107	9340 217 80115	TRA SIG SM BC847CW	
7108	4822 130 43233	TRA SIF 2SC2240	
7109	9340 217 80115	TRA SIG SM BC847CW	
7110	9340 218 20135	TRA SIG SM BC856BW	
7111	9340 218 60115	TRA SIG SM BC857CW	
7112	9322 173 29687	FET POW STP14NF12FP	
7113	9322 198 96685	TRA SIG SM 2SA1954B	
7114	9340 218 60115	TRA SIG SM BC857CW	
7115	9322 198 96685	TRA SIG SM 2SA1954B	
7116	9340 217 40135	TRA SIG SM BC846BW	
7117	9322 173 29687	FET POW STP14NF12FP	
7150	9340 218 60115	TRA SIG SM BC857CW	
7151	4822 130 41691	TRA SIG BC556B	
7152	9340 217 80115	TRA SIG SM BC847CW	
7153	9340 217 80115	TRA SIG SM BC847CW	
7154	9340 217 80115	TRA SIG SM BC847CW	
7155	9340 217 80115	TRA SIG SM BC847CW	
7156	9340 218 20135	TRA SIG SM BC856BW	
7157	9340 218 20135	TRA SIG SM BC856BW	
7158	4822 130 43233	TRA SIG 2SC2240	
7159	9340 217 80115	TRA SIG SM BC847CW	
7160	9340 218 60115	TRA SIG SM BC857CW	
7161	9322 198 96685	TRA SIG SM 2SA1954B	
7162	9322 173 29687	FET POW STP14NF12FP	

ETF7 TAPE MODULE

(Non-Dolby Version)

Tapedeck wiring (Double deck)

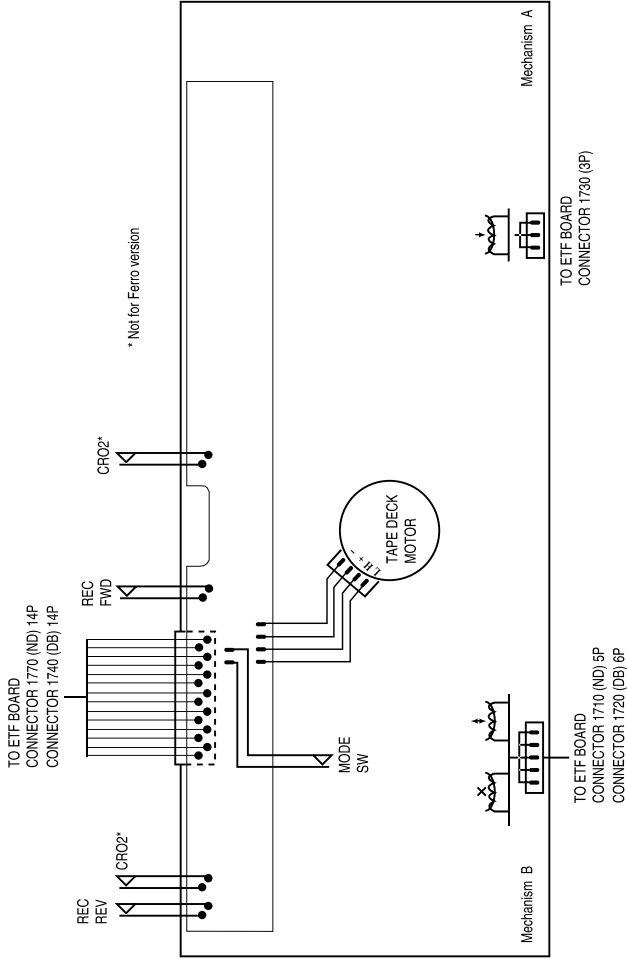


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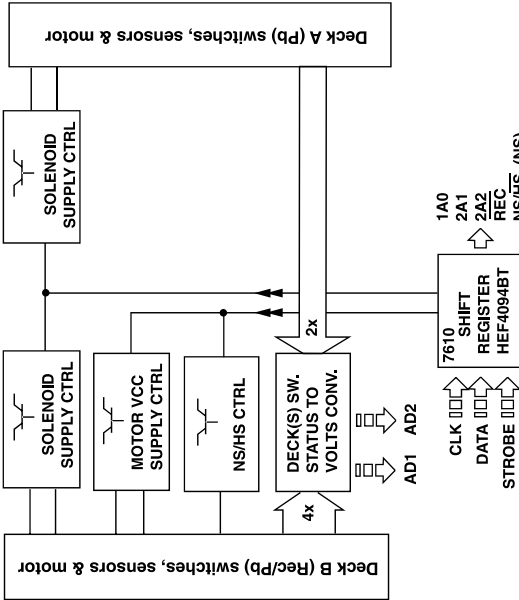
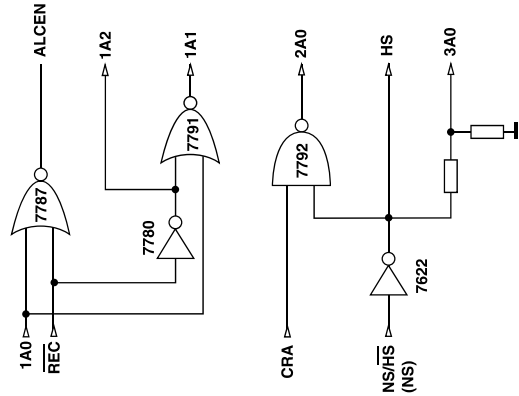
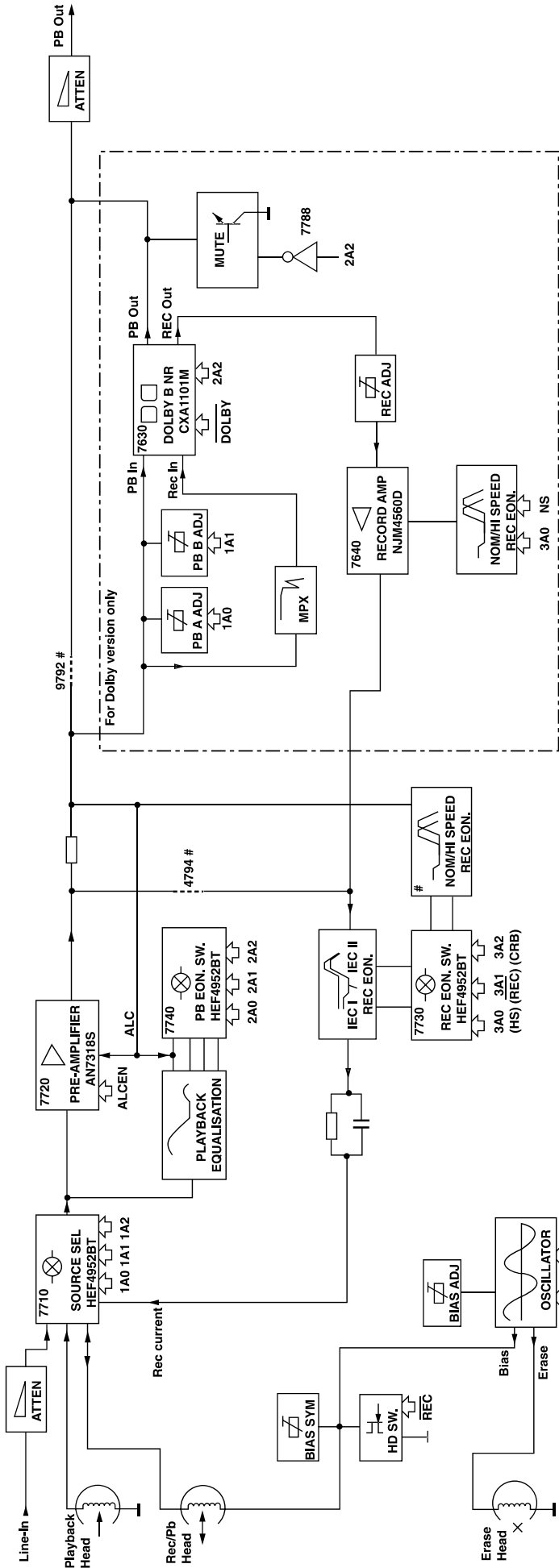
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Variations table for Analog Circuit

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
2624	-	-	100nF
2701 , 2702	150pF	270pF	270pF
2703 , 2704	100pF	220pF	220pF
2717 , 2718	10nF	15nF	15nF
2721 , 2722	6.8nF	6.8nF	-
2727 , 2728	470pF	1nF	1nF
3616	10k	1k	1k
3618	6k8	-	-
3620	10k trimmer	-	-
3622	-	10k trimmer	10k trimmer
3672	4k7	-	-
3676	47k	-	-
3687	220R	220R	-
3688	680R	-	-
3723 , 3724	15k	18k	18k
3725 , 3726	10R	10R	-
3727 , 3728	5k6	6k8	6k8
3729 , 3730	3k3	4k7	4k7
3743 , 3744	1k5	2k2	2k2
3745 , 3746	3k3	5k6	5k6
3754 , 3755	1M	47R	47R

	Autoreverse ND/DD/FR	Non-autoreverse ND/DD/FF	
	Chrome/Ferro	Chrome/Ferro	Ferro
3769	12k	8k2	8k2
3772	6k8	5k6	5k6
4785	-	-	OR jumper
3774	15k	8k2	8k2
6614	1N4148	-	-
7616	BC857B	-	-
7622	BC847B	-	-

BLOCK DIAGRAM



NOTE: # For Non-dolby version only
Only 1 channel is presented.

MicroProcessor Control / Communication lines
Direct / Indirect Control lines from Shift Registers

Brief introduction

General

1. Playback Mode
Signal from the playback head Deck A or Deck B is selected and fed through by the Mode Selector IC7710 (HEF4952BT). The signal is amplified by amplifier IC7720 (AN7323S) before feeding to the IC7740 (HEF4952BT) and out to the AF Board via connector 1701.

2. Recording Mode
Recording Signal is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then amplified by the amplifier IC7720 (AN7323S). The amplified output signal will pass through IC7730 (HEF4952BT) for record equalization and back to IC7710 (HEF4952BT) before registered into the Rec/PB Head of Deck B.

3. Dubbing Mode
In Dubbing mode, signal from the playback head Deck A is selected and fed through by the Mode Selector IC7710 (HEF4952BT) which is then equalised for playback mode by the amplifier IC7720 (AN7323S) so that a flat response is obtained after the pre-amp. The equalised signal will then follow the same path as in the Recording mode.

4. Mode Selector
The Mode Selector IC7710 (HEF4952BT) caters for 4 inputs signal, namely Playback Signal from Deck A, Playback Signal from Deck B, Recording Signal and Dubbing Signal.

5. Amplifier PB/REC
Amplifier IC7720 (AN7323S) is for the purpose of amplifying the Playback and Recording signal from the Mode Selector.

6. Automatic Level Control (ALC)
ALC circuit consists of resistors (3760, 3765, 3766, 3767), capacitors (2762, 2763) and control by transistor 7787 (BC847B). ALC limits the amplifier output to a constant value when input signal becomes too large, thus limiting recording current to below saturation level, to prevent recording distortion.

7. Muting Circuit (For Non-Dolby version only)
Switch S4 of the IC7740 (HEF4952BT) is for the purpose of muting the output during Recording mode. During Recording mode, S4 is closed and shorted to the ground.

8. IC7740 (HEF4952BT)
The function of the IC7740 (HEF4952BT) is to change time constant between 120us Ferro (IEC I) and 70us Chrome (IEC II) during playback mode. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II). This IC will switch to Flat Gain during the Recording mode.

9. IC7730 (HEF4952BT)
The function of the IC7730 (HEF4952BT) is to change gain and time constant according to tape type and recording speed to boost recording current at higher frequency during recording to compensate for head loss. It will automatically determined whether the tape type is 120us Ferro (IEC I) or 70us Chrome (IEC II).

10. Bias Level
Bias Level making use of the Variable resistor (3773) for adjusting the optimal level of the bias current for Ferro or Chrome.

11. Bias Symm (For Dolby B NR version only)
Bias Symm making use of the Variable resistor (3785) to adjust the bias current for the left and the right channel to be equal.

12. PB Switch
Playback Switch which consists of the FETs 7785 (For Dolby B NR version only) & 7786 (J111) is for the purpose of providing a virtual ground for the Rec/PB Head (Deck B) during Playback mode. During the Playback mode, the FETs are turn on and shorted pin 2 and 4 of connector 1720 to the ground. During Recording mode, the FETs are turn off to allow the oscillator signal to be superposition onto the Recording signal for recording.

13. Motor Speed (For FR versions only)
During High speed dubbing, a feedback signal from the uP through pin 03 of the IC7610 (HEF4094BT) will trigger the transistors 7622 (BC847B) and 7616 (BC857B) to cause a change in the voltage level between High and Low, thus changing the speed of the motor.
14. IC7610 (HEF4094BT)
IC7610 (HEF4094BT) is a Shift Register use for issues the logic for cmos switch ICs (HEF4952BT) via 1A0, 2A1 and 2A2. It also issues logic to On/Off SOL_A, SOL_B and MOT. Recording speed is controlled via NS/HS.

Dolby Circuit (For sets with Dolby B NR version only)

15. IC7630 (CXA1551M)
IC7630 (CXA1551M) in the Dolby circuit is a Dolby Noise Reduction Type B IC for the Playback and Recording signal. Noise Reduction ON/OFF are controlled by DOLBY, which is from CLK, direct from uP. After clocking in DATA, CLK is set to HIGH/LOW for NR OFF/ON.
16. 19kHz Filter
The 19kHz filters 5631 & 5632 (LXD-210) in the Dolby circuit is for the purpose of filtering the 19kHz Pilot Tone (for Tuner signal only) of the Recording signal.
17. Level Adjust
The Variable resistor 3635, 3636, 3641 and 3642 in the Dolby circuit is for adjusting the playback level of the Dolby reference (400Hz, 200nWb/m). Transistor 7631, 7632 are ON to enable adjustment of 3641, 3642 during Playback Deck A. Transistor 7633, 7634 and 3635, 3636 are active for Playback Deck B.
18. Amplifier IC7640 (NJM4560M)
The Amplifiers 7640A & 7640B (NJM4560M) in the Dolby circuit is for the purpose of amplified the Recording signal.
19. Muting Circuit
The muting circuit which consists of transistors 7788, 7789 and 7790 (BC847B) is for the purpose of muting the output during Recording mode.

NOTATIONS & ABBREVIATIONS USED IN THIS DOCUMENT

CR	Chrome (IEC type II)
DB	Dolby NR type B
DD	Double Deck
DM	Double Motor
FE	Ferro (IEC type I)
FF	Non-Autoreverse
FR	Autoreverse Deck B
Gnd x	Ground x
HSD	High speed dubbing
ND	Non Dolby
NR	Noise Reduction
NSD	Normal speed dubbing
PB	Playback
REC	Record
S/A	Sub-assy
SD	Single Deck
SM	Single Motor

CONNECTORS ASSIGNMENTS:

CONNECTOR 1701

<input type="radio"/>	1	REC-L
<input type="radio"/>	2	REC-R
<input type="radio"/>	3	GND A
<input type="radio"/>	4	TAPE-L
<input type="radio"/>	5	+12V
<input type="radio"/>	6	TAPE-R
<input type="radio"/>	7	-CMOS

INTERCONNECTION TO AF BOARD

Record input left
Record input right
AF Ground
Playback output left
D.C. supply (+12V) for AF electronics
Playback output right
Negative d.c. supply (-9V) for CMOS ICs

CONNECTOR 1703

<input type="radio"/>	1	GND M
<input type="radio"/>	2	+MOTOR

INTERCONNECTION TO AF BOARD

Motor Ground
D.C. supply (+12V) for tape deck motor & solenoid

CONNECTOR 1706

<input type="radio"/>	1	AD2
<input type="radio"/>	2	AD1
<input type="radio"/>	3	+5V
<input type="radio"/>	4	GND P
<input type="radio"/>	5	CLK
<input type="radio"/>	6	DATA
<input type="radio"/>	7	STROBE

Deck sensing switches output voltage / Deck A EOT
Deck sensing switches output voltage / Deck B EOT
DC supply +5V for ADC network
Control & Oscillator Ground
HEF4094BT shift register Clock line
HEF4094BT shift register Data line
HEF4094BT shift register Strobe line

CONNECTOR 1710

<input type="radio"/>	1	B R/P HD L+
<input type="radio"/>	2	GND A
<input type="radio"/>	3	B R/P HD R+
<input type="radio"/>	4	ERASE HEAD
<input type="radio"/>	5	GND A

DECK B HEADS CONNECTOR (For Non-Dolby version only)

R/P Head left channel positive
R/P Head return ground
R/P Head right channel positive
Erase Head
Erase Head ground

CONNECTOR 1720

<input type="radio"/>	1	B R/P HD L+
<input type="radio"/>	2	B R/P HD L-
<input type="radio"/>	3	B R/P HD R+
<input type="radio"/>	4	B R/P HD R-
<input type="radio"/>	5	ERASE HEAD
<input type="radio"/>	6	GND A

DECK B HEADS CONNECTOR (For Dolby B NR version only)

R/P Head left channel positive
R/P Head left channel negative
R/P Head right channel positive
R/P Head right channel negative
Erase Head
Erase Head ground

CONNECTOR 1730

<input type="radio"/>	1	A PB HD L+
<input type="radio"/>	2	GND A
<input type="radio"/>	3	A PB HD R+

DECK A HEAD CONNECTIONS (For Double Deck versions only)

Pb Head left channel positive
Pb Head return ground shield
Pb Head right channel positive

CONNECTOR 1740

<input type="radio"/>	1	REC REW
<input type="radio"/>	2	CrO2 B
<input type="radio"/>	3	REC FWD
<input type="radio"/>	4	PHOTO B
<input type="radio"/>	5	SOL B
<input type="radio"/>	6	Vcc
<input type="radio"/>	7	MODE B
<input type="radio"/>	8	GND M
<input type="radio"/>	9	SOL A
<input type="radio"/>	10	PHOTO A
<input type="radio"/>	11	MODE A
<input type="radio"/>	12	L
<input type="radio"/>	13	CrO2 A
<input type="radio"/>	14	H

DECK A & B CONTROL INTERFACE (For Dolby B NR version only)

Record tab protection status switch (reverse) [open=on: close=off]
Chrome tape detection switch deck B [open=Cr: close=Fe]
Record tab protection status switch (forward) [open=on: close=off]
Solenoid supply output (tape movement indication)
Deck / Motor supply
Mode switch (head engagement) [open=off: close=engaged]
Deck / Motor ground
Solenoid supply for deck A
Photo sensor output (tape movement indication)
Mode switch (head engagement) [open=off: close=engaged]
L pin for motor
Chrome tape detection switch deck A [open=Cr: close=Fe]
H pin for motor

CONNECTOR 1770

<input type="radio"/>	1	REC REW
<input type="radio"/>	2	CrO2 B
<input type="radio"/>	3	REC FWD
<input type="radio"/>	4	PHOTO B
<input type="radio"/>	5	SOL B
<input type="radio"/>	6	Vcc
<input type="radio"/>	7	MODE B
<input type="radio"/>	8	GND M
<input type="radio"/>	9	SOL A
<input type="radio"/>	10	PHOTO A
<input type="radio"/>	11	MODE A
<input type="radio"/>	12	L
<input type="radio"/>	13	CrO2 A
<input type="radio"/>	14	H

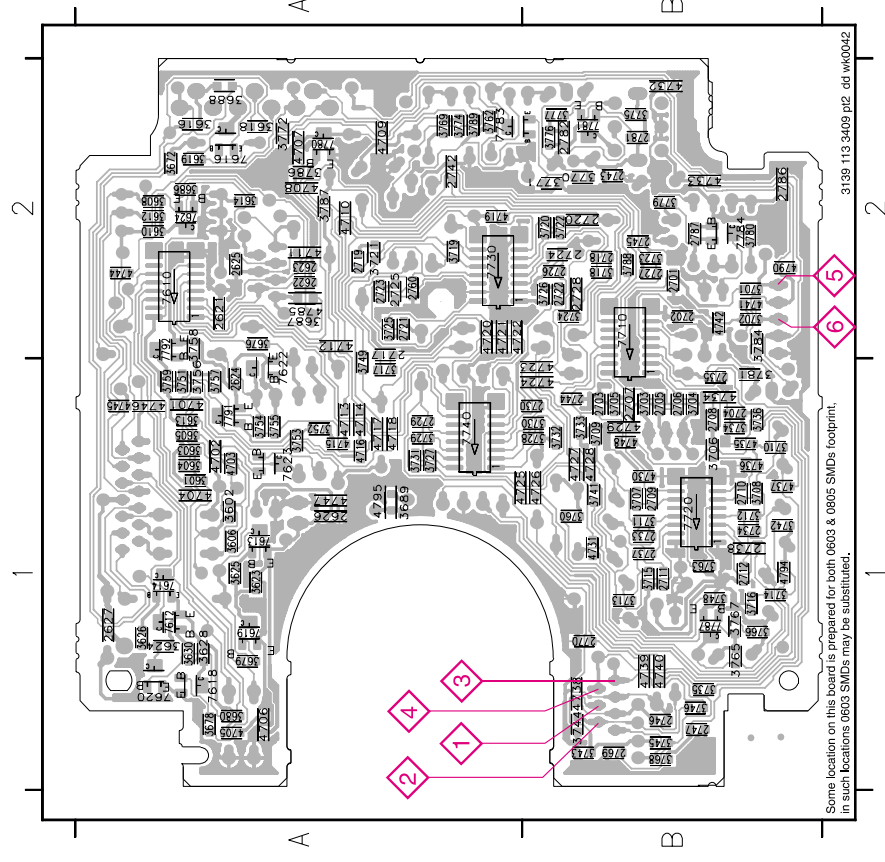
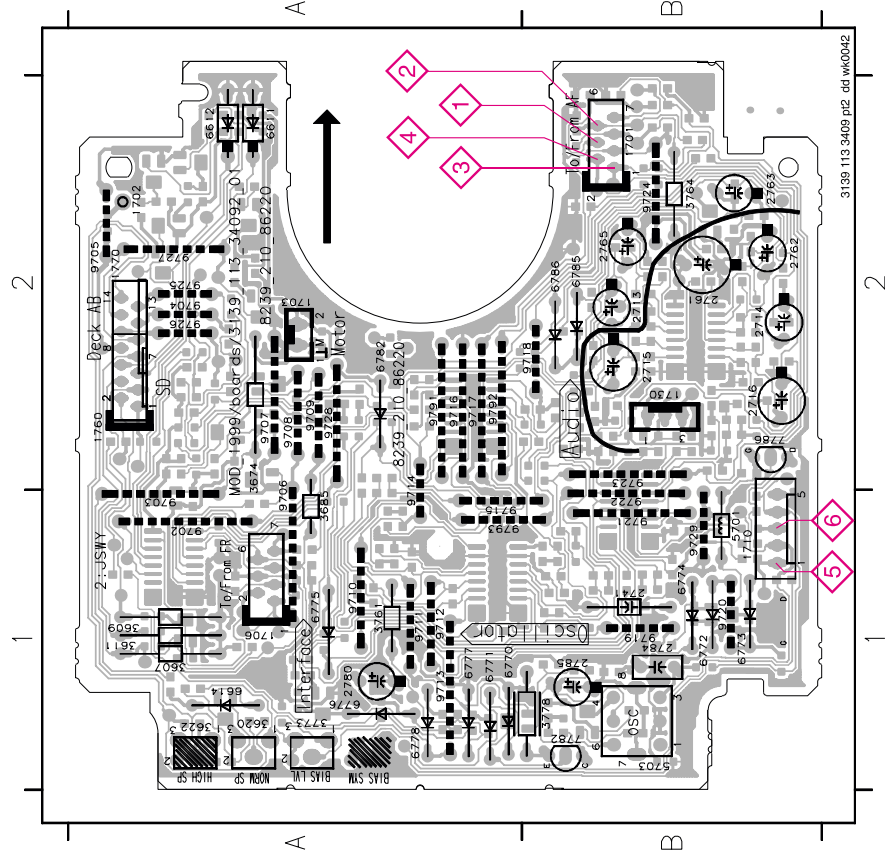
DECK A & B CONTROL INTERFACE (For Non-Dolby version only)

Record tab protection status switch (reverse) [open=on: close=off]
Chrome tape detection switch deck B [open=Cr: close=Fe]
Record tab protection status switch (forward) [open=on: close=off]
Photo sensor output (tape movement indication)
Solenoid supply for deck B
Deck / Motor supply
Mode switch (head engagement) [open=off: close=engaged]
Deck / Motor ground
Solenoid supply for deck A
Photo sensor output (tape movement indication)
Mode switch (head engagement) [open=off: close=engaged]
L pin for motor
Chrome tape detection switch deck A [open=Cr: close=Fe]
H pin for motor

COMPONENT LAYOUT

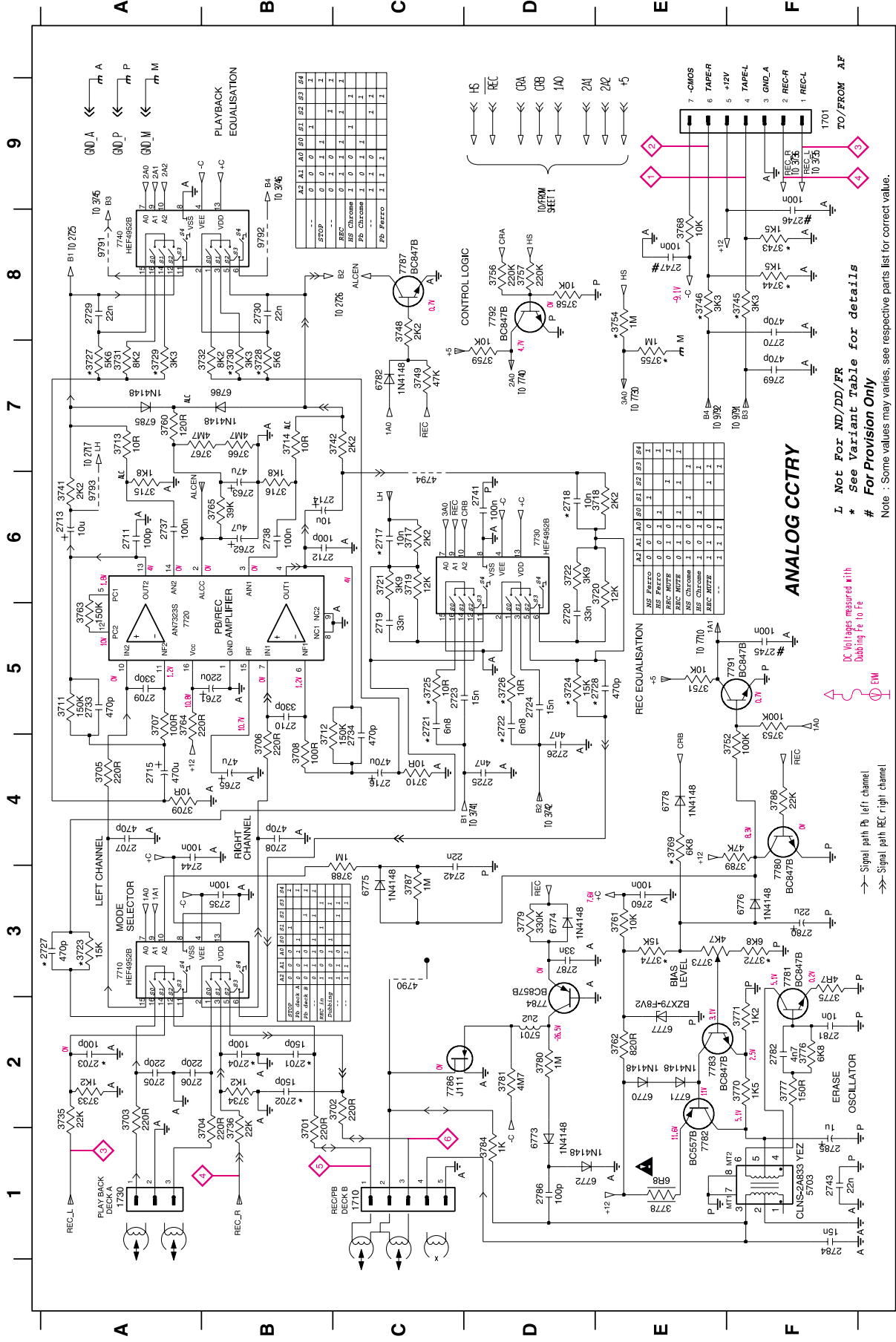
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CHIP LAYOUT

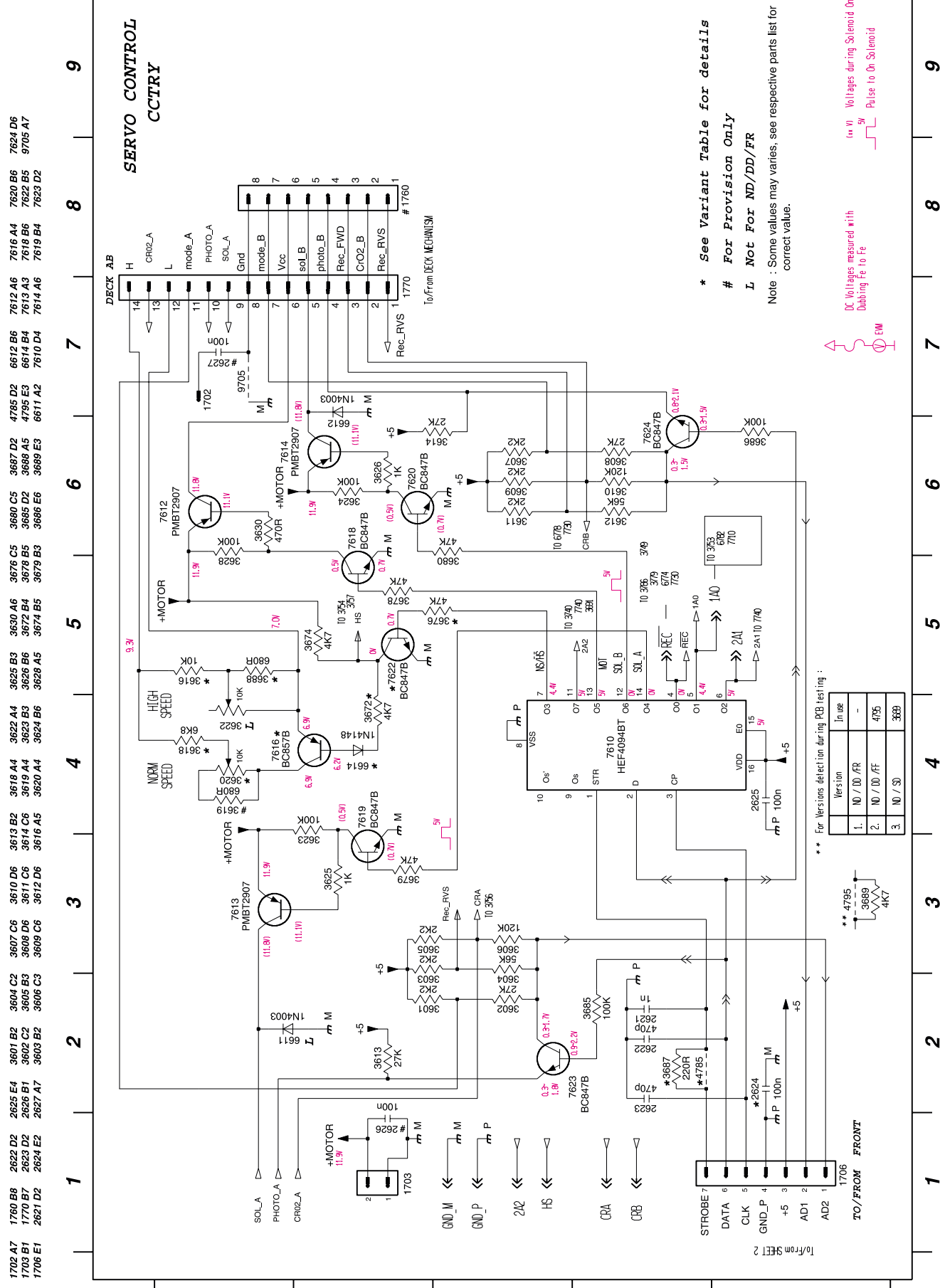


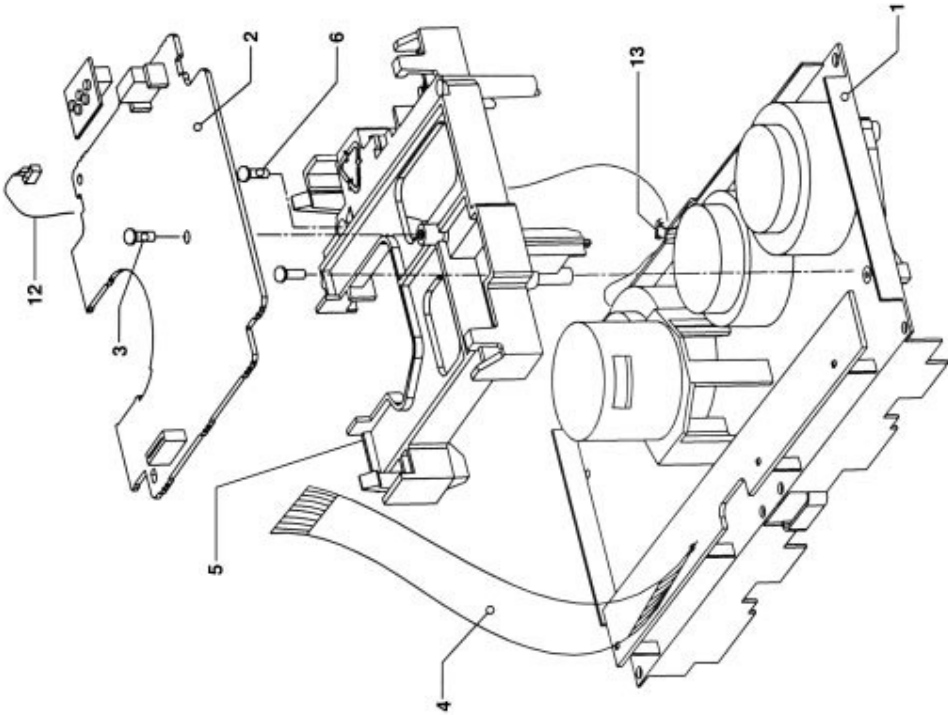
ANALOG CIRCUIT

1701 F9	2705 A2	2712 B6	2719 C5	2726 D4	2735 B3	2745 F5	2765 B4	2785 F1	3705 A4	3712 B4	3719 C6	3726 D5	3733 A2	3744 F8	3753 F5	3760 A7	3767 A7	3774 E3	3781 D2	4794 C6	6774 D3	6786 B7	7782 E1	9791 A8
1710 C1	2706 A2	2713 A6	2720 D5	2727 A3	2737 A6	2746 F8	2769 F7	2787 D1	3706 B4	3713 A7	3720 E6	3727 A7	3734 B2	3745 F8	3754 E8	3761 E3	3768 E8	3775 F3	3784 D1	5703 D1	6775 C3	7780 A3	7783 E2	9793 A6
1730 A1	2707 A4	2714 B6	2721 A5	2728 E3	2738 B6	2747 E8	2770 F8	2788 D3	3707 A5	3714 B7	3721 E6	3728 B7	3735 A2	3746 F8	3755 E7	3762 E2	3769 E4	3776 F2	3785 F1	4796 C2	6776 F3	6788 A5	7784 D2	9793 A6
2701 B2	2708 B4	2715 A4	2722 D5	2729 A8	2741 D6	2760 E3	2780 F3	3701 B1	3708 B4	3715 A6	3722 D6	3729 A7	3736 B1	3748 C8	3757 D8	3764 A5	3771 F2	3778 E1	3787 C3	6771 E2	6778 E4	7780 B6	7786 C2	
2702 B2	2709 A5	2716 C4	2723 C5	2730 B8	2742 C3	2761 B5	2781 F2	3702 C2	3709 A4	3716 B6	3723 A6	3730 B7	3741 A6	3749 C7	3758 D8	3765 A5	3772 E4	3779 E4	3788 C3	4797 E2	6777 E2	6789 D6	7787 C8	
2703 A2	2710 B5	2717 C6	2724 D5	2733 A3	2743 F1	2762 B6	2782 F2	3710 C4	3717 C6	3724 D5	3731 A7	3738 B7	3749 C7	3759 E5	3768 B6	3775 F3	3782 F3	3789 F4	4798 A8	6778 E4	6790 A8	7788 F4	7791 F5	
2704 B2	2711 A6	2718 D6	2725 D4	2734 C4	2744 A4	2763 B6	2784 F1	3703 A2	3710 C4	3725 C5	3732 B7	3739 D7	3752 F4	3761 B7	3768 B7	3773 E3	3780 D2	4790 C3	6773 D1	6785 A7	6792 C7	7781 F3	7792 D8	



SERVO CONTROL CIRCUIT



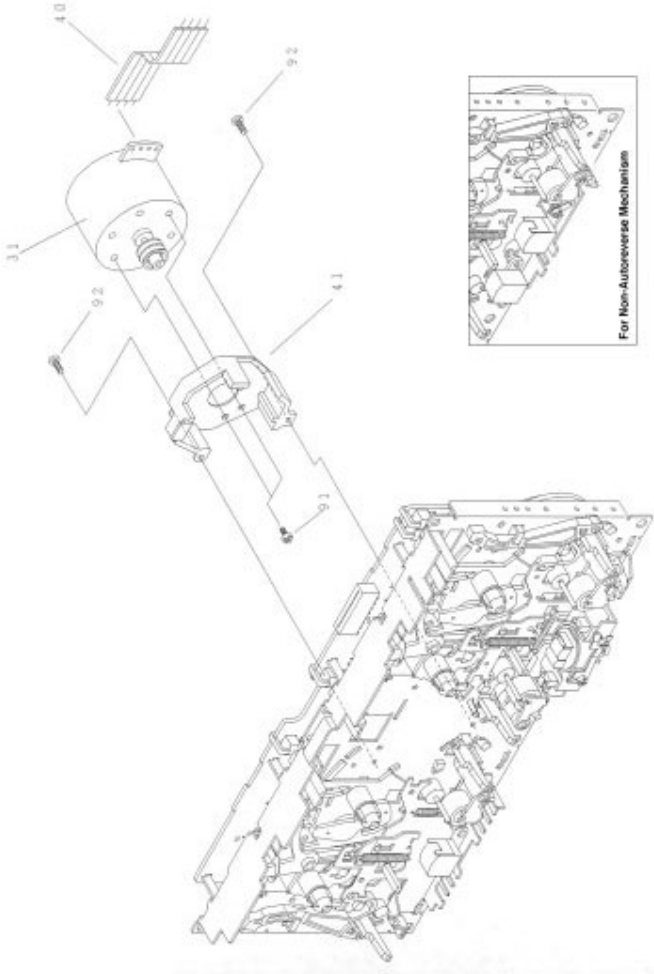


3139 118 77140 (incl. ...77140) ad w44206

TAPE MODULE EXPLODED VIEW

- | | | |
|---|----------------|----------------------------------------------|
| 1 | 3139 118 77130 | Autoreverse Mech. CWE44FR01 |
| 1 | 3139 118 77140 | Non-Autoreverse Mech. CWE44FF02 Chrome/Ferro |
| 1 | 3139 118 77950 | Non-Autoreverse Mech. CWE44FF05 Ferro |
| 3 | - | Screw D3 x 10 |
| 6 | - | Screw M2 x 16 |
| 7 | 3139 110 34080 | Flex Cable 14 pin 7.5 cm |

Note: Only the parts mentioned in this list are normal service spare parts.



TAPE MECHANISM - MOTOR EXPLODED VIEW

- | | | |
|----|----------------|----------------|
| 31 | 4822 361 11055 | Motor Assembly |
| 91 | - | Screw M2,6 x 5 |
| 92 | - | Screw M2 x 5 |

Note: Only the parts mentioned in this list are normal service spare parts.