

Service  
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**Service**



# Service Manual

**SERVICING**

For servicing FW-R88, the set can be divided into two parts:

1. Except for the CD-R/W module all workshops can repair the set on component level.

2. The **CD-R/W module** can also be repaired at component level with the help of COMPAIR Release 1.6 and higher.

With this tool the diagnosing of the set can be done in an interactive way. In the tool also the adjustment procedure has been implemented. This is absolutely necessary in case the CDR MainBoard and/or (CDR Loader) CDM is disconnected from the matched production combination.

**Only designated workshops can perform these repairs.**

Please send the complete FW-R88 to the designated workshop.



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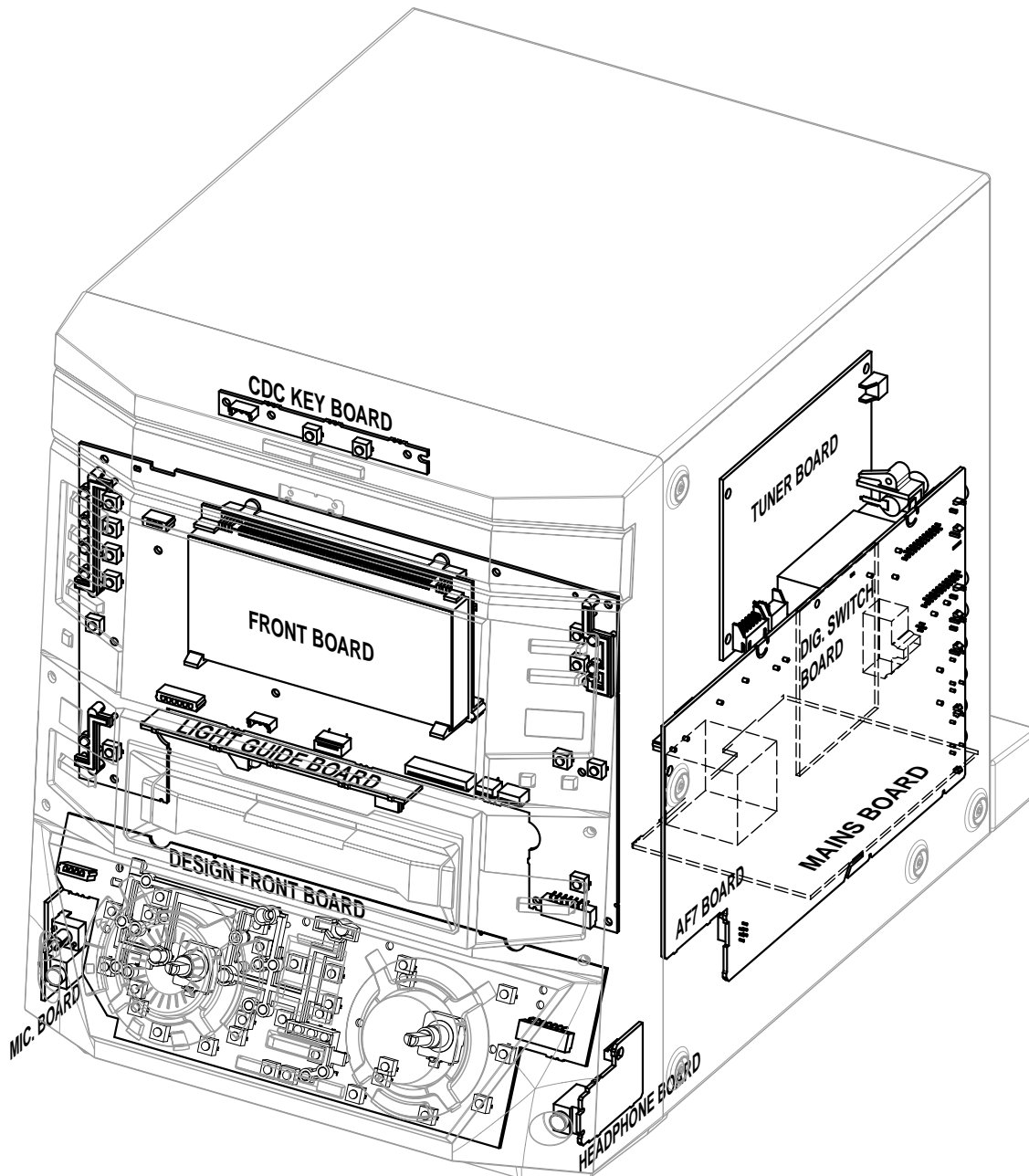
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## Location of Printed Circuit Boards



Location of PCB R88 2001 01 14

### Attention:

CDC KEY BOARD, LIGHT GUIDE BOARD, MICROPHONE BOARD and DIGITAL SWITCHING BOARD are part of the **FRONT BOARD** Chapter 6.

HEADPHONE BOARD is part of the **AUDIO FREQUENCY BOARD (AF7)** Chapter 8.

## Technical Specification

### General:

Mains voltage	: 120 / 240V switchable (for /21)
	: 230V (for /22)
	: 120V (for /37)
Mains frequency	: 50 ~ 60Hz
Power consumption	: 155W at 1/8 P <sub>RATED</sub>
	: 350W at max output
	: ≤15W at Stand by
	: ≤2W at ECO Stand by

### Tuner:

#### FM

Tuning range	: 87.5MHz - 108MHz
Grid	: 100kHz
IF	: 10.7MHz
Aerial input	: 75Ω
Sensitivity Mono	: < 7μV (26dB S/N)
d (RF=1mV,Δf=75kHz)	: 3% - typ. 2%
IF rejection	: > 60dB
Image rejection	: > 25dB
-3dB Limiting Point	: < 23.5dBf

#### MW

Tuning range	: 531kHz - 1062kHz
Grid	: 9kHz
IF	: 450kHz ±1kHz
Sensitivity at 26dB S/N	: < 4.0mV/m
d (RF=50mV,m=80%)	: < 5% - typ. 3%
IF rejection	: > 45dB
Image rejection	: > 28dB

### Amplifier:

Output power	: 2 x 100W at 6Ω not for /37
	: 2 x 150W at 6Ω for /37 only
Headphone	: 3.5mm stereo jack
Frequency response	: 20Hz - 20kHz (-3dB) Limit
Equalizer	: Digital Sound Control

### Input sensitivity

Aux/Line	: 500mV ±2dB
Microphone	: 2.5mV ±2dB at 1kHz

### CDC unit:

Frequency response within	: 20Hz - 20kHz at ±3dB
Signal/Noise ratio	: > 94dB (A-weighted)
Distortion at 1kHz,0dB	: -90dB
Channel unbalance	: < 0.3dB
Channel crosstalk at 1kHz	: -60dB
De-emphasis	: 0 or 15/50 μS
<b>Laser</b>	
Output power	: ≤500μW
Wave length	: 780nm ±20nm

### CDR unit:

#### CD Playback:

Frequency response within	: 20Hz - 20kHz at ±3dB
Signal/Noise ratio	: > 90dB (A-weighted)
Distortion at 1kHz,0dB	: -80dB
Channel unbalance	: < 1dB
Channel crosstalk at 1kHz	: -60dB
De-emphasis	: 0 or 15/50 μS

#### Analog recording - digital playback:

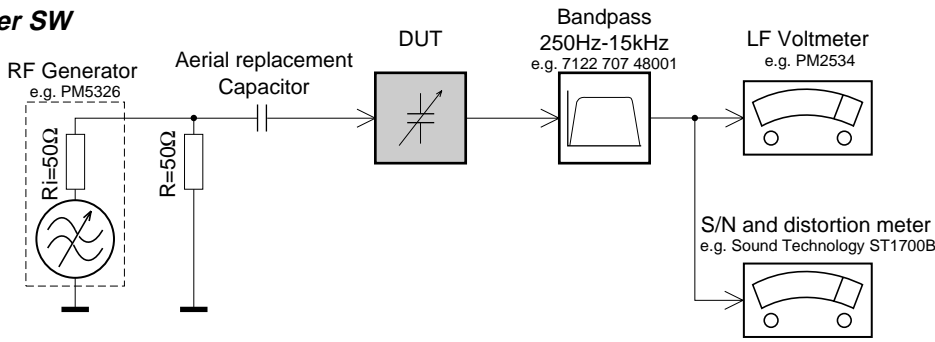
Frequency response within	: 20Hz - 20kHz at ±3dB
Signal/Noise ratio	: > 84dB (A-weighted)
Distortion at 1kHz,0dB	: -77dB
Channel unbalance	: < 1dB
Channel crosstalk at 1kHz	: -60dB
De-emphasis	: 0 or 15/50 μS

#### Laser

Output power	: ≤1mW during reading
	: ≤20mW during writing
	<b>Laser class 3B</b>
Wave length	: 780nm ±20nm

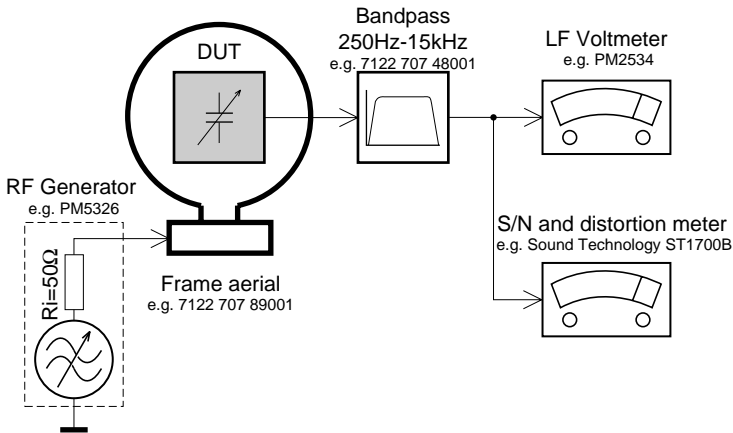
## Measurement Setup

### Tuner SW



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage. Use a bandpass filter (or at least a high pass filter with 250Hz) to eliminate hum (50Hz, 100Hz).

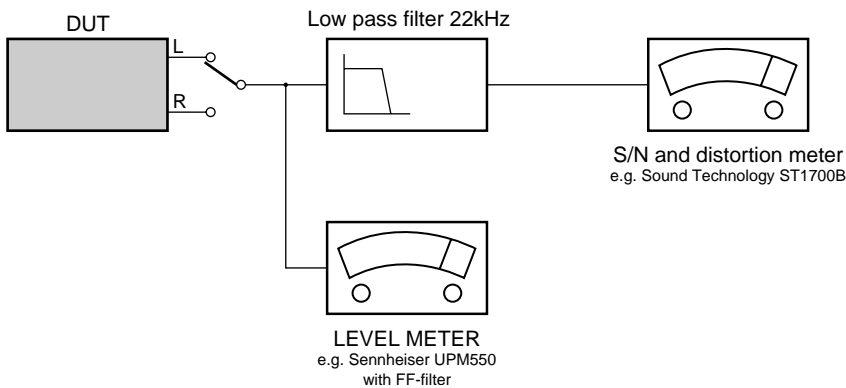
### Tuner AM (MW,LW)



To avoid atmospheric interference all AM-measurements have to be carried out in a Faraday's cage.

### CD

Use Audio Signal Disc SBC429 4822 397 30184 (replaces test disc 3)  
L.P.F. = 13<sup>th</sup> order filter 4822 395 30204



**RC5 Codes**

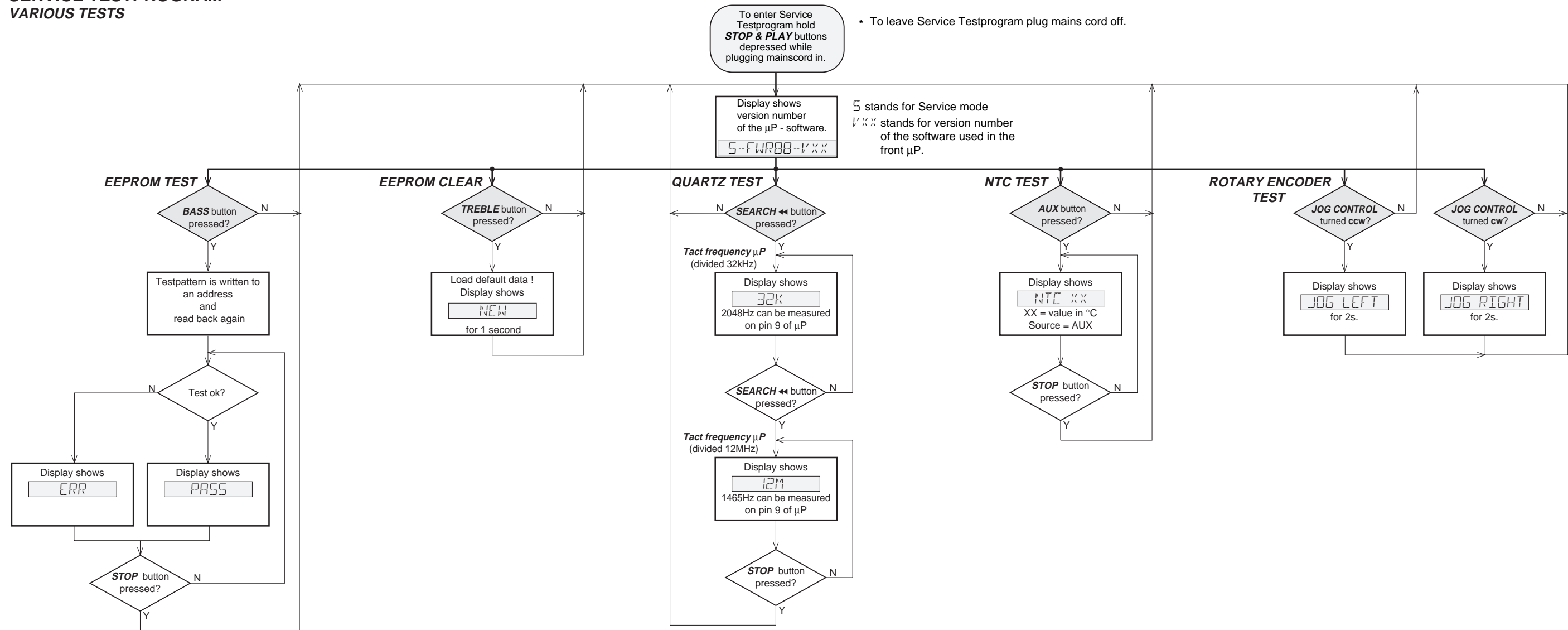
<i>Remote control key</i>	<i>System Code</i>	<i>Command Code</i>	<i>Remote control key</i>	<i>System Code</i>	<i>Command Code</i>
Standby	17, 20, 21, 26	12	SLEEP	16	38
CD1	20	55	DIM	16	71
CD2	20	56	REPEAT	20, 26	29
CD3	20	57	SHUFFLE	20, 26	28
CDR	26	63	TRACK INCREMENT	26	114
Tuner	17	63	VOLUME +	16	16
Aux	21	63	VOLUME -	16	17
1 (ABC)	17,20, 21, 26	01	▶	20, 26	53
2 (DEF)	17,20, 21, 26	02	⏸	20, 26	48
3 (GHI)	17,20, 21, 26	03	◀	17,20, 21, 26	33
4 (JKL)	17,20, 21, 26	04	▶	17,20, 21, 26	32
5 (MN)	17,20, 21, 26	05	◀◀ CD, CDR MODE	20, 26	50
6 (OPQ)	17,20, 21, 26	06	◀◀ AUX, TUNER MODE	17, 21	31
7 (RST)	17,20, 21, 26	07	▶▶ CD, CDR MODE	20, 26	52
8 (UVW)	17,20, 21, 26	08	▶▶ AUX, TUNER MODE	17, 21	30
9 (XYZ)	17,20, 21, 26	09	■	20, 26	54
0 (Space)	17,20, 21, 26	00	INCREDIBLE SURROUND	16	64
YES	17,20, 21, 26	87	PURE	16	52
NO	17,20, 21, 26	49	LOUDNESS	16	50
EDIT (TEXT)	17,20, 21, 26	82	BALANCE L	16	27
PROGRAM	20, 26	36	BALANCE R	16	26
PROGRAM TUNER MODE	17	122	WOOX	16	70
MUTE	16	13	WOOX LEVEL	16	118
TIMER ON/OFF	16	89			

Technical Remarks

---

**SERVICE TESTPROGRAM**  
**VARIOUS TESTS**

\* To leave Service Testprogram plug mains cord off.



# SERVICE TESTPROGRAM CDR MODULE

To enter Service Testprogram hold **PLAY & STOP** buttons depressed while plugging mains cord in.

\* To leave Service Testprogram plug mains cord off.

Display shows version number of the  $\mu$ P - software.  
**S-FWR00-VXX**

S stands for Service mode  
VXX stands for version number of the software used in the front  $\mu$ P.

## CDR ELECTRICAL TEST

Insert CD-DA disc before starting the test

### MODULE INFORMATION

Display shows for 2s each:  
• Software version of DASP (flash ROM 7703)  
• Software version of basic engine processor (flash EPROM 7208)

### MAIN BOARD DIAGNOSTIC

**DRAM TEST 7702**  
Display shows: **BTST1**

**CHECKSUM TEST 7703**  
Display shows: **BTST2**

**ERASE TEST 7208**  
Display shows: **BTST3**

**ADC/DAC TEST 7406**  
Display shows: **BTST4**

**COMMUNICATION TEST (ISA-BUS)**  
Display shows: **BTST5**

**TEST O.K.?**

Display shows: **BERR n**  
n=number of failed test

**FFWD** button pressed?

all errors shown?

Display shows next error

### CDR - LOADER TEST

**CD-DA disc inserted?**

Display shows: **NO DISC**

**FFWD** button pressed?

Display shows actual playing time. The test is performed by playing 5s at beginning, 5s in the middle and 5s at the end of the disc.

**FFWD** button pressed?

**TEST O.K.?**

Display shows: **BERR 1**

**FFWD** button pressed?

## CDR MECHANICAL TEST

for visual inspection only

**FINALIZE** button pressed?

**FOCUS TEST**  
Objective moves continuously up/down.  
Display shows: **BUSY**

### SLIDE TEST

**STOP** button pressed?

Exit Mech. Testprogram

**NEXT** button pressed?

Slide moves continuously in/out.  
Display shows: **BUSY**

**PREV** button pressed?

Dependent on the moving direction, slide moves to inner or outer end position.

### TRAY TEST

**OPEN/CLOSE** button pressed?

Tray opens.  
Display shows: **OPENED**  
(even when tray is blocked)

**OPEN/CLOSE** button pressed?

Tray closes.  
Display shows: **CLOSE**  
(even when tray is blocked)

## CDR DC-ERASE MODE

**ERASE** button pressed?

Complete disc will be erased with double speed. (starting from PMA-area up to and including ATIP leadout area)  
The display shows the countdown of the remaining time required to complete the operation:  
**ER mm ss**  
mm: remaining minutes  
ss: remaining seconds

**Disc erased?**

Display shows: **PASSED**

**STOP** button pressed?

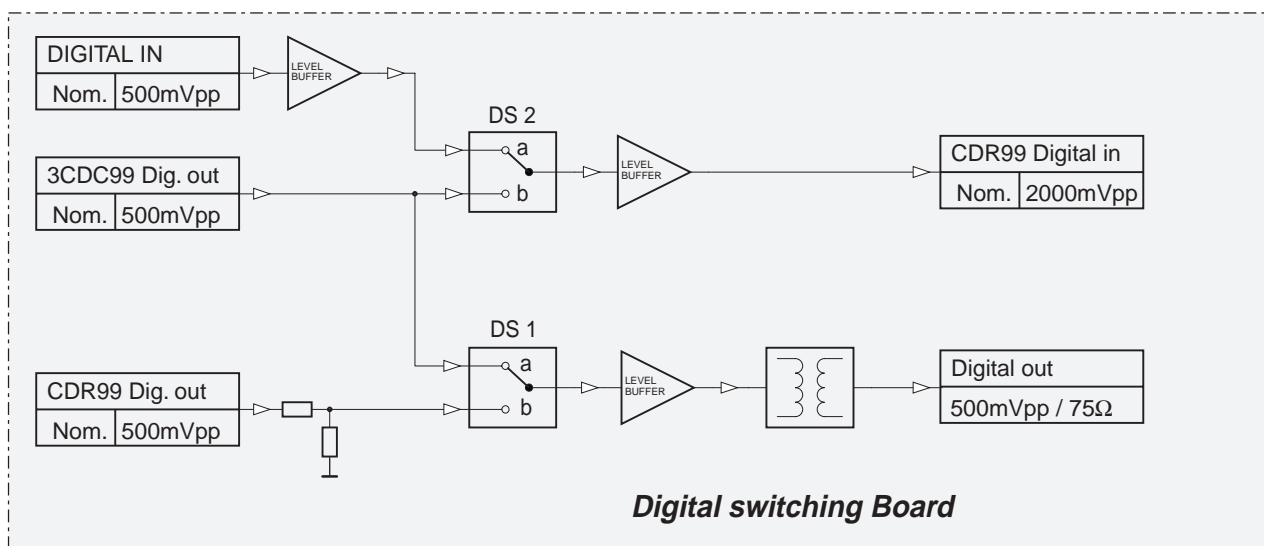
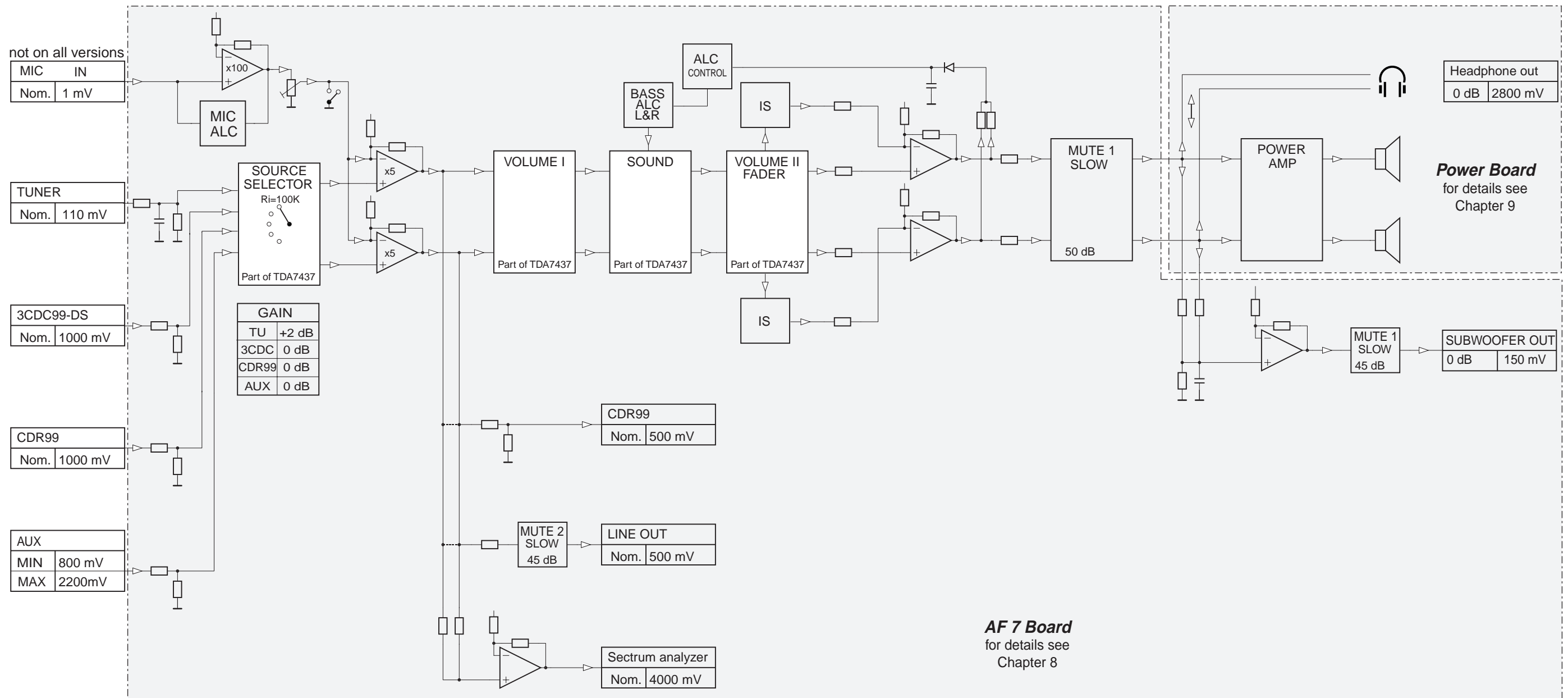
Exit DC-ERASE Mode

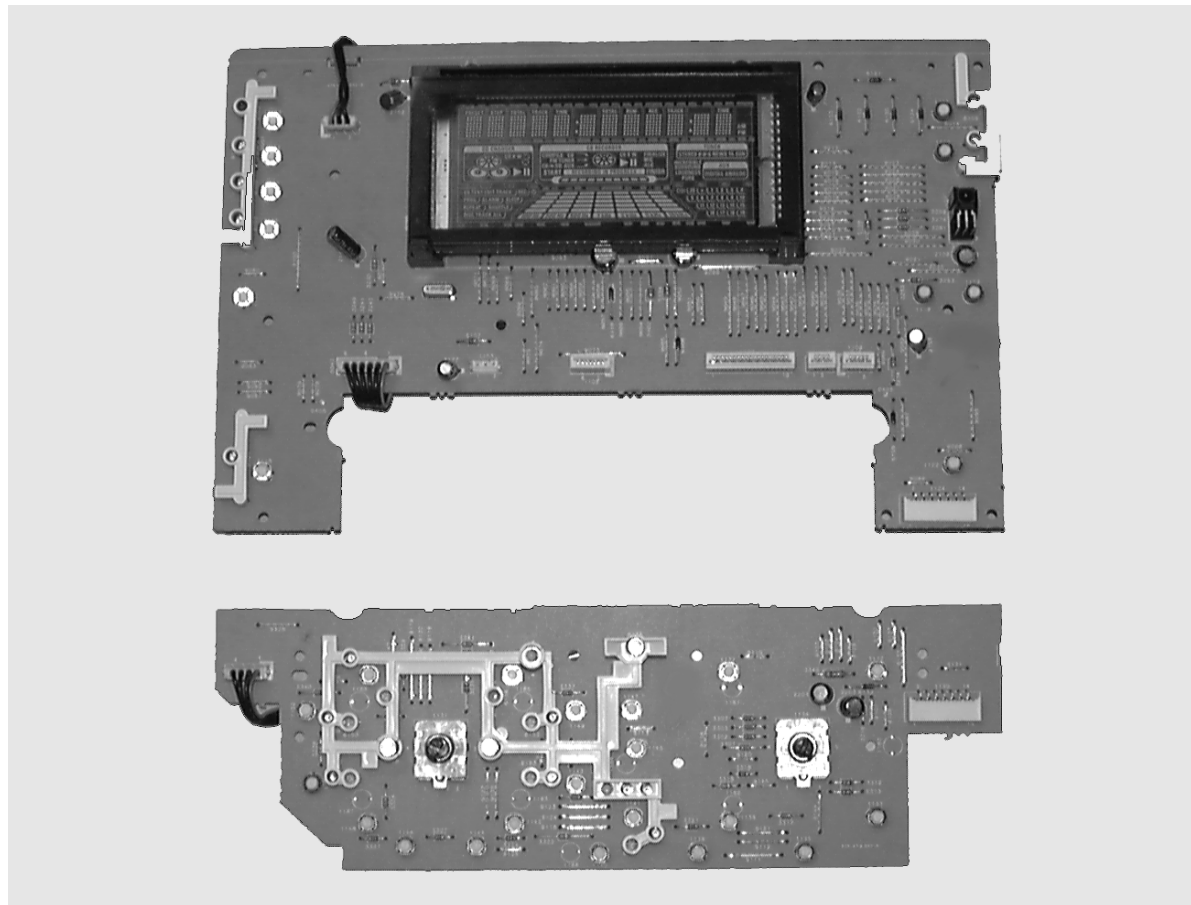
Note: With the DC-Erase mode the CD-RW can be changed back in its original state, like a new disc. Stopping the erase-function by switching power off will leave the disc in an unpredictable status!





Block / Leveldiagram

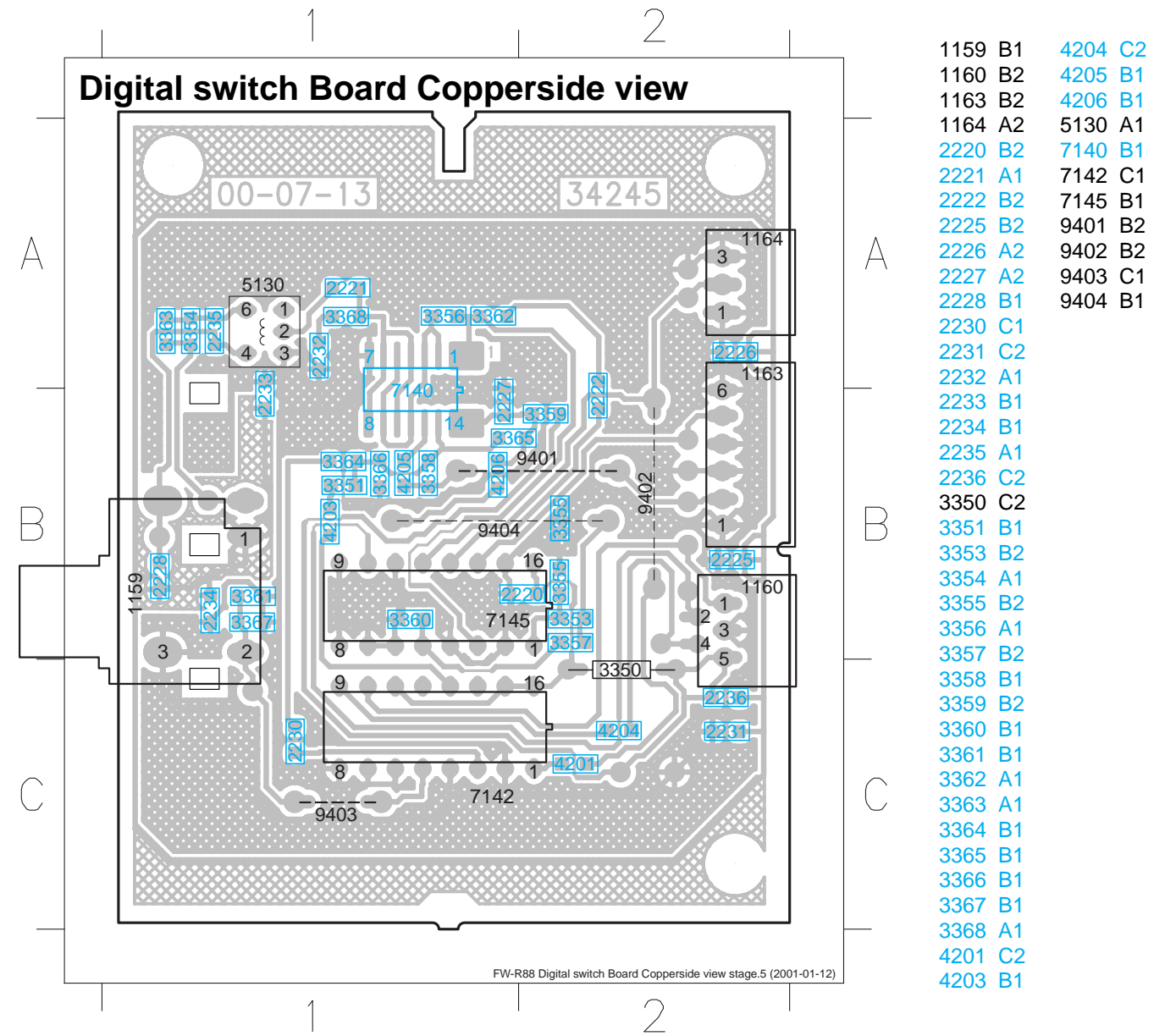




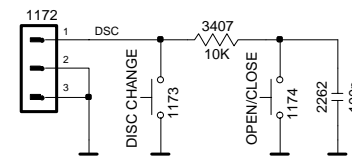
# Front Board

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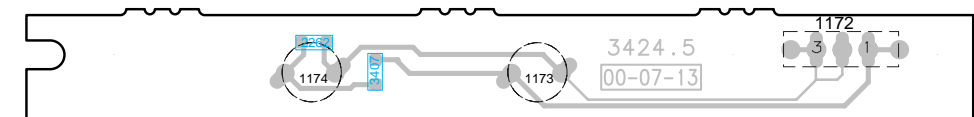
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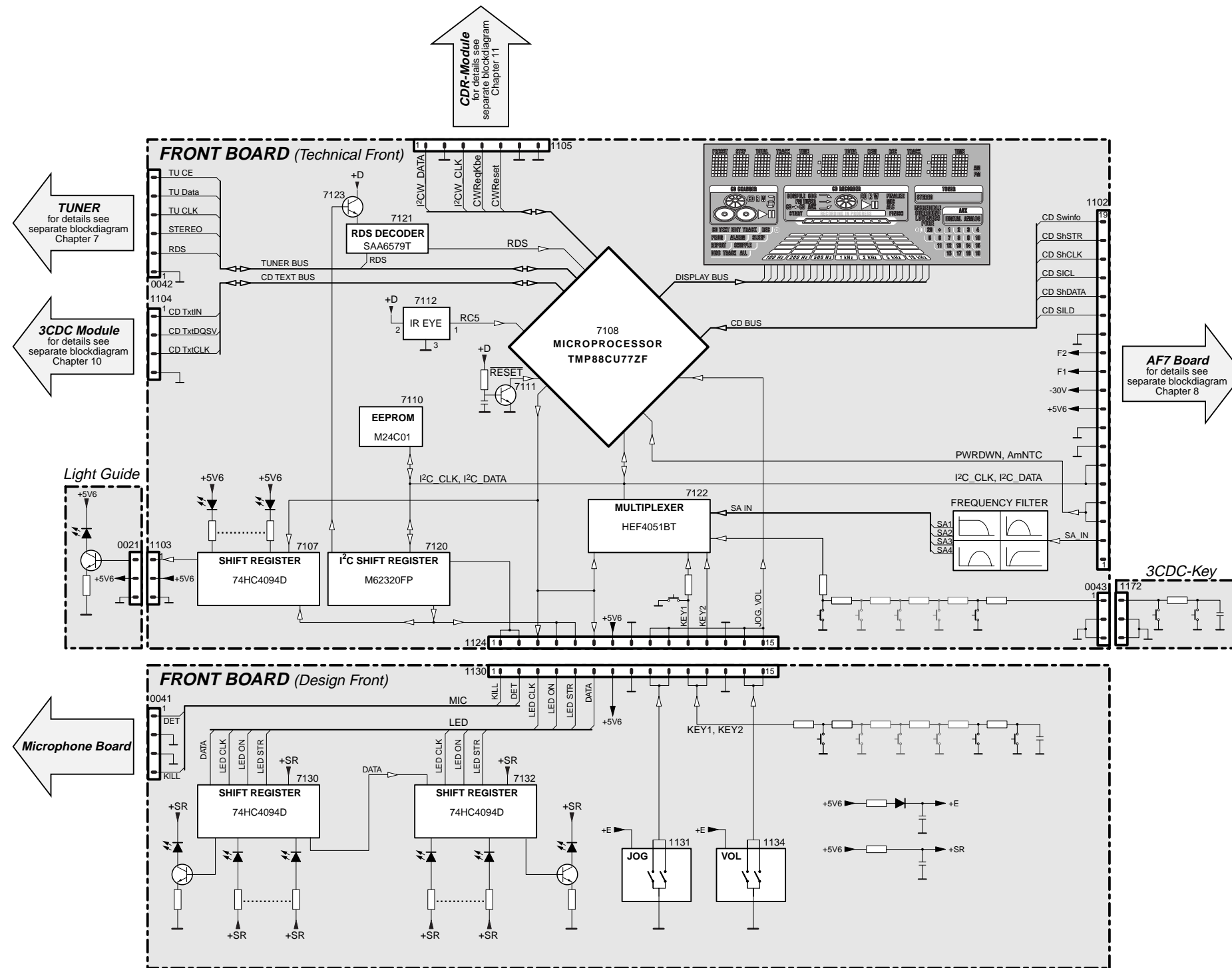
**3 CDC-Key**

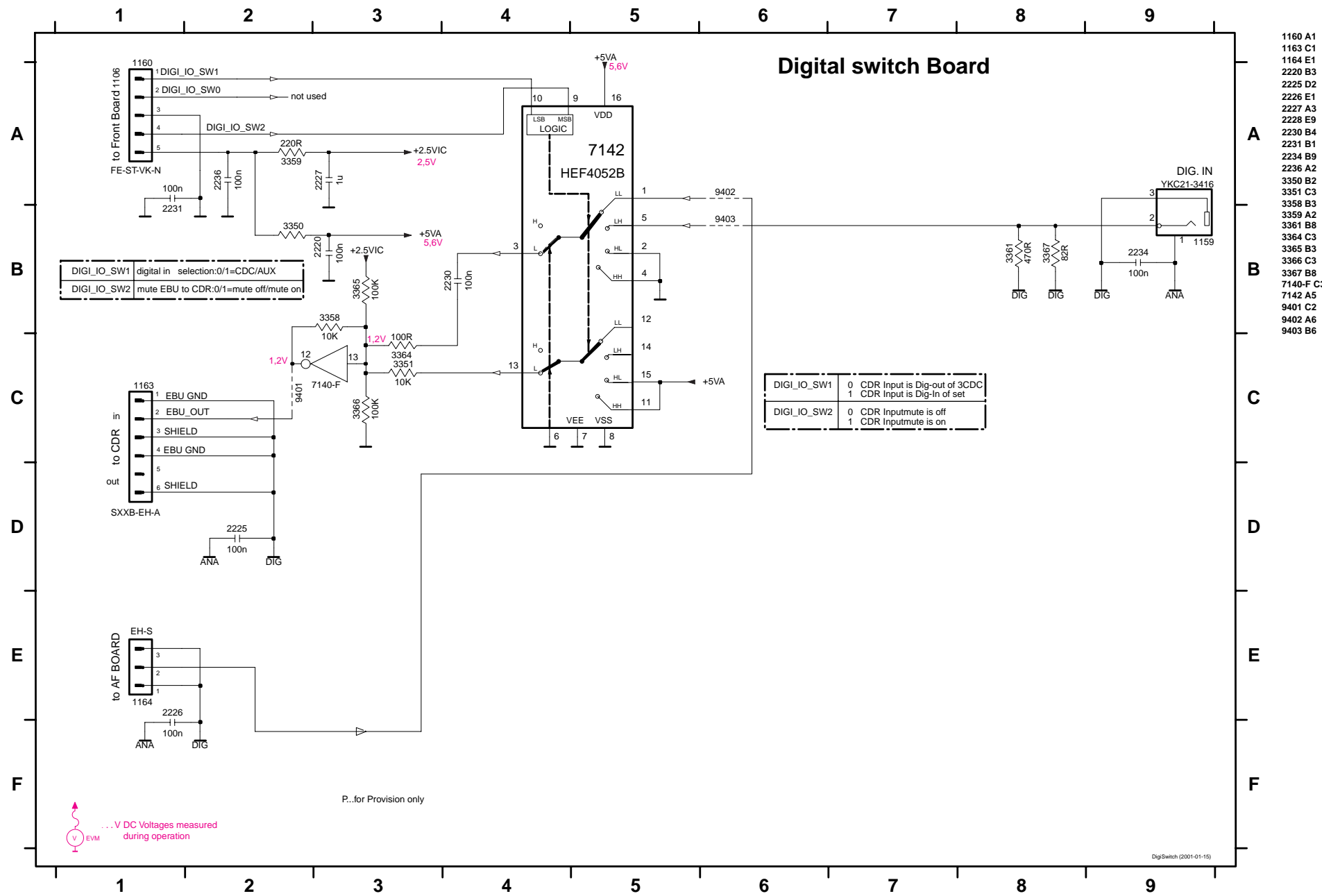


**3CDC Key Board Copperside view**



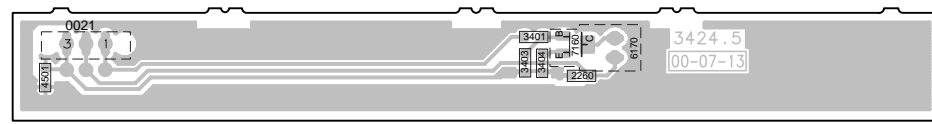
Blockdiagram





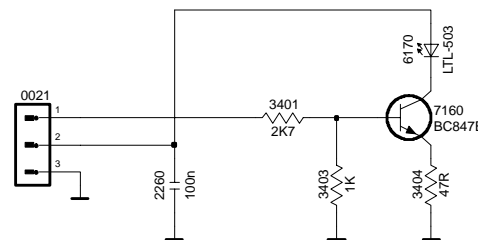
- 1160 A1
- 1163 C1
- 1164 E1
- 2220 B3
- 2225 D2
- 2226 E1
- 2227 A3
- 2228 E9
- 2230 B4
- 2231 B1
- 2234 B9
- 2236 A2
- 3350 B2
- 3351 C3
- 3358 B3
- 3359 A2
- 3361 B8
- 3364 C3
- 3365 B3
- 3366 C3
- 3367 B8
- 7140-F C3
- 7142 A5
- 9401 C2
- 9402 A6
- 9403 B6

Light Guide Coppersive view



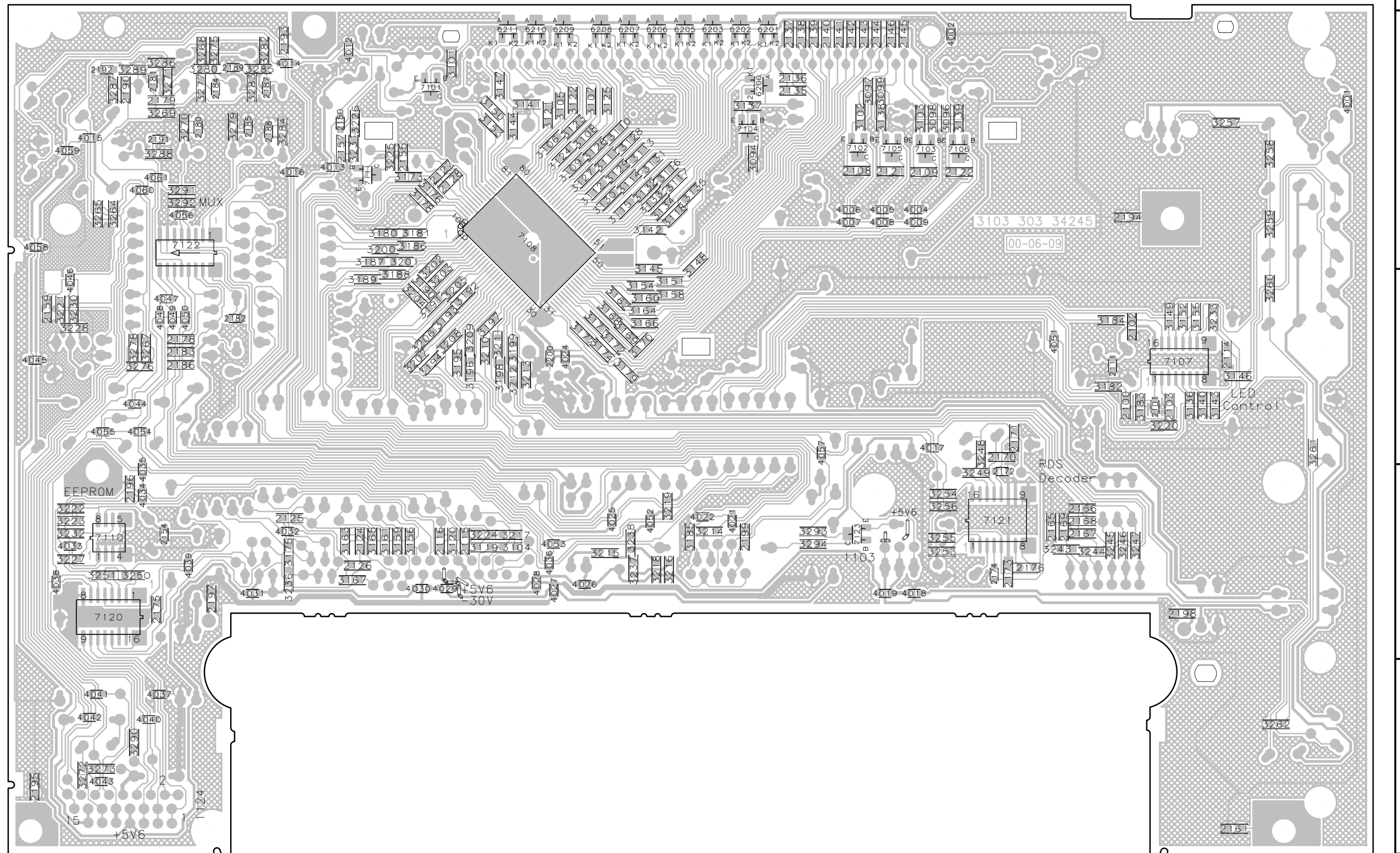
CDR-Mini LED Board Coppersive view stage 5 (2001-01-12)

Light Guide Board



2100 B6	2116 C3	2136 A5	2145 A5	2166 C6	2175 C1	2185 A2	2194 A6	3097 A5	3107 A3	3116 A4	3125 A4	3134 A4	3143 B7	3152 B7	3162 B4	3171 B4	3180 A2	3189 B2	3198 B3	3207 B3	3216 C4	3225 A2	3237 C4	3250 C1	3260 B7	3271 A1
2101 B6	2121 A5	2137 A5	2146 A5	2167 C6	2176 C6	2186 B1	2195 D1	3098 A5	3108 A3	3117 A4	3126 A4	3135 A4	3144 A3	3153 A3	3163 C2	3172 B4	3181 A3	3190 B3	3199 B3	3208 B3	3217 C3	3226 A2	3238 C4	3251 C1	3261 B7	3272 D1
2102 B6	2122 A5	2138 A5	2150 A2	2168 C6	2178 B1	2187 A2	2196 C1	3099 A5	3109 A3	3118 A4	3127 A3	3136 B7	3145 A4	3154 B4	3164 B4	3173 A3	3182 B6	3191 B3	3200 A2	3209 B3	3218 C4	3227 C1	3243 C6	3253 C5	3262 D7	3273 D1
2103 B6	2124 C2	2139 A5	2154 C1	2169 C6	2179 A1	2188 A2	2197 C2	3101 A3	3110 A4	3119 C3	3128 A4	3137 A4	3146 B7	3155 B7	3165 C2	3174 B4	3183 B6	3192 B3	3201 A3	3210 B3	3219 C4	3228 B1	3244 C6	3254 C5	3264 A1	3275 A2
2108 A5	2125 C2	2140 A5	2155 A3	2170 B6	2180 A1	2189 A2	2198 C7	3102 A5	3111 A4	3120 C3	3129 A4	3138 A5	3147 A3	3156 C3	3166 B2	3175 C2	3184 B6	3193 B3	3202 A3	3211 B3	3220 B6	3230 B1	3245 C6	3255 C5	3265 A1	3276 B1
2109 A5	2126 C2	2141 A5	2157 A2	2171 B6	2181 A1	2190 A1	2199 C4	3103 A5	3112 A3	3121 A3	3130 A4	3139 A5	3148 A4	3158 B4	3167 C2	3176 A3	3185 C4	3194 B3	3203 B3	3212 B3	3221 B1	3231 A2	3246 C6	3256 C5	3267 B1	3277 A1
2111 B6	2127 A3	2142 A5	2159 B1	2172 C6	2182 B2	2191 A1	2200 B3	3104 C3	3113 A4	3122 A3	3131 A4	3140 B7	3149 B6	3159 C2	3168 B4	3177 B3	3186 A3	3195 B3	3204 B3	3213 B3	3222 C1	3232 C1	3247 C6	3257 A7	3268 A1	3278 B1
2114 B7	2128 A3	2143 A5	2159 D1	2173 C6	2183 B1	2192 A1	3094 A4	3105 A3	3114 A4	3123 A3	3132 A4	3141 B3	3149 B3	3159 C2	3168 B4	3178 A3	3187 A2	3196 B3	3205 B3	3214 C4	3223 C1	3233 B7	3248 B5	3258 A7	3269 A1	3279 A2
2115 C3	2135 A5	2144 A5	2165 C6	2174 C6	2184 A2	2193 A2	3096 A5	3106 A3	3115 A4	3124 A3	3133 A4	3142 A4	3151 B4	3161 C2	3170 B4	3179 B4	3188 B2	3197 B3	3206 B3	3215 C4	3224 C3	3236 C2	3249 C5	3259 A7	3270 A1	3280 A2

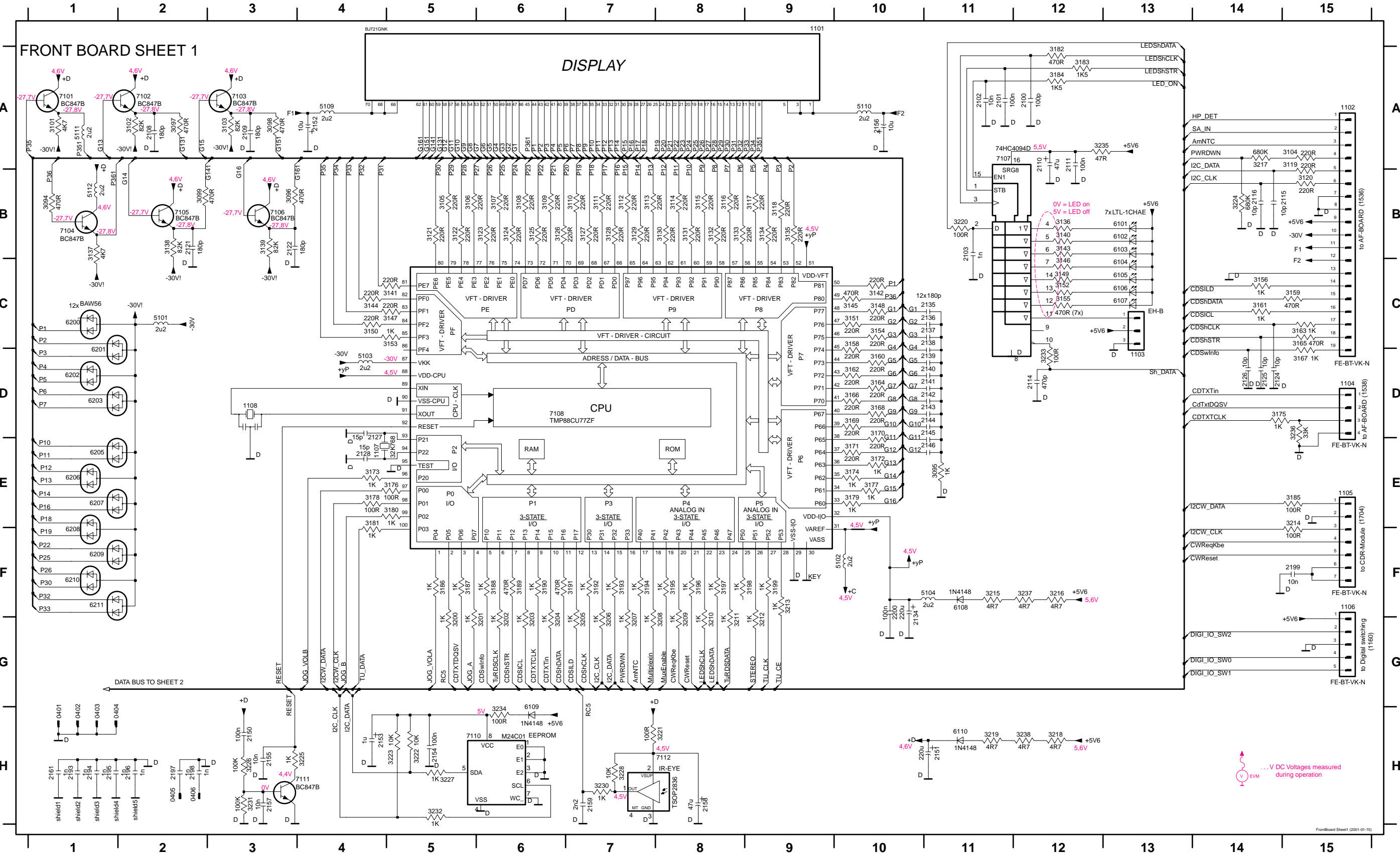
# Front Board Copperside view



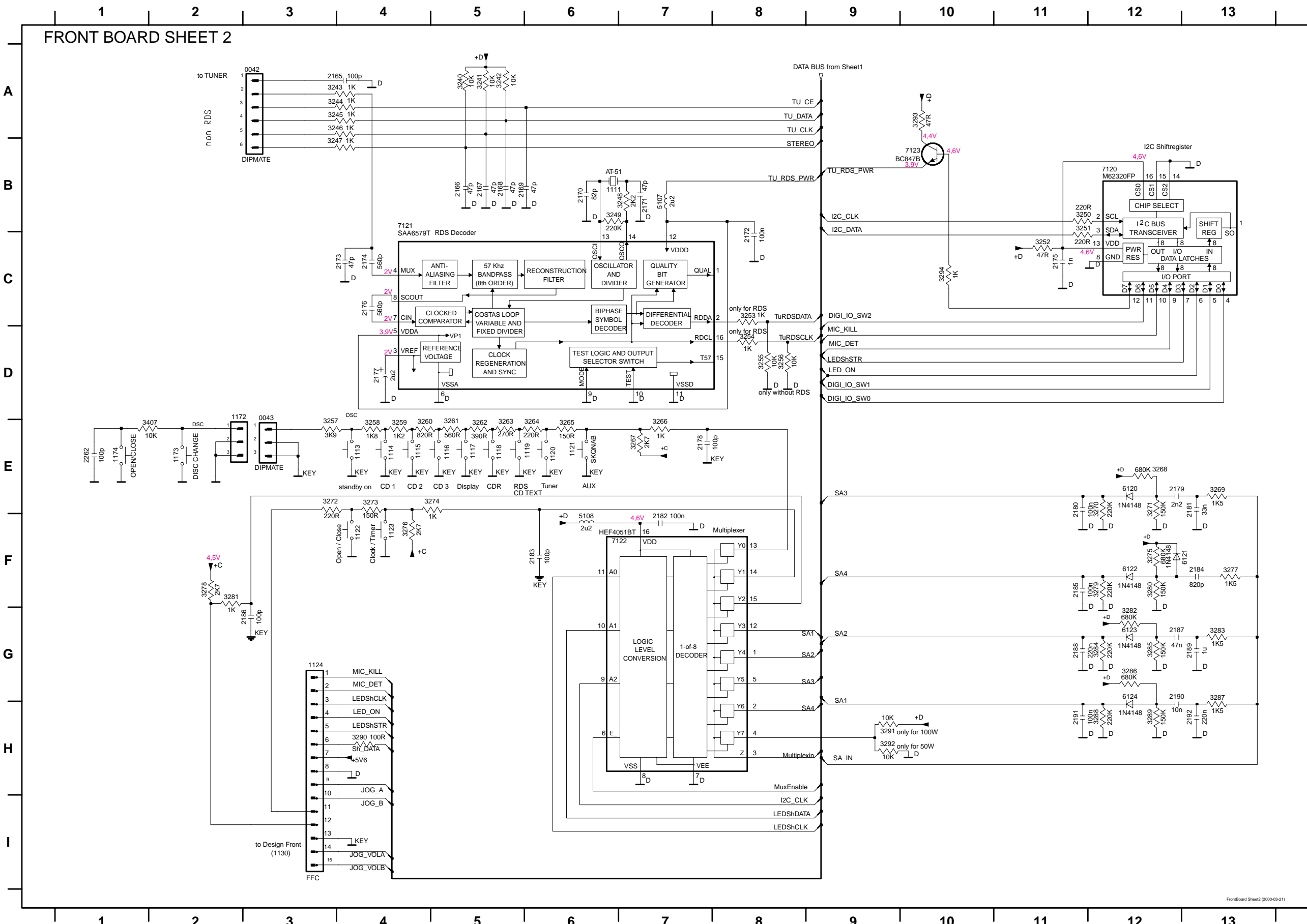
3282 A2	3283 A2	3284 A2	3285 A2	3286 A1	3287 A1	3288 A1	3289 A1	3290 D1	3291 A1	3292 A1	3293 C5	3294 C5	4001 A7	4002 A5	4004 A5	4005 A5	4006 A5	4007 A5	4008 A5	4009 A5	4012 A2	4013 A2	4014 A2	4015 A1	4016 A2	4017 B5	4018 C5	4019 C5	4021 C4	4022 C4	4024 B3	4025 C4	4026 C3	4027 C3	4028 C3	4029 C3	4030 C3	4031 C2	4032 C2	4033 C1	4034 C1	4035 C1	4036 C3	4037 D1	4038 C1	4039 C1	4040 D1	4041 D1	4042 D1	4043 D1	4044 B1	4045 B1	4046 B1	4047 B1	4048 B1	4049 B1	4050 B1	4051 B6	4052 C4	4053 C3	4054 B1	4055 B1	4056 A1	4057 B5	4058 A1	4059 A1	4060 A1	4061 A1	6200 A4	6201 A4	6202 A4	6203 A4	6205 A4	6206 A4	6207 A4	6208 A4	6209 A3	6210 A3	6211 A3	7101 A3	7102 A5	7103 A5	7104 A4	7105 A5	7106 A5	7107 B6	7108 A3	7110 C1	7111 A2	7120 C1	7121 C6	7122 A1	7123 C5
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This assembly drawing shows a summary of all possible versions.  
 For components used in a specific version see schematic diagram respectively partslist.

0401 G1	1105 E15	2110 A12	2127 E4	2142 D11	2155 H3	2197 H2	3101 A1	3111 B7	3121 B5	3131 B8	3141 C5	3151 C10	3162 D10	3172 E10	3182 A12	3192 F7	3202 G6	3212 G9	3222 H5	3233 D12	5109 A4	6107 C13	6207 E1	7106 B3
0402 G1	1106 F15	2111 A12	2128 E4	2143 D11	2156 A10	2198 H2	3102 A2	3112 B7	3122 B5	3132 B8	3142 C10	3152 C12	3163 C15	3173 E4	3183 A12	3193 F7	3203 G6	3213 F9	3223 H5	3234 H6	5110 A10	6108 F11	6208 E1	7107 A11
0403 G1	1107 E4	2114 D12	2134 G10	2144 D11	2157 H3	2199 F15	3103 A3	3113 B7	3123 B6	3133 B8	3143 B12	3153 C5	3164 D10	3174 E10	3184 A12	3194 F7	3204 G6	3214 E15	3224 B14	3235 A12	5111 A1	6109 H6	6209 F1	7108 D6
0404 G2	1108 D3	2115 B14	2135 C11	2145 D11	2158 H8	2200 F10	3104 A15	3114 B8	3124 B6	3134 B9	3144 C4	3154 C10	3165 C15	3175 D14	3185 E15	3195 F8	3205 G7	3215 F11	3225 H4	3236 D15	5112 B1	6110 H11	6210 F1	7110 H6
0405 H2	2100 A12	2116 B14	2136 C11	2146 E11	2159 H7	3094 B1	3105 B5	3115 B8	3125 B6	3135 B9	3145 C10	3155 C12	3166 D10	3176 E5	3186 F5	3196 F8	3206 G7	3216 F12	3226 H3	3237 F12	5101 B13	6200 C1	6211 F1	7111 H3
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1101 A9	2102 A11	2122 B3	2138 C11	2151 H11	2163 H1	3096 B3	3107 B6	3117 B9	3127 B7	3137 B1	3147 C5	3158 C10	3168 D10	3178 E4	3188 F6	3198 F9	3208 G8	3218 H12	3228 H7	5101 C2	6103 B13	6202 D1	7102 A2	
1102 A15	2103 B11	2124 D14	2139 D11	2152 A4	2194 H1	3097 A2	3108 B6	3118 B9	3128 B7	3138 B2	3148 C10	3159 C15	3169 D10	3179 E10	3189 F6	3199 F9	3209 G8	3219 H11	3230 H7	5102 F10	6104 C13	6203 D1	7103 A3	
1103 D13	2108 A2	2125 D14	2140 D11	2153 H4	2195 H1	3098 A3	3109 B6	3119 A15	3129 B7	3139 B3	3149 C12	3160 D10	3170 D10	3180 E5	3190 F6	3200 G5	3210 G8	3220 B11	3231 H3	5103 D4	6105 C13	6205 E1	7104 B1	
1104 D15	2109 A3	2126 D14	2141 D11	2154 H5	2196 H2	3099 B2	3110 B7	3120 B15	3130 B8	3140 B12	3150 C4	3161 C14	3171 E10	3181 E4	3191 F7	3201 G6	3211 G8	3221 H8	3232 H5	5104 F11	6106 C13	6206 E1	7105 B2	



FRONT BOARD SHEET 2

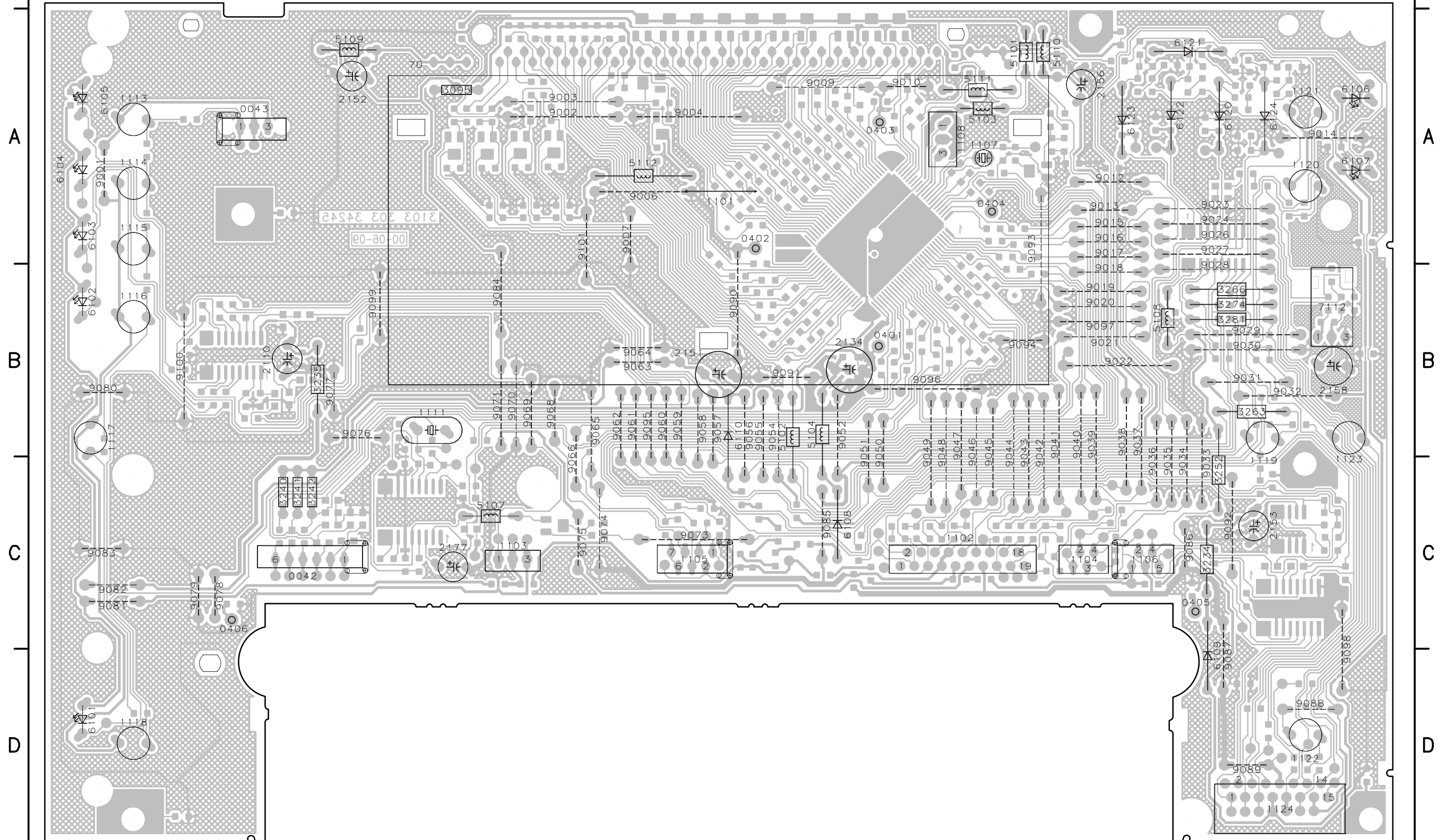


- 0042 A3
- 0043 E3
- 1111 B6
- 1113 E4
- 1114 E4
- 1115 E4
- 1116 E5
- 1117 E5
- 1119 E6
- 1120 E6
- 1121 E6
- 1122 F4
- 1123 F4
- 1124 G3
- 2165 A3
- 2166 B5
- 2167 B5
- 2168 B5
- 2169 B5
- 2170 B6
- 2171 B7
- 2172 C8
- 2173 C4
- 2174 C4
- 2175 C11
- 2176 C4
- 2177 D4
- 2178 E7
- 2179 E12
- 2180 E11
- 2181 E13
- 2182 F7
- 2183 F6
- 2184 F13
- 2185 F11
- 2186 G3
- 2187 G12
- 2188 G11
- 2189 G13
- 2190 G12
- 2191 H11
- 2192 H13
- 3240 A5
- 3241 A5
- 3242 A5
- 3243 A3
- 3244 A3
- 3245 A3
- 3246 A3
- 3247 B3
- 3248 B7
- 3249 B6
- 3250 B11
- 3251 B11
- 3252 C11
- 3253 C8
- 3254 D8
- 3255 D8
- 3256 D8
- 3257 D3
- 3258 E4
- 3259 E4
- 3260 D4
- 3261 D5
- 3262 E5
- 3263 D5
- 3264 D6
- 3265 E6
- 3266 E7
- 3267 E7
- 3268 E12
- 3269 E13
- 3270 E12
- 3271 E12
- 3272 E3
- 3273 E4
- 3274 E5
- 3275 F12
- 3276 F4
- 3277 F13
- 3278 F2
- 3279 F12
- 3280 F12
- 3281 F2
- 3282 G12
- 3283 G13
- 3284 G12
- 3285 G12
- 3286 G12
- 3287 G13
- 3288 H12
- 3289 H12
- 3290 H4
- 3291 H9
- 3292 H9
- 3293 A10
- 3294 C10
- 5107 B7
- 5108 F6
- 6120 E12
- 6121 F13
- 6122 F12
- 6123 G12
- 6124 G12
- 7120 B12
- 7121 B4
- 7122 F6
- 7123 B10
- F424 G10
- F425 G10
- F426 F10



0042 C2	0406 C1	1107 A5	1117 B1	1124 D7	2158 B7	3242 C2	5102 B4	5111 A5	6106 A7	6122 A6	9004 A4	9014 A7	9021 B6	9029 B7	9036 C6	9043 B6	9050 B5	9058 B4	9065 B3	9074 C3	9081 C1	9088 D7	9095 B4
0043 A2	1101 A4	1108 A5	1118 D1	2110 B2	2177 C3	3252 C7	5103 A5	5112 A4	6107 A7	6123 A6	9006 A4	9015 A6	9022 B6	9030 B7	9037 B6	9044 B6	9051 B5	9059 B4	9066 C3	9075 C3	9082 C1	9089 D7	9096 B5
0401 B5	1102 C5	1111 B3	1119 C7	2134 B5	3095 A3	3263 B7	5104 B4	6101 D1	6108 C5	6124 A7	9007 A4	9016 A6	9023 A7	9031 B7	9038 B6	9045 B5	9052 B5	9060 B4	9068 B3	9076 B2	9083 C1	9090 B4	9097 B6
0402 A4	1103 C3	1113 A1	1120 A7	2151 B4	3234 C7	3266 B7	5107 C3	6102 B1	6109 D7	7112 B7	9009 A5	9017 A6	9024 A7	9032 B7	9039 B6	9046 B5	9054 B4	9061 B4	9069 B3	9077 B2	9084 B3	9091 B4	9098 D7
0403 A5	1104 C6	1114 A1	1121 A7	2152 A2	3235 B2	3274 B7	5108 B6	6103 A1	6110 B4	9001 A1	9010 A5	9018 B6	9026 A7	9033 C7	9040 B6	9047 B5	9055 B4	9062 B3	9070 B3	9078 C1	9085 C5	9092 C7	9099 B2
0404 A5	1105 C4	1115 A1	1122 D7	2153 C7	3240 C2	3281 B7	5109 A2	6104 A1	6120 A7	9002 A3	9012 A6	9019 B6	9027 A7	9034 C6	9041 B6	9048 B5	9056 B4	9063 B4	9071 B3	9079 C1	9086 C6	9093 A6	9100 B1
0405 C6	1106 C6	1116 B1	1123 C7	2156 A6	3241 C2	5101 A6	5110 A6	6105 A1	6121 A6	9003 A3	9013 A6	9020 B6	9028 B7	9035 C6	9042 B6	9049 B5	9057 B4	9064 B4	9073 C4	9080 B1	9087 D7	9094 B6	9101 A3

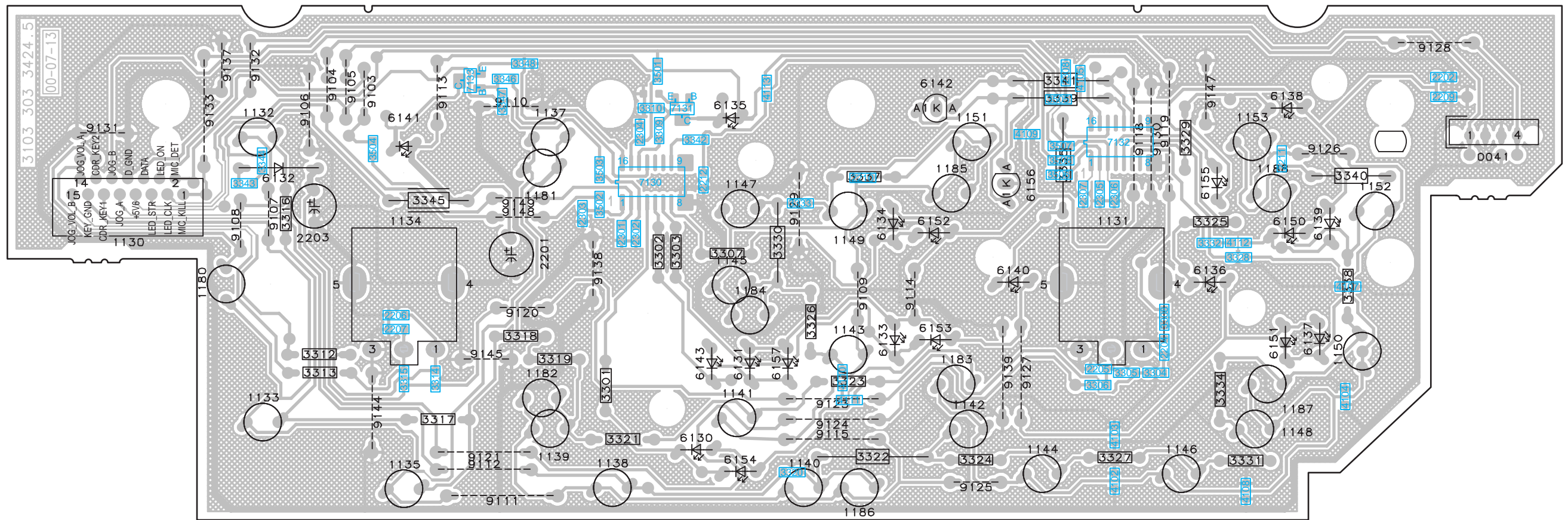
### Front Board Componentside view



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

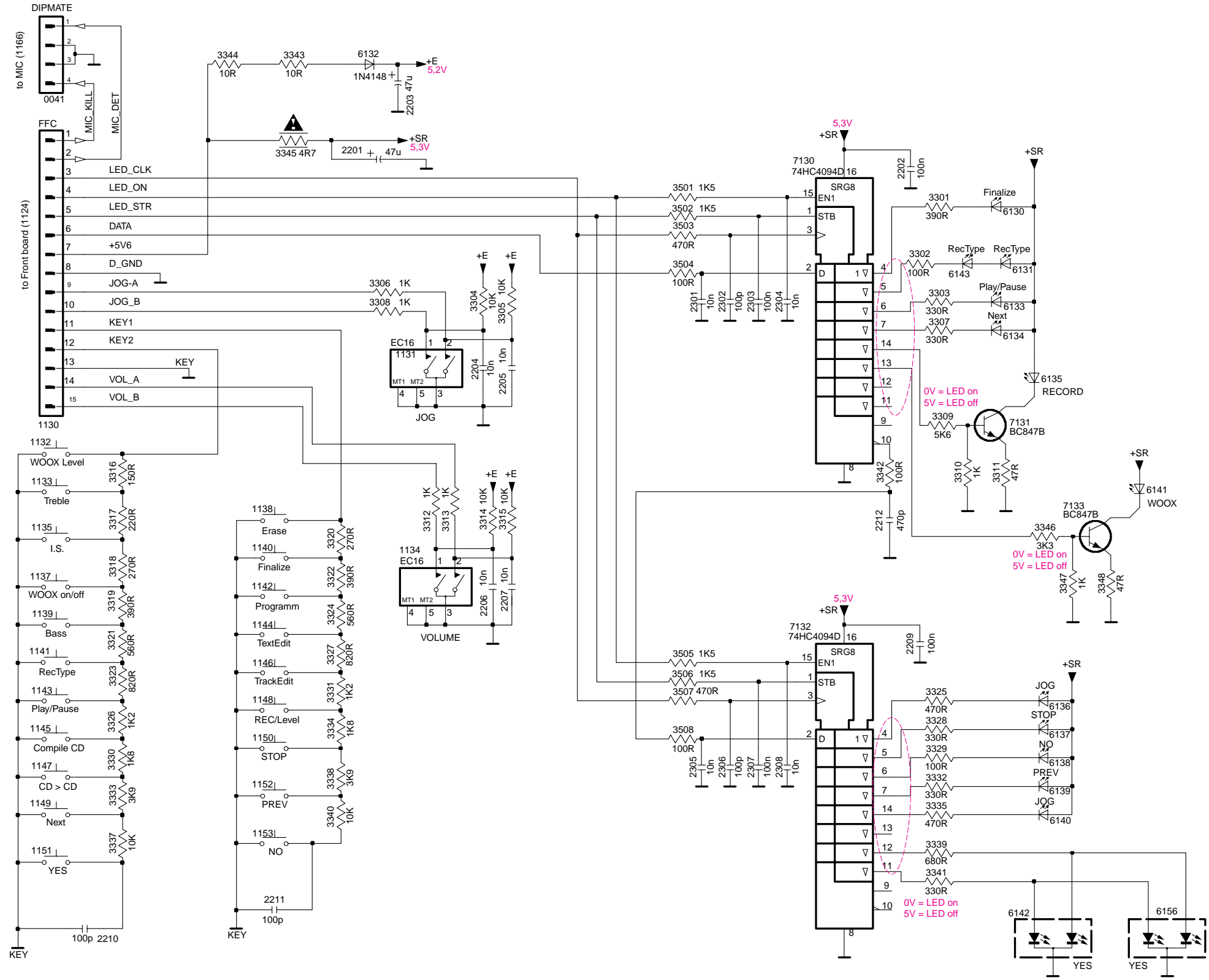
0041 A10	1138 C5	1146 C8	1180 B2	1188 A9	2209 A10	2305 A8	3305 C8	3313 C3	3321 C5	3329 A8	3338 B9	3346 A4	3506 A7	4108 C9	6132 A2	6140 B7	6154 C5	9103 A3	9111 C4	9121 C4	9130 A8	9145 B4
1130 B1	1139 C4	1147 A5	1181 A4	2201 B4	2210 A6	2306 A8	3306 C8	3314 C3	3322 C6	3330 B6	3339 A7	3347 A4	3507 A7	4109 A7	6133 B6	6141 A3	6155 A8	9104 A3	9112 C4	9123 C6	9131 A1	9147 A8
1131 B8	1140 C6	1148 C9	1182 C4	2202 A10	2211 A9	2307 A7	3307 B5	3315 C3	3323 C6	3331 C9	3340 A9	3348 A4	3508 A7	4110 C6	6134 B6	6142 A7	6156 A7	9105 A3	9113 A3	9124 C6	9132 A2	9148 B4
1132 A2	1141 C5	1149 B6	1183 B7	2203 B3	2212 A5	2308 A7	3308 B8	3316 B2	3324 C7	3332 B8	3341 A7	3501 A5	4102 C8	4111 C6	6135 A5	6143 C5	6157 C6	9106 A3	9114 B6	9125 C7	9133 A2	9149 B4
1133 C2	1142 C7	1150 B9	1184 B5	2204 B8	2301 B5	3301 C4	3309 A5	3317 C3	3325 B8	3333 A6	3342 A5	3502 B4	4103 C8	4112 B8	6136 B8	6150 B9	7130 A5	9107 B2	9115 C6	9126 A9	9137 A2	
1134 B3	1143 B6	1151 A7	1185 A7	2205 C8	2302 B5	3302 B5	3310 A5	3318 B4	3326 B6	3334 C8	3343 A2	3503 A4	4104 C9	4113 A5	6137 B9	6151 B9	7131 A5	9108 B2	9118 A8	9127 C7	9138 B4	
1135 C3	1144 C7	1152 A9	1186 C6	2206 B3	2303 B4	3303 B5	3311 A5	3319 B4	3327 C8	3335 A7	3344 A2	3504 A3	4105 A7	4114 C5	6138 A9	6152 B7	7132 A8	9109 B6	9119 A8	9128 A10	9139 C7	
1137 A4	1145 B5	1153 A9	1187 B9	2207 B3	2304 A5	3304 C8	3312 B3	3320 C6	3328 B8	3337 A6	3345 A3	3505 A7	4107 B9	4115 C5	6139 B9	6153 B7	7133 A4	9110 A4	9120 B4	9129 B6	9144 C3	

### Design Front Copperside view



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

# Design Front



0041 B4	6132 B8
1130 G4	6133 E16
1131 F8	6134 F16
1132 G4	6135 F17
1133 H4	6136 J17
1134 H8	6137 K17
1135 H4	6138 K17
1137 I4	6139 L17
1138 H7	6140 L17
1139 I4	6142 M16
1140 H7	6143 E16
1141 J4	6150 L18
1142 I7	6151 K18
1143 J4	6152 F17
1144 I7	6153 E17
1145 K4	6154 D17
1146 J7	6155 K18
1147 K4	6156 M18
1148 J7	6157 E17
1149 L4	7130 C13
1150 K7	7131 F16
1151 L4	7132 I13
1152 L6	F400 C4
1153 L7	F401 D4
1180 G3	F402 D4
1181 I3	F403 D4
1182 J3	F404 D4
1183 K3	F405 E4
1184 K3	F406 E4
1185 L3	F407 E4
1186 I6	F408 E4
1187 K6	F409 F4
1188 L6	F410 F4
2201 C8	F411 C4
2202 C15	F412 F4
2203 C8	F413 C4
2204 F9	F414 A4
2205 F10	F415 B4
2206 I9	F416 B4
2207 I10	F417 C4
2209 J15	F418 L15
2210 M4	F419 L16
2211 M7	F420 M15
2212 H15	F421 M16
2301 E12	F550 D16
2302 E13	F551 D15
2303 E13	F552 E16
2304 E13	F553 E16
2305 K12	F554 G16
2306 K13	F555 J16
2307 K13	F556 K16
2308 K13	F557 K16
3301 D15	F558 K16
3302 E15	F559 L16
3303 E15	
3304 E9	
3305 E10	
3306 E8	
3307 E15	
3308 E8	
3309 G15	
3310 G16	
3311 G16	
3312 H9	
3313 H9	
3314 H9	
3315 H10	
3316 G5	
3317 H5	
3318 I5	
3319 I4	
3320 H7	
3321 J4	
3322 I7	
3323 J5	
3324 I7	
3325 J15	
3326 K4	
3327 J7	
3328 K15	
3329 K15	
3330 K4	
3331 J7	
3332 K15	
3333 L5	
3334 K7	
3335 L15	
3337 L5	
3338 K7	
3339 L15	
3340 L7	
3341 M15	
3342 G15	
3343 B7	
3344 B6	
3345 C7	
3501 D12	
3502 D12	
3503 D12	
3504 E12	
3505 J12	
3506 J12	
3507 J12	
3508 K12	
6130 D16	
6131 E16	

**ELECTRICAL PARTSLIST FRONT BOARD**

## MISCELLANEOUS

1101	3103 308 52930	DISPLAY, BJ721GNK
<b>Note for replacing display:</b>		
In order to obtain the correct display color, filter foil pos. 213 has to be removed from the old display and mounted onto the new one.		
The filter foil is also available separately with 3103 304 68990.		
1102	4822 265 11553	FLEX FOIL CONNECTOR 19P
1104	4822 267 10733	FFC SOCKET, 4P
1105	4822 267 10953	FLEX FOIL CONNECTOR 7P
1106	4822 267 10954	FFC SOCKET, 5P
1113	4822 276 13775	TACT SWITCH
1114	4822 276 13775	TACT SWITCH
1115	4822 276 13775	TACT SWITCH
1116	4822 276 13775	TACT SWITCH
1117	4822 276 13775	TACT SWITCH
1118	4822 276 13775	TACT SWITCH
1119	4822 276 13775	TACT SWITCH
1120	4822 276 13775	TACT SWITCH
1121	4822 276 13775	TACT SWITCH
1122	4822 276 13775	TACT SWITCH
1123	4822 276 13775	TACT SWITCH
1124	4822 265 10979	FLEX FOIL CONNECTOR 15P
1130	4822 265 10979	FLEX FOIL CONNECTOR 15P
1131	2422 129 16376	ROTARY ENCODER JOG
1132	4822 276 13775	TACT SWITCH
1133	4822 276 13775	TACT SWITCH
1134	2422 129 16348	ROTARY ENCODER VOLUME
1135	4822 276 13775	TACT SWITCH
1137	4822 276 13775	TACT SWITCH
1138	4822 276 13775	TACT SWITCH
1139	4822 276 13775	TACT SWITCH
1140	4822 276 13775	TACT SWITCH
1141	4822 276 13775	TACT SWITCH
1142	4822 276 13775	TACT SWITCH
1143	4822 276 13775	TACT SWITCH
1144	4822 276 13775	TACT SWITCH
1145	4822 276 13775	TACT SWITCH
1146	4822 276 13775	TACT SWITCH
1147	4822 276 13775	TACT SWITCH
1148	4822 276 13775	TACT SWITCH
1149	4822 276 13775	TACT SWITCH
1150	4822 276 13775	TACT SWITCH
1151	4822 276 13775	TACT SWITCH
1152	4822 276 13775	TACT SWITCH
1153	4822 276 13775	TACT SWITCH
1160	4822 267 10958	FFC-CONNECTOR, 5P, SIDE ENTRY
1161	4822 267 31729	CINCH CONNECTOR, 1 POLE
1165	4822 267 40898	MICROPHONE SOCKET
1173	4822 276 13775	TACT SWITCH
1174	4822 276 13775	TACT SWITCH

## CAPACITORS

2100©	5322 122 32531	100pF	5%	50V
2101©	4822 126 14585	100nF	10%	50V
2102©	4822 122 33177	10nF	20%	50V
2103©	5322 122 31647	1nF	10%	63V
2108©	4822 126 10326	180pF	5%	
2109©	4822 126 10326	180pF	5%	
2110	4822 124 40433	47µF	20%	25V
2111©	4822 126 14585	100nF	10%	50V
2114©	5322 122 34099	470pF	10%	63V
2115©	5322 122 32448	10pF	5%	50V
2116©	5322 122 32448	10pF	5%	50V
2121©	4822 126 10326	180pF	5%	
2122©	4822 126 10326	180pF	5%	

## CAPACITORS

2124©	5322 122 32448	10pF	5%	50V
2125©	5322 122 32448	10pF	5%	50V
2126©	5322 122 32448	10pF	5%	50V
2127©	4822 126 13486	15pF	2%	63V
2128©	4822 126 13486	15pF	2%	63V
2134	4822 124 12245	220µF	20%	16V
2135©	4822 126 10326	180pF	5%	
2136©	4822 126 10326	180pF	5%	
2137©	4822 126 10326	180pF	5%	
2138©	4822 126 10326	180pF	5%	
2139©	4822 126 10326	180pF	5%	
2140©	4822 126 10326	180pF	5%	
2141©	4822 126 10326	180pF	5%	
2142©	4822 126 10326	180pF	5%	
2143©	4822 126 10326	180pF	5%	
2144©	4822 126 10326	180pF	5%	
2145©	4822 126 10326	180pF	5%	
2146©	4822 126 10326	180pF	5%	
2150©	4822 126 14585	100nF	10%	50V
2151	4822 124 12245	220µF	20%	16V
2152	4822 124 22833	10µF	20%	50V
2153	4822 124 21913	1µF	20%	63V
2154©	4822 126 13838	100nF	10%	50V
2155©	4822 122 33177	10nF	20%	50V
2156	4822 124 22833	10µF	20%	50V
2157©	4822 122 33177	10nF	20%	50V
2158	4822 124 81286	47µF	20%	16V
2159©	4822 122 33127	2,2nF	10%	63V
2161©	5322 122 31647	1nF	10%	63V
2165©	5322 122 32531	100pF	5%	50V
2166©	4822 126 13692	47pF	1%	63V
2167©	4822 126 13692	47pF	1%	63V
2168©	4822 126 13692	47pF	1%	63V
2169©	4822 126 13692	47pF	1%	63V
2170©	4822 126 13695	82pF	1%	63V
2171©	4822 126 13692	47pF	1%	63V
2172©	4822 126 14585	100nF	10%	50V
2173©	4822 126 13692	47pF	1%	63V
2174©	5322 116 80853	560pF	5%	63V
2175©	5322 122 31647	1nF	10%	63V
2176©	4822 122 33173	560pF	10%	63V
2177	4822 124 22652	2,2µF	20%	50V
2178©	5322 122 32531	100pF	5%	50V
2179©	4822 122 33127	2,2nF	10%	63V
2180©	4822 126 14585	100nF	10%	50V
2181©	4822 126 12105	33nF	5%	63V
2182©	4822 126 14585	100nF	10%	50V
2183©	5322 122 32531	100pF	5%	50V
2184©	5322 126 10184	820pF	5%	50V
2185©	4822 126 14585	100nF	10%	50V
2186©	5322 122 32531	100pF	5%	50V
2187©	4822 126 13751	47nF	10%	50V
2188©	4822 126 14076	220nF	20%	25V
2189©	4822 126 14043	1µF	20%	16V
2190©	4822 122 33177	10nF	20%	50V
2191©	4822 126 14585	100nF	10%	50V
2192©	4822 126 14076	220nF	20%	25V
2193©	5322 122 31647	1nF	10%	63V
2194©	5322 122 31647	1nF	10%	63V
2195©	5322 122 31647	1nF	10%	63V
2196©	5322 122 31647	1nF	10%	63V
2197©	5322 122 31647	1nF	10%	63V
2198©	5322 122 31647	1nF	10%	63V
2199©	4822 122 33177	10nF	20%	50V

**ELECTRICAL PARTSLIST FRONT BOARD****CAPACITORS**

2200	4822	126	14585	100nF	10%	50V
2201	4822	124	81286	47µF	20%	16V
2202	4822	126	14585	100nF	10%	50V
2203	4822	124	81286	47µF	20%	16V
2204	4822	122	33177	10nF	20%	50V

2205	4822	122	33177	10nF	20%	50V
2206	4822	122	33177	10nF	20%	50V
2207	4822	122	33177	10nF	20%	50V
2209	4822	126	14585	100nF	10%	50V
2210	5322	122	32531	100pF	5%	50V

2211	5322	122	32531	100pF	5%	50V
2212	5322	122	34099	470pF	10%	63V
2220	4822	126	14585	100nF	10%	50V
2227	4822	126	14043	1µF	20%	16V
2228	4822	126	14585	100nF	10%	50V

2230	4822	126	14585	100nF	10%	50V
2234	4822	126	14585	100nF	10%	50V
2240	4822	122	33177	10nF	20%	50V
2241	4822	124	80791	470µF	20%	16V
2242	4822	122	33177	10nF	20%	50V

2243	4822	124	40248	10µF	20%	63V
2244	4822	124	40248	10µF	20%	63V
2245	4822	126	13482	470nF	20%	16V
2246	4822	126	13482	470nF	20%	16V
2247	5322	122	31647	1nF	10%	63V

2248	4822	126	14585	100nF	10%	50V
2249	5322	122	31647	1nF	10%	63V
2250	5322	126	10223	4,7nF	10%	63V
2251	5322	122	31647	1nF	10%	63V
2252	4822	126	14585	100nF	10%	50V

2253	5322	122	31647	1nF	10%	63V
2254	4822	126	14585	100nF	10%	50V
2255	4822	124	40248	10µF	20%	63V
2256	4822	124	21913	1µF	20%	63V
2257	5322	122	31647	1nF	10%	63V

2258	4822	124	41584	100µF	20%	10V
2260	4822	126	14585	100nF	10%	50V
2262	5322	122	32531	100pF	5%	50V
2301	4822	122	33177	10nF	20%	50V
2302	5322	122	32531	100pF	5%	50V

2303	4822	126	14585	100nF	10%	50V
2304	4822	122	33177	10nF	20%	50V
2305	4822	122	33177	10nF	20%	50V
2306	5322	122	32531	100pF	5%	50V
2307	4822	126	14585	100nF	10%	50V

2308	4822	122	33177	10nF	20%	50V
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**RESISTORS**

3094	4822	051	20471	470Ω	5%	0,1W
3095	4822	050	11002	1kΩ	5%	0,2W
3096	4822	051	20471	470Ω	5%	0,1W
3097	4822	051	20471	470Ω	5%	0,1W
3098	4822	051	20471	470Ω	5%	0,1W

3099	4822	051	20471	470Ω	5%	0,1W
3101	4822	051	20472	4,7kΩ	5%	0,1W
3102	4822	117	11149	82kΩ	1%	0,1W
3103	4822	117	11149	82kΩ	1%	0,1W
3104	4822	117	11503	220Ω	5%	0,1W

3105	4822	117	11503	220Ω	5%	0,1W
3106	4822	117	11503	220Ω	5%	0,1W
3107	4822	117	11503	220Ω	5%	0,1W
3108	4822	117	11503	220Ω	5%	0,1W
3109	4822	117	11503	220Ω	5%	0,1W

**RESISTORS**

3110	4822	117	11503	220Ω	5%	0,1W
3111	4822	117	11503	220Ω	5%	0,1W
3112	4822	117	11503	220Ω	5%	0,1W
3113	4822	117	11503	220Ω	5%	0,1W
3114	4822	117	11503	220Ω	5%	0,1W

3115	4822	117	11503	220Ω	5%	0,1W
3116	4822	117	11503	220Ω	5%	0,1W
3117	4822	117	11503	220Ω	5%	0,1W
3118	4822	117	11503	220Ω	5%	0,1W
3119	4822	117	11503	220Ω	5%	0,1W

3120	4822	117	11503	220Ω	5%	0,1W
3121	4822	117	11503	220Ω	5%	0,1W
3122	4822	117	11503	220Ω	5%	0,1W
3123	4822	117	11503	220Ω	5%	0,1W
3124	4822	117	11503	220Ω	5%	0,1W

3125	4822	117	11503	220Ω	5%	0,1W
3126	4822	117	11503	220Ω	5%	0,1W
3127	4822	117	11503	220Ω	5%	0,1W
3128	4822	117	11503	220Ω	5%	0,1W
3129	4822	117	11503	220Ω	5%	0,1W

3130	4822	117	11503	220Ω	5%	0,1W
3131	4822	117	11503	220Ω	5%	0,1W
3132	4822	117	11503	220Ω	5%	0,1W
3133	4822	117	11503	220Ω	5%	0,1W
3134	4822	117	11503	220Ω	5%	0,1W

3135	4822	117	11503	220Ω	5%	0,1W
3136	4822	051	20471	470Ω	5%	0,1W
3137	4822	051	20472	4,7kΩ	5%	0,1W
3138	4822	117	11149	82kΩ	1%	0,1W
3139	4822	117	11149	82kΩ	1%	0,1W

3140	4822	051	20471	470Ω	5%	0,1W
3141	4822	117	11503	220Ω	5%	0,1W
3142	4822	117	11503	220Ω	5%	0,1W
3143	4822	051	20471	470Ω	5%	0,1W
3144	4822	117	11503	220Ω	5%	0,1W

3145	4822	051	20471	470Ω	5%	0,1W
3146	4822	051	20471	470Ω	5%	0,1W
3147	4822	117	11503	220Ω	5%	0,1W
3148	4822	117	11503	220Ω	5%	0,1W
3149	4822	051	20471	470Ω	5%	0,1W

3150	4822	117	11503	220Ω	5%	0,1W
3151	4822	117	11503	220Ω	5%	0,1W
3152	4822	051	20471	470Ω	5%	0,1W
3153	4822	051	10102	1kΩ	2%	0,25W
3154	4822	117	11503	220Ω	5%	0,1W

3155	4822	051	20471	470Ω	5%	0,1W
3156	4822	051	10102	1kΩ	2%	0,25W
3158	4822	117	11503	220Ω	5%	0,1W
3159	4822	051	20471	470Ω	5%	0,1W
3160	4822	117	11503	220Ω	5%	0,1W

3161	4822	051	10102	1kΩ	2%	0,25W
3162	4822	117	11503	220Ω	5%	0,1W
3163	4822	051	10102	1kΩ	2%	0,25W
3164	4822	117	11503	220Ω	5%	0,1W
3165	4822	051	20471	470Ω	5%	0,1W

3166	4822	117	11503	220Ω	5%	0,1W
3167	4822	051	10102	1kΩ	2%	0,25W
3168	4822	117	11503	220Ω	5%	0,1W
3169	4822	117	11503	220Ω	5%	0,1W
3170	4822	117	11503	220Ω	5%	0,1W

3171	4822	117	11503	220Ω	5%	0,1W
3172	4822	051	10102	1kΩ	2%	0,25W
3173	4822	051	10102	1kΩ	2%	0,25W
3174	4822	051	10102	1kΩ	2%	0,25W

**ELECTRICAL PARTSLIST FRONT BOARD**

## RESISTORS

3175©	4822 051 10102	1kΩ	2%	0,25W
3176©	4822 051 20101	100Ω	5%	0,1W
3176©	4822 117 11373	100R	1%	0,1W
3177©	4822 051 10102	1kΩ	2%	0,25W
3178©	4822 051 20101	100Ω	5%	0,1W
3178©	4822 117 11373	100R	1%	0,1W
3179©	4822 051 10102	1kΩ	2%	0,25W
3180©	4822 051 10102	1kΩ	2%	0,25W
3181©	4822 051 10102	1kΩ	2%	0,25W
3182©	4822 051 20471	470Ω	5%	0,1W
3183©	4822 117 11139	1,5kΩ	1%	0,1W
3184©	4822 117 11139	1,5kΩ	1%	0,1W
3185©	4822 051 20101	100Ω	5%	0,1W
3185©	4822 117 11373	100R	1%	0,1W
3186©	4822 051 10102	1kΩ	2%	0,25W
3187©	4822 051 10102	1kΩ	2%	0,25W
3188©	4822 051 10102	1kΩ	2%	0,25W
3189©	4822 051 20471	470Ω	5%	0,1W
3190©	4822 051 10102	1kΩ	2%	0,25W
3191©	4822 051 20471	470Ω	5%	0,1W
3192©	4822 051 10102	1kΩ	2%	0,25W
3193©	4822 051 10102	1kΩ	2%	0,25W
3194©	4822 051 10102	1kΩ	2%	0,25W
3195©	4822 051 10102	1kΩ	2%	0,25W
3196©	4822 051 10102	1kΩ	2%	0,25W
3197©	4822 051 10102	1kΩ	2%	0,25W
3198©	4822 051 10102	1kΩ	2%	0,25W
3199©	4822 051 10102	1kΩ	2%	0,25W
3200©	4822 051 10102	1kΩ	2%	0,25W
3201©	4822 051 10102	1kΩ	2%	0,25W
3202©	4822 051 10102	1kΩ	2%	0,25W
3203©	4822 051 10102	1kΩ	2%	0,25W
3204©	4822 051 10102	1kΩ	2%	0,25W
3205©	4822 051 10102	1kΩ	2%	0,25W
3206©	4822 051 10102	1kΩ	2%	0,25W
3207©	4822 051 10102	1kΩ	2%	0,25W
3208©	4822 051 10102	1kΩ	2%	0,25W
3209©	4822 051 10102	1kΩ	2%	0,25W
3210©	4822 051 10102	1kΩ	2%	0,25W
3211©	4822 051 10102	1kΩ	2%	0,25W
3212©	4822 051 10102	1kΩ	2%	0,25W
3213©	4822 051 10102	1kΩ	2%	0,25W
3214©	4822 051 20101	100Ω	5%	0,1W
3214©	4822 117 11373	100R	1%	0,1W
3215©	4822 051 20478	4,7Ω	5%	0,1W
3216©	4822 051 20478	4,7Ω	5%	0,1W
3217©	4822 051 20684	680kΩ	5%	0,1W
3218©	4822 051 20478	4,7Ω	5%	0,1W
3219©	4822 051 20478	4,7Ω	5%	0,1W
3220©	4822 051 20101	100Ω	5%	0,1W
3220©	4822 117 11373	100R	1%	0,1W
3221©	4822 051 20101	100Ω	5%	0,1W
3221©	4822 117 11373	100R	1%	0,1W
3222©	4822 117 10833	10kΩ	1%	0,1W
3223©	4822 117 10833	10kΩ	1%	0,1W
3224©	4822 051 20684	680kΩ	5%	0,1W
3225©	4822 051 10102	1kΩ	2%	0,25W
3226©	4822 117 10837	100kΩ	1%	0,1W
3227©	4822 051 10102	1kΩ	2%	0,25W
3228©	4822 117 10833	10kΩ	1%	0,1W
3230©	4822 051 10102	1kΩ	2%	0,25W
3231©	4822 117 10837	100kΩ	1%	0,1W
3232©	4822 051 10102	1kΩ	2%	0,25W
3233©	4822 051 20101	100Ω	5%	0,1W

## RESISTORS

3233©	4822 117 11373	100R	1%	0,1W
3234	4822 116 52175	100Ω	5%	0,5W
3235	4822 116 52195	47Ω	5%	0,5W
3236©	4822 051 20333	33kΩ	5%	0,1W
3237©	4822 051 20478	4,7Ω	5%	0,1W
3238©	4822 051 20478	4,7Ω	5%	0,1W
3240	4822 050 21003	10kΩ	2%	0,25W
3241	4822 050 21003	10kΩ	2%	0,25W
3242	4822 050 21003	10kΩ	2%	0,25W
3243©	4822 051 10102	1kΩ	2%	0,25W
3244©	4822 051 10102	1kΩ	2%	0,25W
3245©	4822 051 10102	1kΩ	2%	0,25W
3246©	4822 051 10102	1kΩ	2%	0,25W
3247©	4822 051 10102	1kΩ	2%	0,25W
3248©	4822 117 11449	2,2kΩ	1%	0,1W
3249©	4822 117 13579	220kΩ	1%	0,1W
3250©	4822 117 11503	220Ω	5%	0,1W
3251©	4822 117 11503	220Ω	5%	0,1W
3252	4822 116 52195	47Ω	5%	0,5W
3253©	4822 051 10102	1kΩ	2%	0,25W
3254©	4822 051 10102	1kΩ	2%	0,25W
3255©	4822 117 10833	10kΩ	1%	0,1W
3256©	4822 117 10833	10kΩ	1%	0,1W
3257©	4822 051 20392	3,9kΩ	5%	0,1W
3258©	4822 051 20182	1,8kΩ	5%	0,1W
3259©	4822 051 20122	1,2kΩ	5%	0,1W
3260©	4822 117 11454	820Ω	1%	
3261©	4822 051 20561	560Ω	5%	0,1W
3262©	4822 051 20391	390Ω	5%	0,1W
3263	4822 116 83876	270Ω	5%	0,16W
3264©	4822 117 11503	220Ω	5%	0,1W
3265©	4822 117 10353	150Ω	5%	0,1W
3266	4822 050 11002	1kΩ	5%	0,2W
3267©	4822 117 12955	2,7kΩ	1%	0,1W
3268©	4822 051 20684	680kΩ	5%	0,1W
3269©	4822 117 11139	1,5kΩ	1%	0,1W
3270©	4822 117 13579	220kΩ	1%	0,1W
3271©	4822 051 20154	150kΩ	5%	0,1W
3272©	4822 117 11503	220Ω	5%	0,1W
3273©	4822 117 10353	150Ω	5%	0,1W
3274	4822 050 11002	1kΩ	5%	0,2W
3275©	4822 051 20684	680kΩ	5%	0,1W
3276©	4822 117 12955	2,7kΩ	1%	0,1W
3277©	4822 117 11139	1,5kΩ	1%	0,1W
3278©	4822 117 12955	2,7kΩ	1%	0,1W
3279©	4822 117 13579	220kΩ	1%	0,1W
3280©	4822 051 20154	150kΩ	5%	0,1W
3281	4822 050 11002	1kΩ	5%	0,2W
3282©	4822 051 20684	680kΩ	5%	0,1W
3283©	4822 117 11139	1,5kΩ	1%	0,1W
3284©	4822 117 13579	220kΩ	1%	0,1W
3285©	4822 051 20154	150kΩ	5%	0,1W
3286©	4822 051 20684	680kΩ	5%	0,1W
3287©	4822 117 11139	1,5kΩ	1%	0,1W
3288©	4822 117 13579	220kΩ	1%	0,1W
3289©	4822 051 20154	150kΩ	5%	0,1W
3290©	4822 051 20101	100Ω	5%	0,1W
3290©	4822 117 11373	100R	1%	0,1W
3291©	4822 117 10833	10kΩ	1%	0,1W
3292©	4822 117 10833	10kΩ	1%	0,1W
3293©	4822 051 20479	47Ω	5%	0,1W
3294©	4822 051 10102	1kΩ	2%	0,25W
3301	4822 116 83881	390Ω	5%	0,5W
3302	4822 116 52175	100Ω	5%	0,5W

**ELECTRICAL PARTSLIST FRONT BOARD****RESISTORS**

3303	4822 116 52219	330Ω	5%	0,5W
3304	4822 117 10833	10kΩ	1%	0,1W
3305	4822 117 10833	10kΩ	1%	0,1W
3306	4822 051 10102	1kΩ	2%	0,25W
3307	4822 116 52219	330Ω	5%	0,5W
3308	4822 051 10102	1kΩ	2%	0,25W
3309	4822 051 20562	5,6kΩ	5%	0,1W
3310	4822 051 10102	1kΩ	2%	0,25W
3311	4822 051 20479	47Ω	5%	0,1W
3312	4822 050 11002	1kΩ	5%	0,2W
3313	4822 050 11002	1kΩ	5%	0,2W
3314	4822 117 10833	10kΩ	1%	0,1W
3315	4822 117 10833	10kΩ	1%	0,1W
3316	4822 116 83868	150Ω	5%	0,5W
3317	4822 116 83872	220Ω	5%	0,5W
3318	4822 116 83876	270Ω	5%	0,16W
3319	4822 116 83881	390Ω	5%	0,5W
3320	4822 117 11504	270Ω	1%	0,1W
3321	4822 116 52226	560Ω	5%	0,5W
3322	4822 116 83881	390Ω	5%	0,5W
3323	4822 116 52231	820Ω	5%	0,5W
3324	4822 116 52226	560Ω	5%	0,5W
3325	4822 116 83883	470Ω	5%	0,16W
3326	4822 116 52207	1,2kΩ	5%	0,5W
3327	4822 116 52231	820Ω	5%	0,5W
3328	4822 117 13577	330Ω	1%	0,1W
3329	4822 116 52175	100Ω	5%	0,5W
3330	4822 116 52249	1,8kΩ	5%	0,16W
3331	4822 116 52207	1,2kΩ	5%	0,5W
3332	4822 117 13577	330Ω	1%	0,1W
3333	4822 051 20392	3,9kΩ	5%	0,1W
3334	4822 116 52249	1,8kΩ	5%	0,16W
3335	4822 116 83883	470Ω	5%	0,16W
3337	4822 050 21003	10kΩ	2%	0,25W
3338	4822 117 13577	330Ω	1%	0,1W
3339	4822 116 52228	680Ω	5%	0,5W
3340	4822 050 21003	10kΩ	2%	0,25W
3341	4822 116 52219	330Ω	5%	0,5W
3342	4822 051 20101	100Ω	5%	0,1W
3342	4822 117 11373	100R	1%	0,1W
3343	4822 051 20109	10Ω	5%	0,1W
3344	4822 051 20109	10Ω	5%	0,1W
3345	4822 052 10478	4,7Ω	5%	NFR
3346	4822 051 20332	3,3kΩ	5%	0,1W
3347	4822 051 20202	2K	5%	0,1W
3348	4822 051 20479	47Ω	5%	0,1W
3350	4822 116 83883	470Ω	5%	0,16W
3351	4822 117 10833	10kΩ	1%	0,1W
3358	4822 117 10833	10kΩ	1%	0,1W
3359	4822 117 11503	220Ω	5%	0,1W
3364	4822 051 20101	100Ω	5%	0,1W
3364	4822 117 11373	100R	1%	0,1W
3366	4822 117 10837	100kΩ	1%	0,1W
3367	4822 051 20829	82Ω	5%	0,1W
3370	4822 117 11507	6,8kΩ	1%	0,1W
3371	4822 051 20472	4,7kΩ	5%	0,1W
3372	4822 117 11449	2,2kΩ	1%	0,1W
3373	4822 051 20223	22kΩ	5%	0,1W
3374	4822 117 12955	2,7kΩ	1%	0,1W
3375	4822 051 10102	1kΩ	2%	0,25W
3376	4822 117 11449	2,2kΩ	1%	0,1W
3377	4822 051 20105	1MΩ	5%	0,1W
3378	4822 051 20105	1MΩ	5%	0,1W
3379	4822 117 12955	2,7kΩ	1%	0,1W

**RESISTORS**

3380	4822 117 10833	10kΩ	1%	0,1W
3381	4822 051 20229	22Ω	5%	0,1W
3382	4822 117 11448	180Ω	10%	0,1W
3383	4822 101 21204	POTMETER,	20kΩ	
3384	4822 051 10102	1kΩ	2%	0,25W
3385	4822 117 10833	10kΩ	1%	0,1W
3386	4822 051 20339	33Ω	5%	0,1W
3387	4822 117 11449	2,2kΩ	1%	0,1W
3388	4822 116 83883	470Ω	5%	0,16W
3389	4822 116 83883	470Ω	5%	0,16W
3390	4822 051 10102	1kΩ	2%	0,25W
3391	4822 117 10833	10kΩ	1%	0,1W
3392	4822 051 20105	1MΩ	5%	0,1W
3393	4822 051 20472	4,7kΩ	5%	0,1W
3394	4822 117 10834	47kΩ	1%	0,1W
3395	4822 117 10353	150Ω	5%	0,1W
3396	4822 117 13579	220kΩ	1%	0,1W
3397	4822 051 20471	470Ω	5%	0,1W
3401	4822 117 12955	2,7kΩ	1%	0,1W
3403	4822 051 10102	1kΩ	2%	0,25W
3404	4822 051 20479	47Ω	5%	0,1W
3407	4822 117 10833	10kΩ	1%	0,1W
3501	4822 117 11139	1,5kΩ	1%	0,1W
3502	4822 117 11139	1,5kΩ	1%	0,1W
3503	4822 051 20471	470Ω	5%	0,1W
3504	4822 051 20101	100Ω	5%	0,1W
3504	4822 117 11373	100R	1%	0,1W
3505	4822 117 11139	1,5kΩ	1%	0,1W
3506	4822 117 11139	1,5kΩ	1%	0,1W
3507	4822 051 20471	470Ω	5%	0,1W
3508	4822 051 20101	100Ω	5%	0,1W
3508	4822 117 11373	100R	1%	0,1W
4001	4822 051 20008	CHIP JUMPER	0805	
4002	4822 051 20008	CHIP JUMPER	0805	
4004	4822 051 20008	CHIP JUMPER	0805	
4005	4822 051 20008	CHIP JUMPER	0805	
4006	4822 051 20008	CHIP JUMPER	0805	
4007	4822 051 20008	CHIP JUMPER	0805	
4008	4822 051 20008	CHIP JUMPER	0805	
4009	4822 051 20008	CHIP JUMPER	0805	
4012	4822 051 20008	CHIP JUMPER	0805	
4013	4822 051 20008	CHIP JUMPER	0805	
4014	4822 051 20008	CHIP JUMPER	0805	
4015	4822 051 20008	CHIP JUMPER	0805	
4016	4822 051 20008	CHIP JUMPER	0805	
4017	4822 051 20008	CHIP JUMPER	0805	
4018	4822 051 20008	CHIP JUMPER	0805	
4019	4822 051 20008	CHIP JUMPER	0805	
4021	4822 051 20008	CHIP JUMPER	0805	
4022	4822 051 20008	CHIP JUMPER	0805	
4024	4822 051 20008	CHIP JUMPER	0805	
4025	4822 051 20008	CHIP JUMPER	0805	
4026	4822 051 20008	CHIP JUMPER	0805	
4027	4822 051 20008	CHIP JUMPER	0805	
4028	4822 051 20008	CHIP JUMPER	0805	
4029	4822 051 20008	CHIP JUMPER	0805	
4030	4822 051 20008	CHIP JUMPER	0805	
4031	4822 051 20008	CHIP JUMPER	0805	
4032	4822 051 20008	CHIP JUMPER	0805	
4033	4822 051 20008	CHIP JUMPER	0805	
4034	4822 051 20008	CHIP JUMPER	0805	
4035	4822 051 20008	CHIP JUMPER	0805	
4036	4822 051 20008	CHIP JUMPER	0805	
4037	4822 051 20008	CHIP JUMPER	0805	

**ELECTRICAL PARTSLIST FRONT BOARD****RESISTORS**

4038©	4822 051 20008	CHIP JUMPER 0805
4039©	4822 051 20008	CHIP JUMPER 0805
4040©	4822 051 20008	CHIP JUMPER 0805
4041©	4822 051 20008	CHIP JUMPER 0805
4042©	4822 051 20008	CHIP JUMPER 0805
4043©	4822 051 20008	CHIP JUMPER 0805
4044©	4822 051 20008	CHIP JUMPER 0805
4045©	4822 051 20008	CHIP JUMPER 0805
4046©	4822 051 20008	CHIP JUMPER 0805
4047©	4822 051 20008	CHIP JUMPER 0805
4048©	4822 051 20008	CHIP JUMPER 0805
4049©	4822 051 20008	CHIP JUMPER 0805
4050©	4822 051 20008	CHIP JUMPER 0805
4051©	4822 051 20008	CHIP JUMPER 0805
4052©	4822 051 20008	CHIP JUMPER 0805
4053©	4822 051 20008	CHIP JUMPER 0805
4054©	4822 051 20008	CHIP JUMPER 0805
4055©	4822 051 20008	CHIP JUMPER 0805
4056©	4822 051 20008	CHIP JUMPER 0805
4057©	4822 051 20008	CHIP JUMPER 0805
4058©	4822 051 20008	CHIP JUMPER 0805
4059©	4822 051 20008	CHIP JUMPER 0805
4060©	4822 051 20008	CHIP JUMPER 0805
4061©	4822 051 20008	CHIP JUMPER 0805
4102©	4822 051 20008	CHIP JUMPER 0805
4103©	4822 051 20008	CHIP JUMPER 0805
4104©	4822 051 20008	CHIP JUMPER 0805
4105©	4822 051 20008	CHIP JUMPER 0805
4107©	4822 051 20008	CHIP JUMPER 0805
4108©	4822 051 20008	CHIP JUMPER 0805
4109©	4822 051 20008	CHIP JUMPER 0805
4110©	4822 051 20008	CHIP JUMPER 0805
4111©	4822 051 20008	CHIP JUMPER 0805
4112©	4822 051 20008	CHIP JUMPER 0805
4113©	4822 051 20008	CHIP JUMPER 0805
4201©	4822 051 20008	CHIP JUMPER 0805
4203©	4822 051 20008	CHIP JUMPER 0805
4204©	4822 051 20008	CHIP JUMPER 0805
4205©	4822 051 20008	CHIP JUMPER 0805
4206©	4822 051 20008	CHIP JUMPER 0805
4304©	4822 051 20008	CHIP JUMPER 0805
4401©	4822 051 20008	CHIP JUMPER 0805
4501©	4822 051 20008	CHIP JUMPER 0805

**COILS**

1107	4822 242 70938	CRYSTAL 32,768kHz
1108	5322 242 73686	CERAMIC RESONATOR, 12MHZ
1111	4822 242 72195	XTAL 4,332MHZ
5101	4822 156 21721	2,2µH
5102	4822 156 21721	2,2µH
5103	4822 156 21721	2,2µH
5104	4822 156 21721	2,2µH
5107	4822 156 21721	2,2µH
5108	4822 156 21721	2,2µH
5109	4822 156 21721	2,2µH
5110	4822 156 21721	2,2µH
5111	4822 156 21721	2,2µH
5112	4822 156 21721	2,2µH

**DIODES**

6101	4822 130 11589	LED, LTL-1CHAE
6102	4822 130 11589	LED, LTL-1CHAE
6103	4822 130 11589	LED, LTL-1CHAE
6104	4822 130 11589	LED, LTL-1CHAE
6105	9322 131 65675	LED, LTL-1CHEE
6106	4822 130 11589	LED, LTL-1CHAE
6107	4822 130 11589	LED, LTL-1CHAE
6108	4822 130 30621	1N4148
6109	4822 130 30621	1N4148
6110	4822 130 30621	1N4148
6120	4822 130 30621	1N4148
6121	4822 130 30621	1N4148
6122	4822 130 30621	1N4148
6123	4822 130 30621	1N4148
6124	4822 130 30621	1N4148
6131	4822 130 11589	LED, LTL-1CHAE
6132	4822 130 30621	1N4148
6133	4822 130 11589	LED, LTL-1CHAE
6134	4822 130 11589	LED, LTL-1CHAE
6136	8203 303 84850	LED, LTL2R3KFK-071A
6137	4822 130 11589	LED, LTL-1CHAE
6138	4822 130 11589	LED, LTL-1CHAE
6139	4822 130 11589	LED, LTL-1CHAE
6140	8203 303 84850	LED, LTL2R3KFK-071A
6142	8203 303 84450	LED 5MM AMBER/H.E.RED
6143	4822 130 11589	LED, LTL-1CHAE
6160	4822 130 30621	1N4148
6161	4822 130 30621	1N4148
6162	4822 130 30621	1N4148
6200	5322 130 30691	BAW56
6201	5322 130 30691	BAW56
6202	5322 130 30691	BAW56
6203	5322 130 30691	BAW56
6205	5322 130 30691	BAW56
6206	5322 130 30691	BAW56
6207	5322 130 30691	BAW56
6208	5322 130 30691	BAW56
6209	5322 130 30691	BAW56
6210	5322 130 30691	BAW56
6211	5322 130 30691	BAW56

**TRANSISTORS**

7101©	5322 130 60159	BC846B
7102©	5322 130 60159	BC846B
7103©	5322 130 60159	BC846B
7104©	5322 130 60159	BC846B
7105©	5322 130 60159	BC846B
7106©	5322 130 60159	BC846B
7111©	5322 130 60159	BC846B
7123©	5322 130 60159	BC846B
7131©	5322 130 60159	BC846B
7133©	5322 130 60159	BC846B
7150©	4822 130 42804	BC817-25
7151©	5322 130 60159	BC846B
7152©	4822 130 60373	BC856B
7153©	5322 130 60159	BC846B
7154©	4822 130 42804	BC817-25
7155©	5322 130 60159	BC846B
7156©	5322 130 60159	BC846B
7160©	5322 130 60159	BC846B



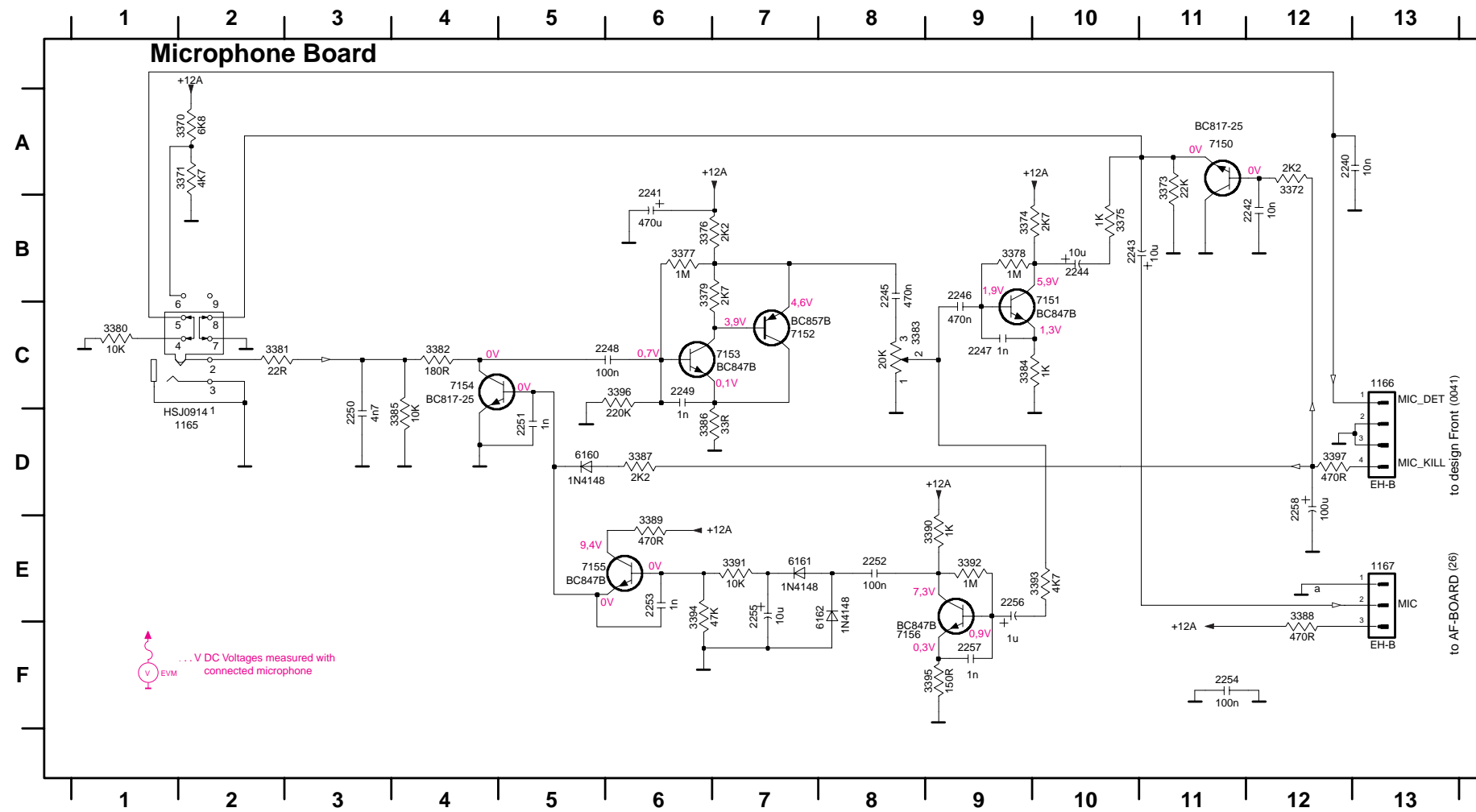
***ELECTRICAL PARTSLIST FRONT BOARD***

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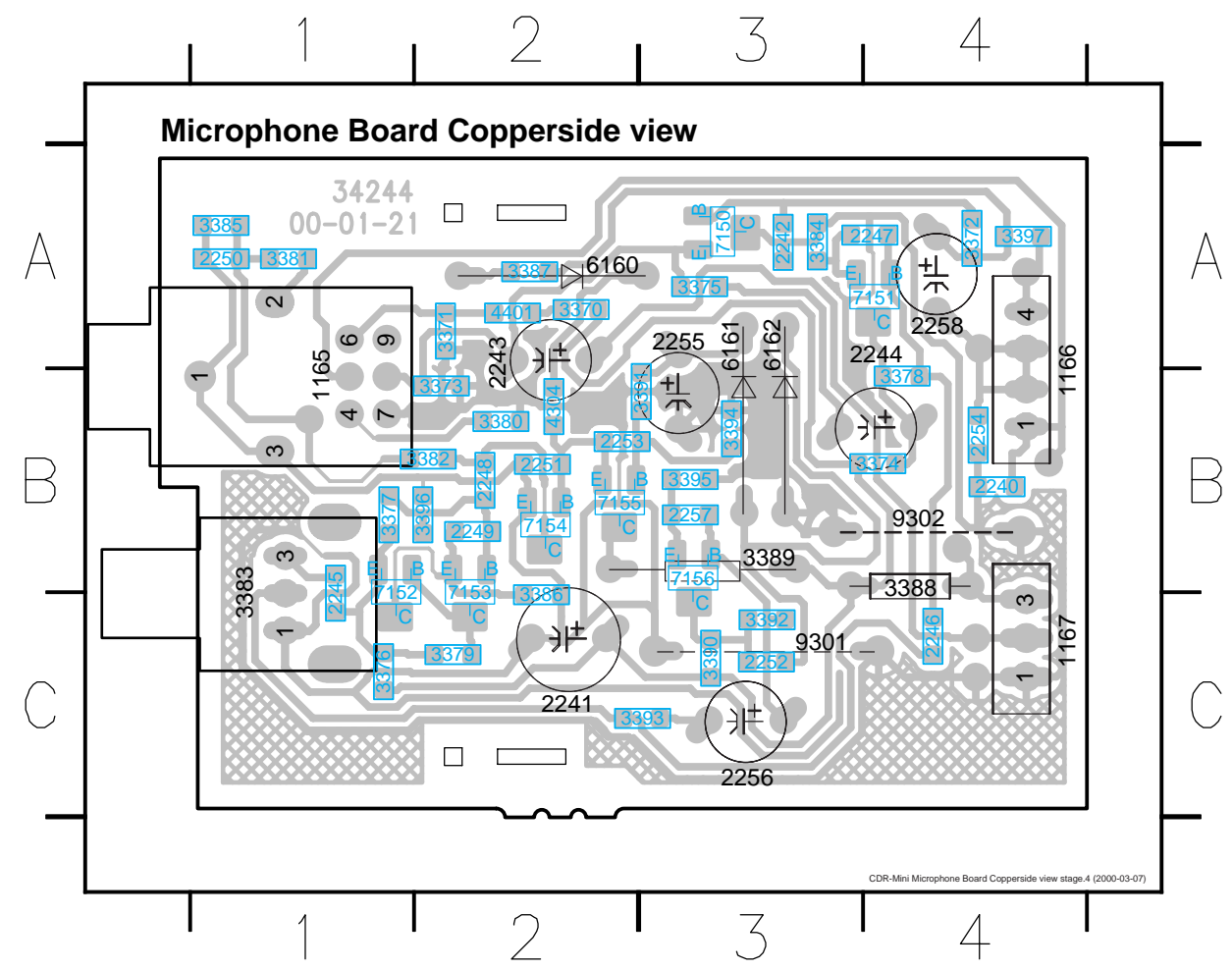
INTEGRATED CIRCUITS

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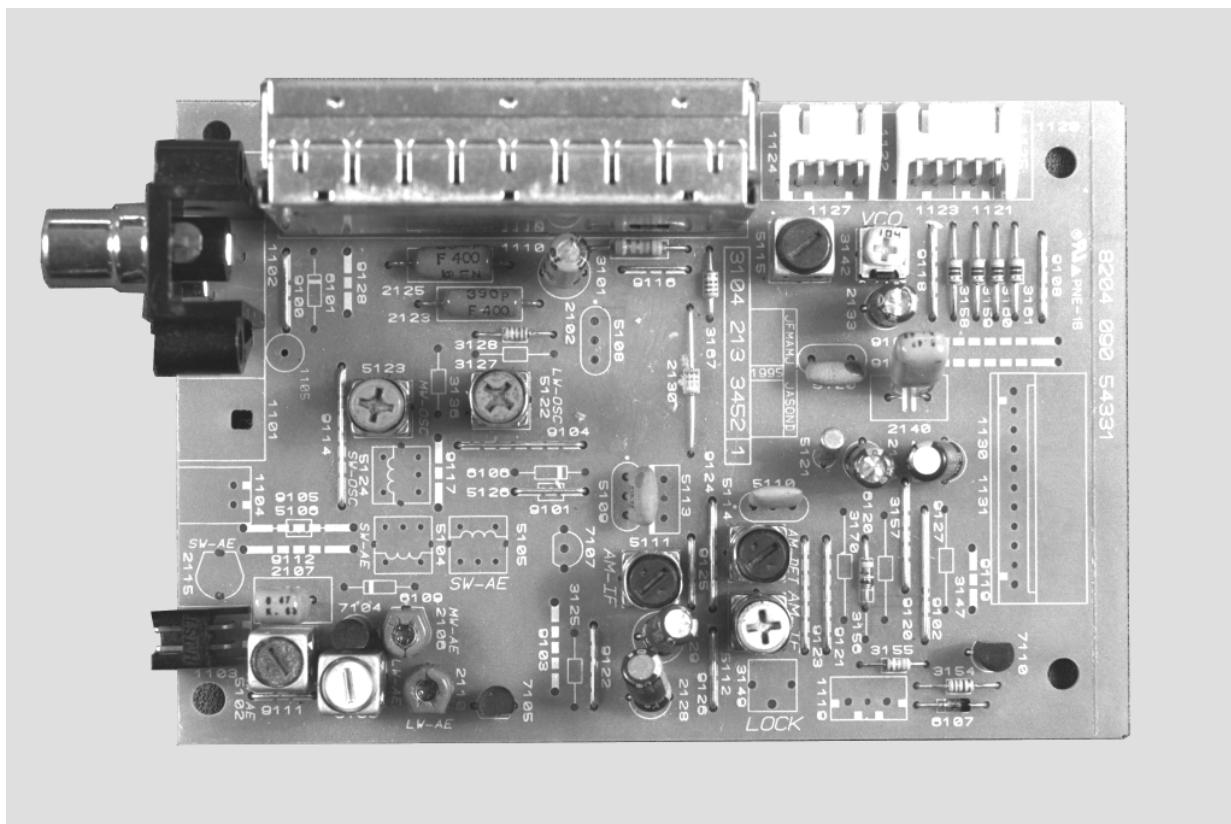
7107©	4822 209 15449	74HC4094D, SHIFT REGISTER
7108©	3103 308 84240	MUP TMP88CU77F-FW-R8.2
7110©	9965 000 04931	M24C01-WMN6,EEPROM
7112	9322 155 22667	IR RECEIVER TSOP2836
7120©	4822 209 17345	M62320FP, I2C SHIFT REGISTER
7121	4822 209 31981	SAA6579T/V1
7122©	5322 209 11446	HEF4051BT, MULTIPLEXER
7130©	4822 209 15449	74HC4094D, SHIFT REGISTER
7132©	4822 209 15449	74HC4094D, SHIFT REGISTER
7140©	4822 209 17235	74LVU04D, 6-FOLD INVERTER
7142	4822 209 10263	HEF4052BP, SELECTOR IC



- 1165 D2
- 1166 C13
- 1167 E13
- 2240 A13
- 2241 B6
- 2242 B12
- 2243 B10
- 2244 B10
- 2245 B8
- 2246 B9
- 2247 C9
- 2248 C6
- 2249 C6
- 2250 D3
- 2251 D5
- 2252 E8
- 2253 E6
- 2254 E11
- 2255 E7
- 2256 E9
- 2257 F9
- 2258 D12
- 3370 A2
- 3371 A2
- 3372 A12
- 3373 A11
- 3374 B9
- 3375 B10
- 3376 B6
- 3377 B6
- 3378 B9
- 3379 B6
- 3380 C1
- 3381 C2
- 3382 C4
- 3383 C8
- 3384 C9
- 3385 D4
- 3386 D6
- 3387 D6
- 3388 F12
- 3389 E6
- 3390 E9
- 3391 E7
- 3392 E9
- 3393 E10
- 3394 E6
- 3395 F9
- 3396 C6
- 3397 D12
- 6160 D5
- 6161 E7
- 6162 E8
- 7150 A11
- 7151 C10
- 7152 C7
- 7153 C4
- 7154 C4
- 7155 E6
- 7156 F8



- 1165 B1
- 1166 A4
- 1167 C4
- 2240 B4
- 2241 B2
- 2242 A3
- 2243 B2
- 2244 B4
- 2245 B1
- 2246 C4
- 2247 A4
- 2248 B2
- 2249 B2
- 2250 A1
- 2251 B2
- 2252 C3
- 2253 B2
- 2254 B4
- 2255 B2
- 2256 C3
- 2257 B3
- 2258 A4
- 3370 A2
- 3371 A2
- 3372 A4
- 3373 B2
- 3374 B4
- 3375 A3
- 3376 C1
- 3377 B1
- 3378 B4
- 3379 C2
- 3380 B2
- 3381 A1
- 3383 B1
- 3382 B2
- 3384 A3
- 3385 A1
- 3386 C2
- 3387 A2
- 3388 B4
- 3389 B3
- 3390 C3
- 3391 B3
- 3392 C3
- 3393 C3
- 3394 B3
- 3395 B3
- 3396 B2
- 3397 A4
- 4304 B2
- 4401 A2
- 6160 A2
- 6161 B3
- 6162 B3
- 7150 A3
- 7151 A4
- 7152 B1
- 7153 B2
- 7154 B2
- 7155 B2
- 7156 B3
- 9301 C3
- 9302 B4



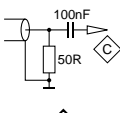
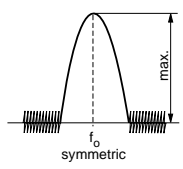
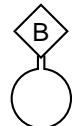
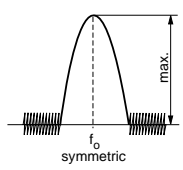
# ***Tuner 95***

## ***(3 Band RDS Tuner)***

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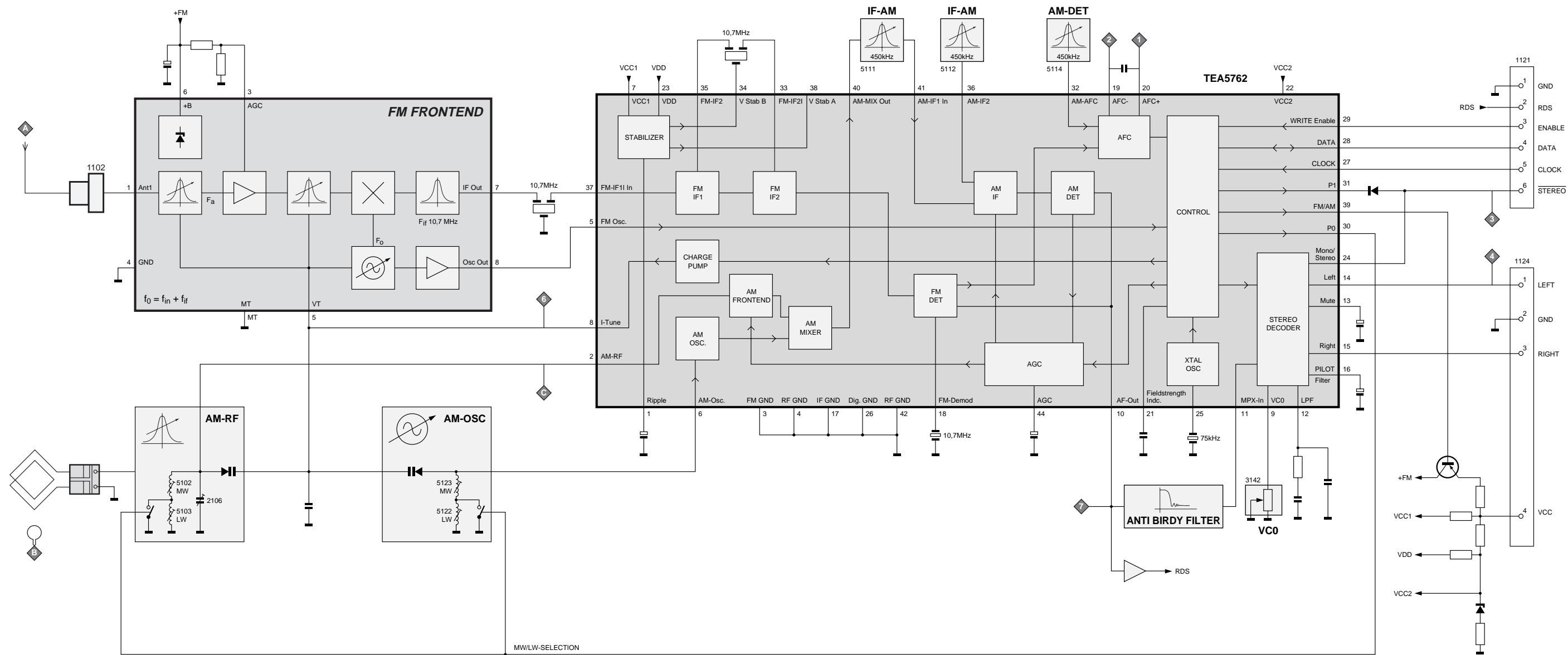
**TUNER ADJUSTMENT TABLE ( TUNER 95 FM/MW/LW - version with AM-frame aerial )**

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
<i>VARICAP ALIGNMENT</i>						
<b>FM</b> 87.5 - 108MHz (50kHz grid)			108MHz	check	◇ 6	7...9V
			87.5MHz	check		1.3...2V
<b>MW</b> 531 - 1602kHz (9kHz grid)			1602kHz	5123		8.3V ±0.2V
			531kHz	check		1V ±0.4V
<b>LW</b> 153 - 279kHz (3kHz grid)			279kHz	5122		8.3V ±0.2V
			153kHz	check		1V ±0.4V
<i>FM - IF</i>						
<b>FM</b>	98MHz 1mV continuous wave shortcircuit pin 21 of IC7108 to ground	◇ A	98MHz	5107	◇ 1 ◇ 2	0mV ±3mV
<i>FM - VCO</i>						
<b>FM</b>	98MHz 1mV continuous wave	◇ A	98MHz	3142	◇ 3	152kHz ±1kHz <sup>1)</sup>
<i>DISTORTION</i>						
<b>FM</b>	98MHz 1mV 90% Left + 9% pilot mod=1kHz	◇ A	98MHz	mixcoil inside tuner 1110	◇ 4	min. distortion
<i>AM IF</i>						
<b>MW</b>	450kHz Δf=10kHz as low as possible		MW	5111	◇ 7	
				5112		
	450kHz continuous wave	◇ C		5114	◇ 1 ◇ 2	0mV ±2mV
<i>AM RF <sup>2)</sup></i>						
<b>MW</b>	558kHz	◇ B 	558kHz	5102	◇ 7	
	1494kHz		1494kHz	2106		
<b>LW</b>	198kHz		Δf = ±30kHz V <sub>RF</sub> as low as possible	198kHz		

<sup>1)</sup> 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)

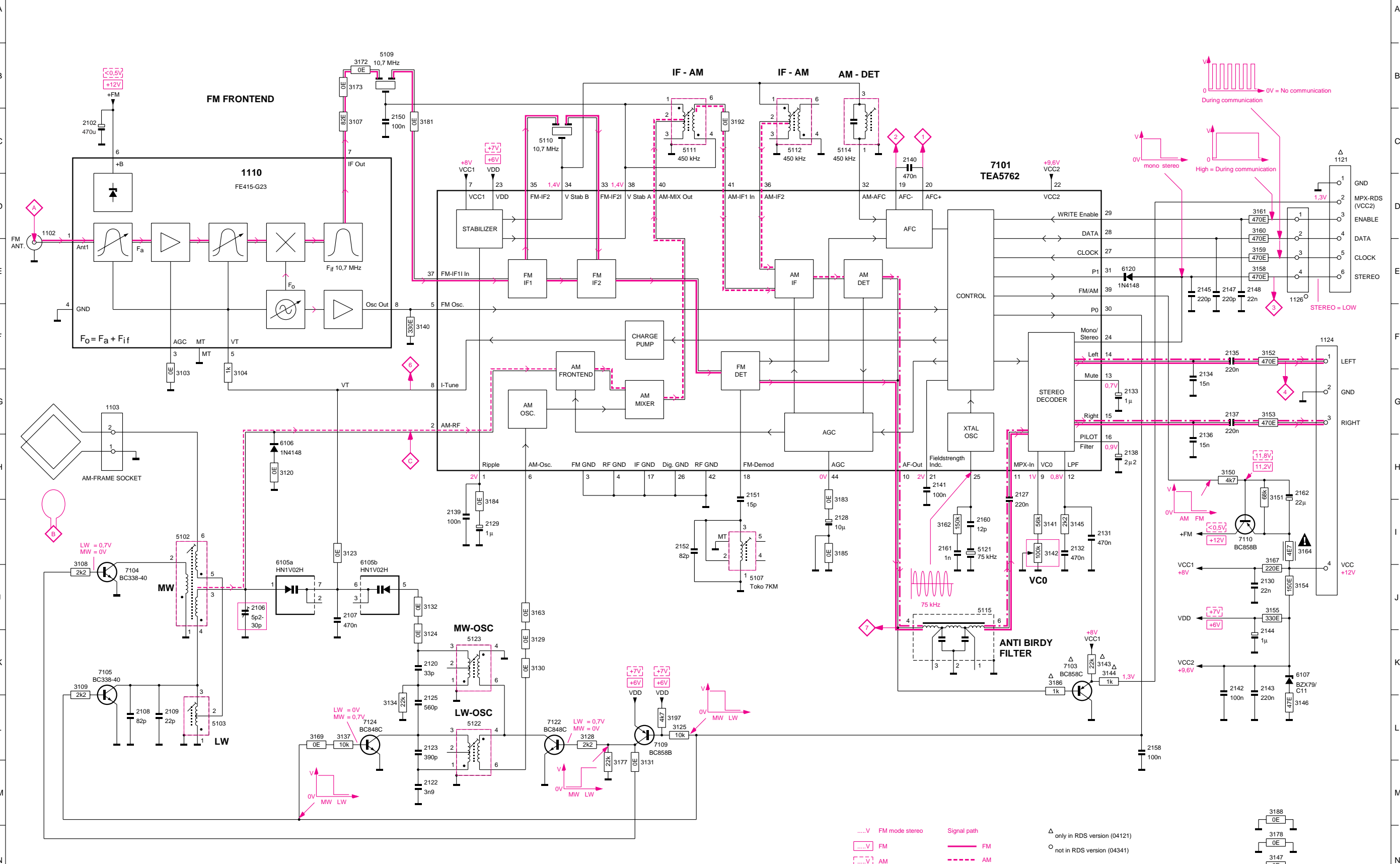
<sup>2)</sup> For AM RF adjustments the original frame antenna has to be used !

BLOCK DIAGRAM TUNER95



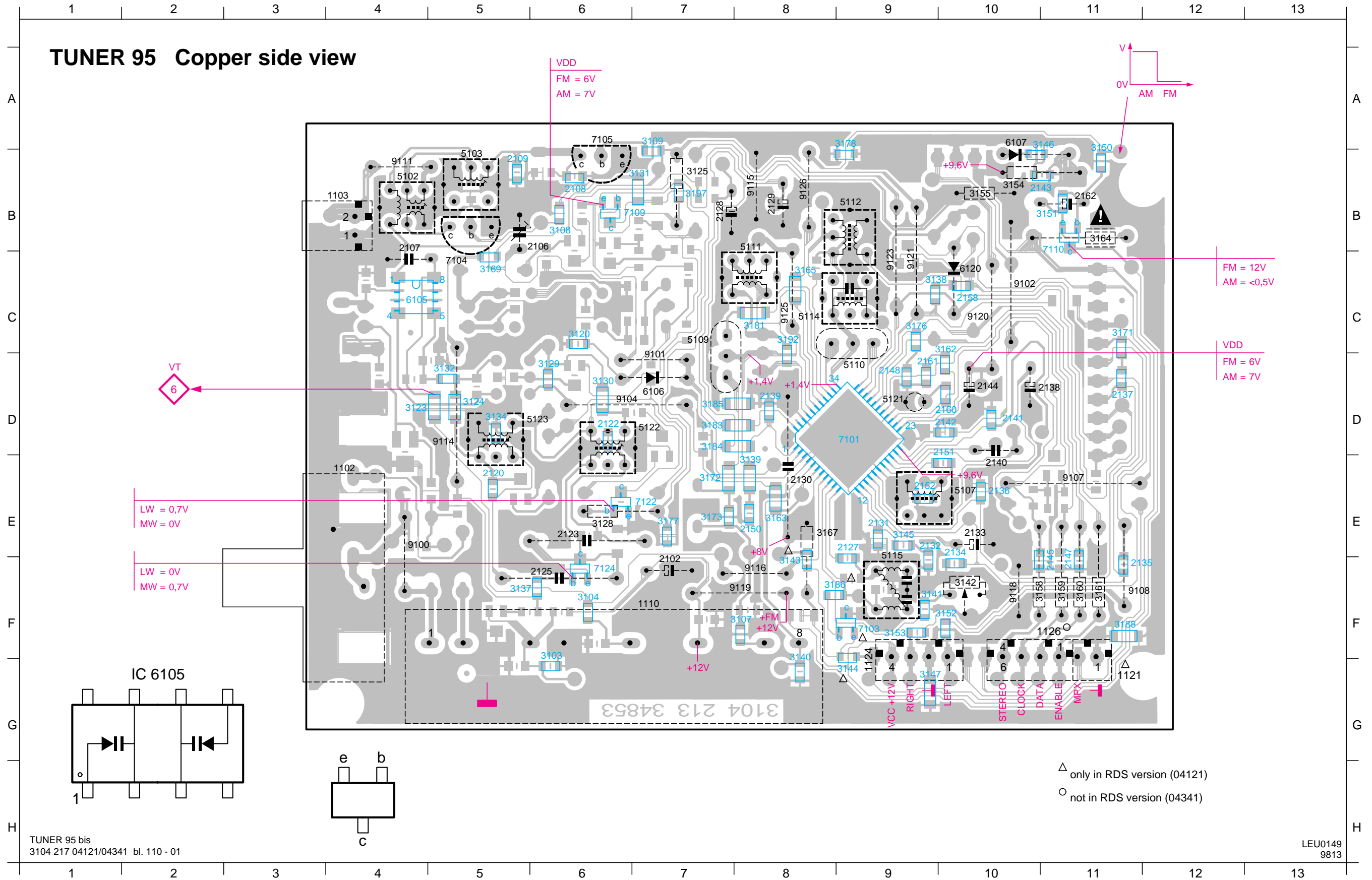
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1103	G2	1126	E20	2108	L2	2123	L7	2129	I8	2133	G18	2137	G19	2141	H15	2145	E19	2151	H12	2161	I15	3107	C6	3123	I6	3129	K8	3134	L6	3142	I16	3146	L20	3152	F20	3158	E19	3162	D15	3169	L5	3178	N20	3185	I13	3197	L11	5109	B6	5114	C13	5123	K7	6107	K20	7104	J2	7122	L9
1110	D4	2102	C2	2109	L3	2125	L7	2130	J20	2134	G19	2138	H18	2142	K19	2147	E19	2152	I11	2162	H20	3108	J1	3124	K7	3130	K8	3137	L5	3143	K17	3147	N20	3153	G20	3159	E19	3163	J8	3172	B6	3181	C7	3186	K16	5102	I3	5110	C9	5115	J15	6105a	I5	6120	E17	7105	K2	7124	L6
1121	C21	2106	J4	2120	K7	2127	H16	2131	I17	2135	F19	2139	I7	2143	K20	2148	E19	2158	L18	3103	G3	3109	K1	3125	L11	3131	M10	3140	F7	3144	K17	3150	H19	3154	J20	3160	D19	3164	I20	3173	B6	3183	I13	3188	M20	5103	L4	5111	C11	5121	I15	6105b	I6	7101	C15	7109	L10		

TUNER 95



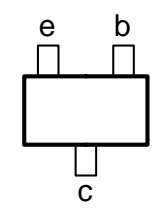
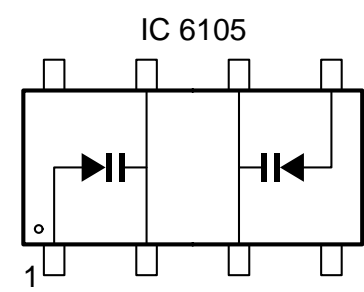
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1103	B4	2108	B6	2129	B8	2137	D11	2145	F11	2161	D9	3123	D4	3134	D5	3144	G9	3154	B10	3164	B11	3177	E7	3192	C8	5112	B9	6107	A10	7122	E7	9111	B4	9123	C9
1110	F7	2109	B5	2130	E8	2138	D10	2147	F11	2162	B11	3124	D5	3137	F5	3145	E9	3155	B10	3165	C8	3178	A8	3197	B7	5114	C8	6120	C10	7124	F6	9114	D5	9125	C8
1121	G11	2120	E5	2131	E9	2139	D8	2148	D9	3103	G6	3125	B7	3138	C9	3146	A10	3158	F11	3167	E8	3181	C8	5102	B4	5115	F9	7101	D9	9100	E4	9115	B8	9126	B8
1124	G9	2122	D6	2132	E9	2140	E10	2150	E8	3104	F6	3128	E6	3139	E8	3147	G9	3159	F11	3169	C5	3183	D7	5103	B5	5121	D9	7103	F9	9101	D7	9116	F8		
1126	F10	2123	E6	2133	E10	2141	D10	2151	E9	3107	F7	3129	D6	3140	G8	3150	B11	3160	F11	3171	C11	3184	D7	5107	E10	5122	D7	7104	C5	9102	C10	9118	F10		
2102	F7	2125	F6	2134	F10	2142	D9	2152	E9	3108	B6	3130	D6	3141	F9	3151	B10	3161	F11	3172	E7	3185	D7	5109	C7	5123	D5	7105	A6	9104	D6	9119	F7		
2106	B5	2127	E9	2135	F11	2143	B10	2158	C10	3109	A7	3131	B6	3142	F10	3152	F9	3162	C9	3173	E7	3186	F8	5110	D9	6105	C4	7109	B6	9107	E11	9120	C10		

# TUNER 95 Copper side view



LW = 0,7V  
MW = 0V

LW = 0V  
MW = 0,7V



△ only in RDS version (04121)  
○ not in RDS version (04341)

**ELECTRICAL PARTSLIST TUNER 95****MISCELLANEOUS**

1102	4822 267 10283	SOCKET COAX, IEC 75Ω
1103	4822 265 31184	JST CONNECTOR 2 POLE
1110	4822 210 10492	FRONTEND ASSY /02/08
1110	4822 210 10739	FM-FRONTEND FE415-G23

**CAPACITORS**

2102	4822 124 80791	470μF	20%	16V
2106	4822 125 60102	30pF TRIMCAP		
2107	4822 121 51252	470nF	5%	63V
2108©	4822 126 13695	82pF	1%	63V
2109©	5322 122 32658	22pF	5%	50V

2120©	5322 122 32659	33pF	5%	50V
2122©	5322 126 10465	3,9nF	10%	63V
2123	4822 121 10766	390pF	1%	630V
2125	4822 121 10578	560pF	1%	630V
2127©	4822 122 32927	220nF	10%	63V

2128	4822 124 41579	10μF	20%	50V
2129	4822 124 40242	1μF	20%	63V
2130	4822 126 11585	22nF	20%	50V
2131©	4822 122 33325	470nF	20%	50V
2132©	4822 122 33325	470nF	20%	50V

2133	4822 124 40242	1μF	20%	63V
2134©	4822 126 13188	15nF	5%	63V
2135©	4822 122 32927	220nF	10%	63V
2136©	4822 126 13188	15nF	5%	63V
2137©	4822 122 32927	220nF	10%	63V

2138	4822 124 41576	2,2μF	20%	50V
2140	4822 121 51252	470nF	5%	63V
2141©	4822 122 31947	100nF	20%	50V
2142©	4822 122 31947	100nF	20%	50V
2143©	4822 122 32927	220nF	10%	63V

2144	4822 124 40242	1μF	20%	63V
2145©	4822 122 33575	220pF	5%	50V
2147©	4822 122 33575	220pF	5%	50V
2148©	4822 122 33575	220pF	5%	50V
2150©	4822 122 31947	100nF	20%	50V

2158©	4822 122 31947	100nF	20%	50V
2160©	4822 122 32139	12pF	5%	63V
2161©	5322 122 34123	1nF	10%	50V
2162	4822 124 81151	22μF	20%	50V

**RESISTORS**

3090	4822 116 52206	120Ω	5%	0,5W
3091	4822 116 52206	120Ω	5%	0,5W
3092	4822 116 52219	330Ω	5%	0,5W
3102©	4822 117 13579	220kΩ	1%	0,1W
3103©	4822 051 20184	180kΩ	5%	0,1W

3104©	4822 051 10102	1kΩ	2%	0,25W
3107©	4822 051 20829	82Ω	5%	0,1W
3108©	4822 117 11449	2,2kΩ	1%	0,1W
3109©	4822 117 11449	2,2kΩ	1%	0,1W
3120©	4822 051 20008	CHIP JUMPER 0805		

3123©	4822 051 10008	CHIP JUMPER 1206		
3124©	4822 051 10008	CHIP JUMPER 1206		
3125	4822 116 83864	10kΩ	5%	0,5W
3128	4822 116 52256	2,2kΩ	5%	0,16W
3129©	4822 051 20008	CHIP JUMPER 0805		

3130©	4822 051 10008	CHIP JUMPER 1206		
3131©	4822 051 10008	CHIP JUMPER 1206		
3132©	4822 051 20008	CHIP JUMPER 0805		
3134©	4822 051 20223	22kΩ	5%	0,1W
3137©	4822 117 10833	10kΩ	1%	0,1W

**RESISTORS**

3140©	4822 051 20331	330Ω	5%	0,1W
3141©	4822 117 11148	56kΩ	1%	0,1W
3142	4822 100 11163	100kΩ TRIMPOT LIN.		
3143©	4822 051 20223	22kΩ	5%	0,1W
3144©	4822 051 10102	1kΩ	2%	0,25W

3145©	4822 117 11449	2,2kΩ	1%	0,1W
3146©	4822 051 20479	47Ω	5%	0,1W
3150©	4822 051 20472	4,7kΩ	5%	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 116 83868	150Ω	5%	0,5W
3155	4822 116 52219	330Ω	5%	0,5W
3158	4822 116 83883	470Ω	5%	0,16W
3159	4822 116 83883	470Ω	5%	0,16W

3160	4822 116 83883	470Ω	5%	0,16W
3161	4822 116 83883	470Ω	5%	0,16W
3162©	4822 117 13579	220kΩ	1%	0,1W
3163©	4822 051 10008	CHIP JUMPER 1206		
3164	4822 052 10478	4,7Ω	5%	NFR

3167	4822 116 83872	220Ω	5%	0,5W
3169©	4822 051 20008	CHIP JUMPER 0805		
3172©	4822 051 10008	CHIP JUMPER 1206		
3181©	4822 051 10008	CHIP JUMPER 1206		
3183©	4822 051 10008	CHIP JUMPER 1206		

3184©	4822 051 10008	CHIP JUMPER 1206		
3185©	4822 051 10008	CHIP JUMPER 1206		
3186©	4822 051 10102	1kΩ	2%	0,25W
3188©	4822 051 10008	CHIP JUMPER 1206		
3191©	4822 117 10353	150Ω	5%	0,1W

3192©	4822 051 20008	CHIP JUMPER 0805		
3197©	4822 051 20472	4,7kΩ	5%	0,1W

**COILS**

5102	4822 157 71634	RF-COIL MW		
5103	4822 157 71635	RF-COIL LW		
5109	4822 157 71639	FM-IF FILTER 10,7MHz		
5110	4822 242 70665	FM-IF FILTER 10,7MHz		
5111	4822 158 60511	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		
5120	4822 242 10251	CER. DISCR. 10.7MG61KA-TF21		
5121	4822 242 10261	QUARTZ 75kHz		

5122	4822 157 60517	RF-COIL AM		
5123	4822 157 60517	RF-COIL AM		

**DIODES**

6105©	4822 130 83075	HN1V02H		
6106	4822 130 30621	1N4148		
6107	4822 130 34488	BZX79-C11		
6120	4822 130 30621	1N4148		

**TRANSISTORS**

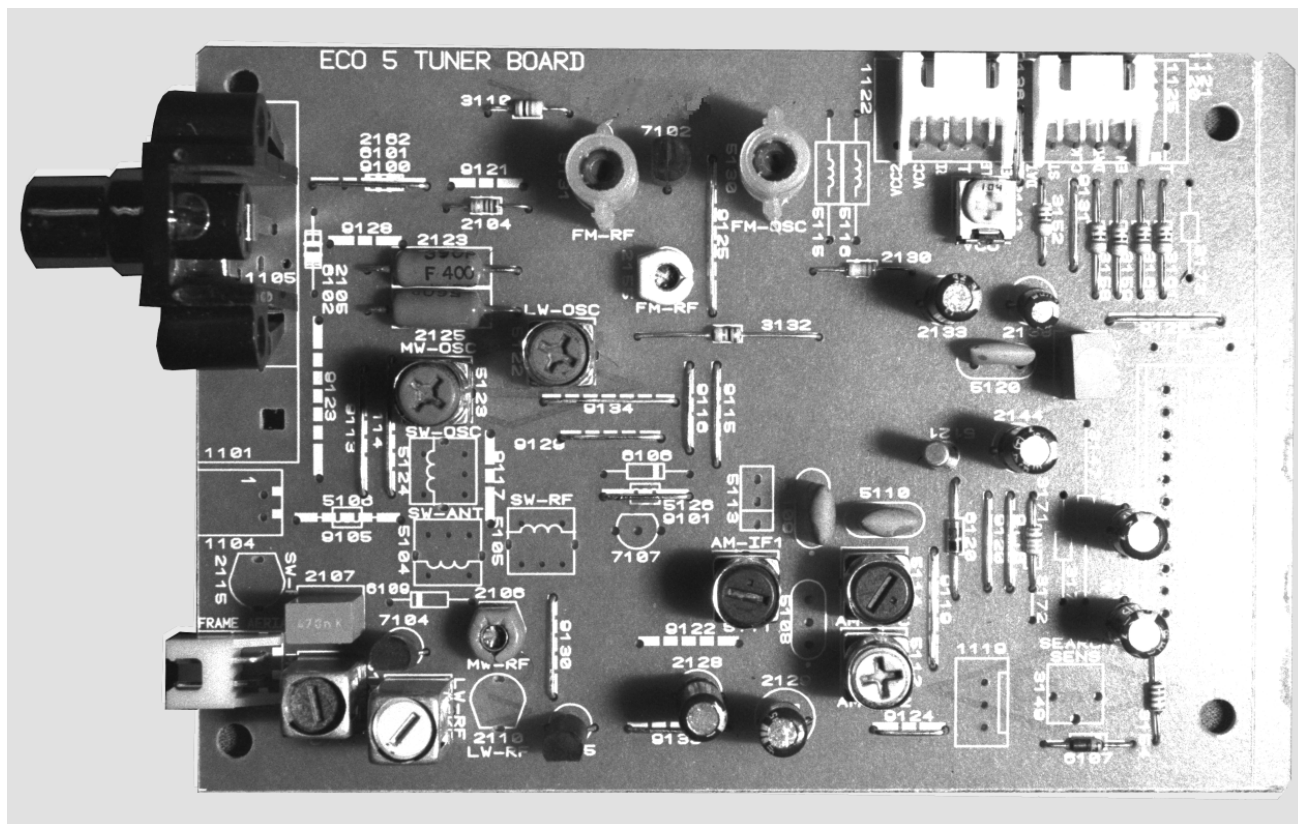
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7104	5322 130 44779	BC338-40		
7105	5322 130 44779	BC338-40		
7109©	5322 130 41983	BC858B		
7110©	5322 130 41983	BC858B		

7122©	5322 130 42136	BC848C		
7124©	5322 130 42136	BC848C		

**ELECTRICAL PARTSLIST TUNER 95****INTEGRATED CIRCUITS**

7101	4822 209 90315	TEA5762H/V1, RADIO IC		
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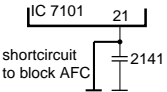
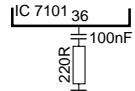
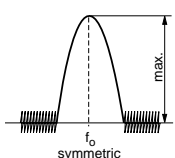
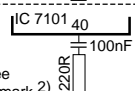
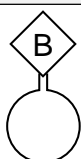
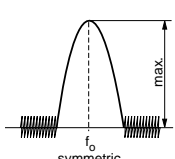
# *Tuner ECO 5*

## *(3 Band Tuner)*

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**TUNER ADJUSTMENT TABLE ( ECO5 FM/MW- and FM/MW/LW - versions with AM-frame aerial )**

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter		
<b>VARICAP ALIGNMENT</b>								
<b>FM</b> 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)			108MHz	5130	1	8V ±0.2V		
			87.5MHz (65.81MHz)	check		4.3V ±0.5V (1.2V ±0.5V)		
<b>MW</b> FM/AM-version, 10kHz grid 530 - 1700kHz			1700kHz	5123		8V ±0.2V		
			530kHz	check		1.1V ±0.4V		
FM/MW-version, 9kHz grid 531 - 1602kHz			1602kHz	5123		6.9V ±0.2V		
			531kHz	check		1.1V ±0.4V		
<b>LW</b>  153 - 279kHz			279kHz	5122		8V ±0.2V		
			153kHz	check		1.1V ±0.4V		
<b>MW</b> FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V		
			531kHz	check		1.1V ±0.4V		
<b>FM IF</b>								
<b>FM</b>	10.7MHz, 50mV continuous wave		F			5119	2	0 ± 3 mV DC
<b>FM RF</b>								
<b>FM</b> 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	A mod=1kHz Δf=±22.5kHz	108MHz	2155	4	MAX		
	87.5MHz (65.81MHz)		87.5MHz (65.81MHz)	5131				
<b>VCO</b>								
<b>FM</b>	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz <sup>1)</sup>		
<b>AM IF</b>								
<b>MW</b>	450kHz  connect pin 6 of IC 7101 (AM Osc.) with short wire to ground (pin 4)	C  Δf=±15kHz V <sub>RF</sub> = 3mV		5111	4			
				5112				
<b>AM AFC</b> <b>MW</b>		C  continuous wave V <sub>RF</sub> = 10mV		5114	2	0 ± 2 mV DC		
<b>AM RF<sup>3)</sup></b>								
<b>MW<sup>4)</sup></b> FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	B 	1494kHz	2106	4			
	558kHz		558kHz	5102				
<b>LW</b>	198kHz		198kHz	5103				
<b>MW</b> FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz		Δf = ±30kHz V <sub>RF</sub> as low as possible	1500kHz			2106	
	560kHz	560kHz		5102				

ECO5, discr. coil, 090797

Use service test program. 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 (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.

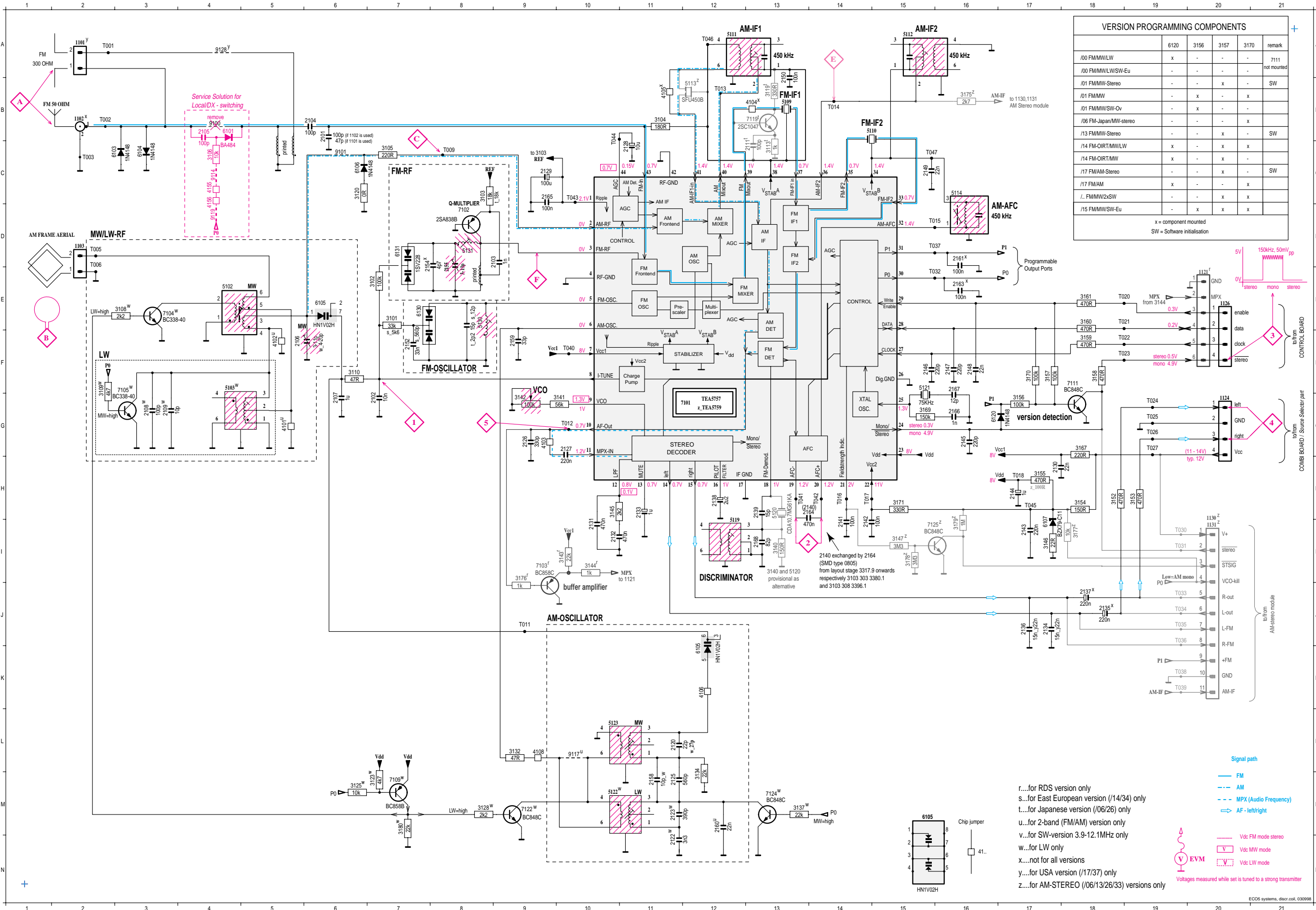
3) For AM RF adjustments the original frame antenna has to be used !

4) MW has to be aligned before LW.

↑ Repeat

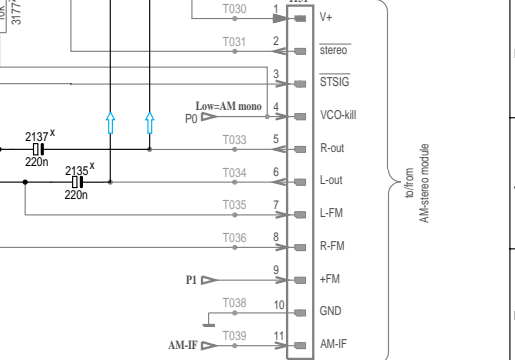
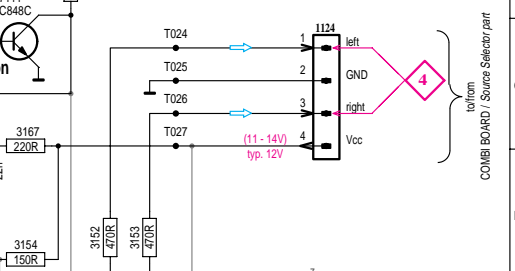
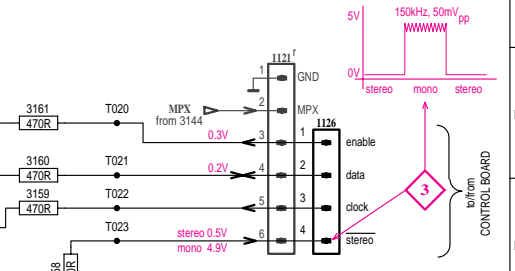


# TUNER BOARD ECO5 / Systems

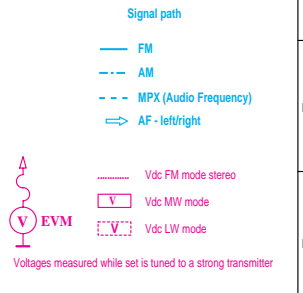


VERSION PROGRAMMING COMPONENTS					
	6120	3156	3157	3170	remark
/00 FMMW/LW	x	-	-	-	7111
/00 FMMW/LW/SW-Eu	-	-	-	-	not mounted
/01 FMMW-Stereo	-	-	x	-	SW
/01 FMMW	-	x	-	x	
/01 FMMW/SW-Ov	-	x	-	-	
/06 FM-Japan/MW-stereo	-	-	-	x	
/13 FMMW	-	-	x	-	SW
/14 FM-OIRT/MW/LW	x	-	x	x	
/14 FM-OIRT/MW	x	-	x	-	
/17 FMAM-Stereo	-	-	x	-	SW
/17 FMAM	x	-	-	x	
/15 FMMW/2xSW	-	-	x	x	
/15 FMMW/SW-Eu	-	x	x	x	

x = component mounted  
SW = Software initialisation



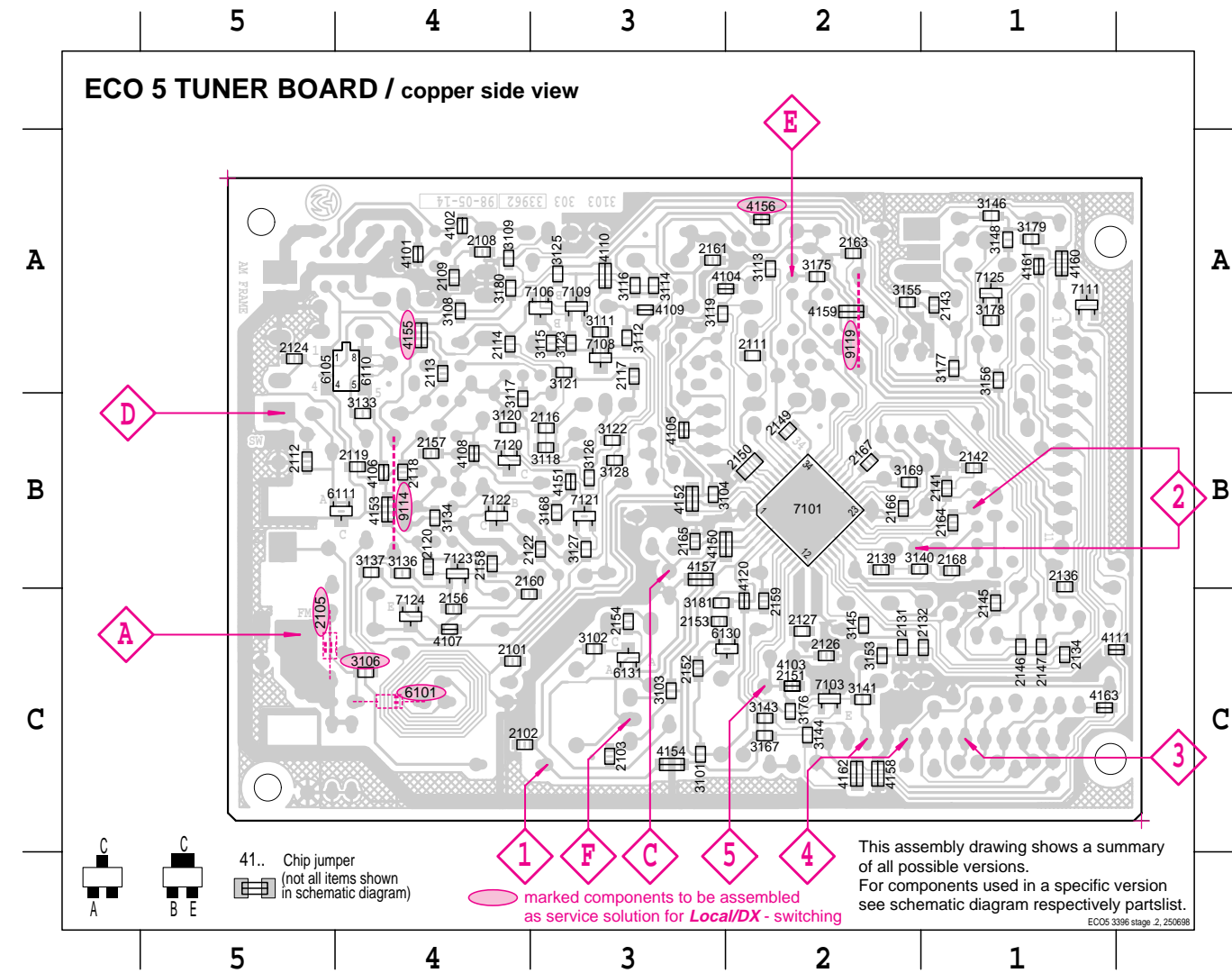
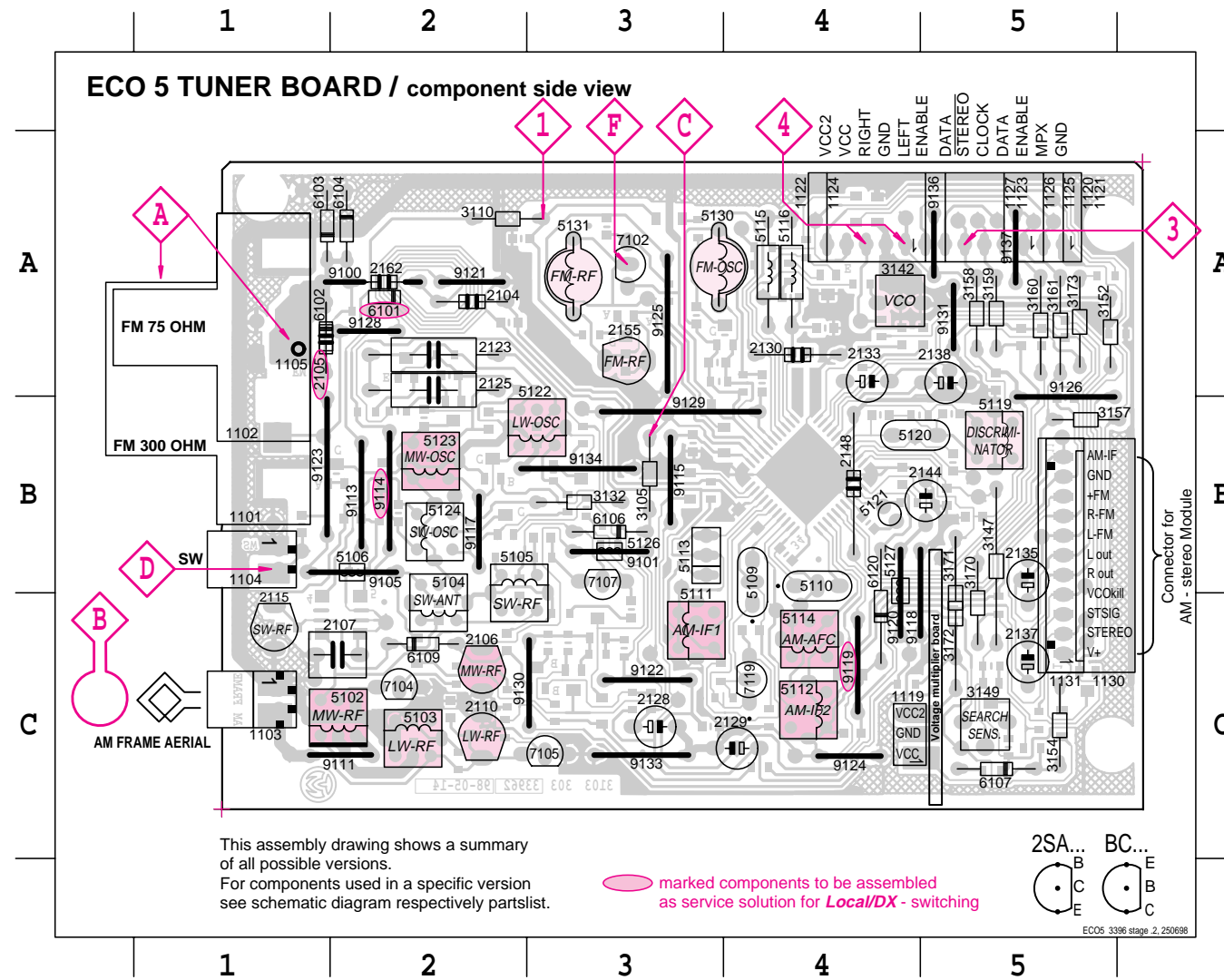
r...for RDS version only  
s...for East European version (/14/34) only  
t...for Japanese version (/06/26) only  
u...for 2-band (FM/AM) version only  
v...for SW-version 3.9-12.1MHz only  
w...for LW only  
x...not for all versions  
y...for USA version (/17/37) only  
z...for AM-STEREO (/06/13/26/33) versions only



1101 A 1  
1102 B 2  
1103 D 2  
1121 E 30  
1124 G 20  
1126 E 20  
1130 I 20  
1131 I 20  
2101 C 6  
2102 G 7  
2103 D 9  
2104 B 6  
2106 F 5  
2107 G 6  
2108 G 3  
2111 C 13  
2120 L 11  
2122 N 11  
2123 M 12  
2125 M 11  
2126 G 9  
2127 G 10  
2128 C 11  
2129 C 9  
2130 H 7  
2131 H 7  
2132 I 10  
2133 H 11  
2134 J 17  
2135 C 18  
2136 J 17  
2137 J 18  
2138 F 12  
2139 H 13  
2140 H 14  
2141 H 4  
2144 H 14  
2143 I 17  
2144 H 17  
2145 G 16  
2146 F 16  
2147 F 16  
2148 F 16  
2149 C 15  
2150 B 13  
2152 F 7  
2153 E 8  
2154 F 7  
2155 D 8  
2158 M 11  
2158 F 9  
2160 D 12  
2161 D 16  
2163 E 14  
2164 H 14  
2165 C 9  
2166 G 16  
2167 F 16  
2168 I 13  
2170 I 7  
3102 E 7  
3103 C 8  
3104 B 11  
3105 C 7  
3108 E 3  
3109 F 2  
3110 F 6  
3113 C 13  
3119 B 13  
3120 C 6  
3122 M 7  
3125 M 6  
3128 M 8  
3132 L 9  
3134 M 12  
3137 M 13  
3140 I 13  
3141 D 10  
3142 G 9  
3143 I 10  
3144 H 10  
3145 H 10  
3146 I 17  
3147 I 15  
3152 H 18  
3153 H 19  
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3156 G 17  
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3170 F 17  
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3176 J 9  
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5112 A 15  
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5123 L 11  
5130 E 8  
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5134 D 7  
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5138 D 7  
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5199 D 7  
5200 D 7

1101 A1	2106 C2	2137 C5	3149 C5	3173 A5	5114 C4	5130 A3	7104 C2	9117 B2	9129 B3
1102 A1	2107 C2	2138 A5	3152 A5	5102 C2	5115 A4	5131 A3	7105 C3	9118 B4	9130 C3
1103 C1	2110 C2	2144 B5	3154 C5	5103 C2	5116 A4	6101 A2	7107 B3	9119 C4	9131 A5
1104 B1	2115 C1	2148 B4	3157 B5	5104 C2	5119 B5	6102 A1	7119 C4	9120 B4	9133 C3
1105 A1	2123 A2	2155 A3	3158 A5	5105 B2	5120 B4	6103 A1	9100 A2	9121 A2	9134 B3
1119 C5	2125 A2	2162 A2	3159 A5	5106 B2	5121 B4	6104 A2	9101 B3	9122 C3	9136 A5
1120 A5	2128 C3	3105 B3	3160 A5	5109 B4	5122 B3	6106 B3	9105 B2	9123 B1	9137 A5
1130 B5	2129 C4	3110 A2	3161 A5	5110 B4	5123 B2	6107 C5	9111 C2	9124 C4	
1131 B5	2130 A4	3132 B3	3170 C5	5111 C3	5124 B2	6109 C2	9113 B2	9125 A3	
2104 A2	2133 A4	3142 A4	3171 C5	5112 C4	5126 B3	6120 C4	9114 B2	9126 B5	
2105 A1	2135 B5	3147 B5	3172 C5	5113 B3	5127 B4	7102 A3	9115 B3	9128 A2	

2101 C4	2120 B4	2145 C1	2160 C4	3108 A4	3122 B3	3144 C2	3178 A1	4110 A3	4160 A1	7109 A3
2102 C4	2122 B3	2146 C1	2161 A3	3109 A4	3123 A3	3145 C2	3179 A1	4111 C1	4161 A1	7111 A1
2103 C3	2124 A5	2147 C1	2163 A2	3111 A3	3125 A3	3146 A1	3180 A4	4120 C2	4162 C1	7120 B4
2108 A4	2126 C2	2149 B2	2164 B1	3112 A3	3126 B3	3148 A1	3181 C3	4150 B2	4163 C1	7121 B3
2109 A4	2127 C2	2150 B2	2165 B3	3113 A2	3127 B3	3153 C2	4101 A4	4151 B3	6105 A4	7122 B4
2111 A2	2131 C2	2151 C2	2166 B2	3114 A3	3128 B3	3155 A2	4102 A4	4152 B3	6110 A4	7123 B4
2112 B5	2132 C1	2152 C3	2167 B2	3115 A3	3133 B4	3156 A1	4103 C2	4153 B4	6111 B4	7124 C4
2113 A4	2134 C1	2153 C3	2168 B1	3116 A3	3134 B4	3167 C2	4104 A2	4154 C3	6130 C2	7125 A1
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2116 B3	2139 B2	2156 C4	3102 C3	3118 B3	3137 B4	3169 B2	4106 B4	4156 A2	7101 B2	
2117 A3	2141 B1	2157 B4	3103 C3	3119 A3	3140 B2	3175 A2	4107 C4	4157 B3	7103 C2	
2118 B4	2142 B1	2158 B4	3104 B3	3120 B4	3141 C2	3176 C2	4108 B4	4158 C2	7106 A3	
2119 B4	2143 A1	2159 C2	3106 C4	3121 A3	3143 C2	3177 A1	4109 A3	4159 A2	7108 A3	



**ELECTRICAL PARTSLIST TUNER ECO5****MISCELLANEOUS**

1101	4822 267 31505	SOCKET 2P CLICKFIT
1102	4822 267 10283	SOCKET COAX, IEC 75Ω
1103	4822 265 31184	JST CONNECTOR 2 POLE

**CAPACITORS**

2101	4822 126 13692	47pF	1%	63V
2101	4822 122 32531	100pF	5%	50V
2102	4822 122 33177	10nF	20%	50V
2103	4822 122 31647	1nF	10%	63V
2104	4822 122 33195	100pF	10%	50V

2106	4822 125 60101	3-11pF TRIMCAP		
2107	4822 121 51319	1μF	20%	50V
2120	4822 122 32658	22pF	5%	50V
2125	4822 121 10673	560PF	1%	630V
2126	4822 122 31863	330pF	5%	50V

2127	4822 126 13473	220nF	20%	50V
2128	4822 124 40248	10μF	20%	63V
2129	4822 124 41584	100μF	20%	10V
2130	4822 126 11585	22nF	20%	50V
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
2134	4822 122 32654	22nF	10%	63V
2135	4822 124 40746	0,22μF	20%	63V

2136	4822 126 13188	15nF	5%	63V
2136	4822 122 32654	22nF	10%	63V
2137	4822 124 40746	0,22μF	20%	63V
2138	4822 124 22652	2,2μF	20%	50V
2139	4822 126 14236	15pF	5%	50V

2141	4822 126 13838	100nF	10%	50V
2142	4822 126 13838	100nF	10%	50V
2143	4822 126 13473	220nF	20%	50V
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 126 11585	22nF	20%	50V
2149	4822 122 32654	22nF	10%	63V
2150	4822 122 33496	100nF	10%	63V

2152	4822 126 12105	33nF	5%	63V
2153	4822 126 13486	15pF	2%	63V
2155	4822 125 60101	3-11pF TRIMCAP		
2159	4822 122 32659	33pF	5%	50V
2160	4822 122 32654	22nF	10%	63V

2164	4822 126 13482	470nF	20%	16V
2165	4822 126 13838	100nF	10%	50V
2166	4822 122 31647	1nF	10%	63V
2167	4822 122 33926	12pF	5%	50V
2168	4822 126 13695	82pF	1%	63V

**RESISTORS**

3101	4822 051 20333	33kΩ	5%	0,1W
3102	4822 117 10837	100kΩ	1%	0,1W
3103	4822 117 10965	18kΩ	2%	0,1W
3104	4822 117 11448	180Ω	10%	0,1W
3105	4822 116 83872	220Ω	5%	0,5W

3110	4822 116 52195	47Ω	5%	0,5W
3120	4822 051 20008	CHIP JUMPER 0805		
3132	4822 116 52195	47Ω	5%	0,5W
3134	4822 051 20223	22kΩ	5%	0,1W
3141	4822 117 11148	56kΩ	1%	0,1W

**RESISTORS**

3142	4822 100 12159	TRIMPOT. 100kΩ		
3145	4822 117 11449	2,2kΩ	1%	0,1W
3146	4822 051 20229	22Ω	5%	0,1W
3152	4822 116 83883	470Ω	5%	0,16W
3153	4822 051 20471	470Ω	5%	0,1W

3154	4822 116 83868	150Ω	5%	0,5W
3155	4822 051 20471	470Ω	5%	0,1W
3156	4822 117 10837	100kΩ	1%	0,1W
3158	4822 116 83883	470Ω	5%	0,16W
3159	4822 116 83883	470Ω	5%	0,16W

3160	4822 116 83883	470Ω	5%	0,16W
3161	4822 116 83883	470Ω	5%	0,16W
3167	4822 117 11503	220Ω	5%	0,1W
3169	4822 051 20154	150kΩ	5%	0,1W
3170	4822 116 52234	100kΩ	5%	0,5W

3171	4822 116 52219	330Ω	5%	0,5W
4101	4822 051 20008	CHIP JUMPER 0805		
4102	4822 051 20008	CHIP JUMPER 0805		
4103	4822 051 20008	CHIP JUMPER 0805		
4104	4822 051 20008	CHIP JUMPER 0805		

4105	4822 051 20008	CHIP JUMPER 0805
4106	4822 051 20008	CHIP JUMPER 0805
4108	4822 051 20008	CHIP JUMPER 0805
4111	4822 051 20008	CHIP JUMPER 0805
4120	4822 051 20008	CHIP JUMPER 0805

4150	4822 051 20008	CHIP JUMPER 0805
4152	4822 051 20008	CHIP JUMPER 0805
4153	4822 051 20008	CHIP JUMPER 0805
4154	4822 051 20008	CHIP JUMPER 0805
4157	4822 051 20008	CHIP JUMPER 0805

4158	4822 051 20008	CHIP JUMPER 0805
4159	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	4822 158 60511	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	4822 157 60517	RF-COIL AM
5130	4822 157 11843	RF COIL 1,5 TURNS

5131	4822 157 11843	RF COIL 1,5 TURNS
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**DIODES**

6103	4822 130 30621	1N4148
6104	4822 130 30621	1N4148
6105	4822 130 83075	HN1V02H
6106	4822 130 30621	1N4148
6107	4822 130 34488	BZX79-C11

6120	4822 130 30621	1N4148
6130	4822 130 82833	1SV228
6131	4822 130 82833	1SV228

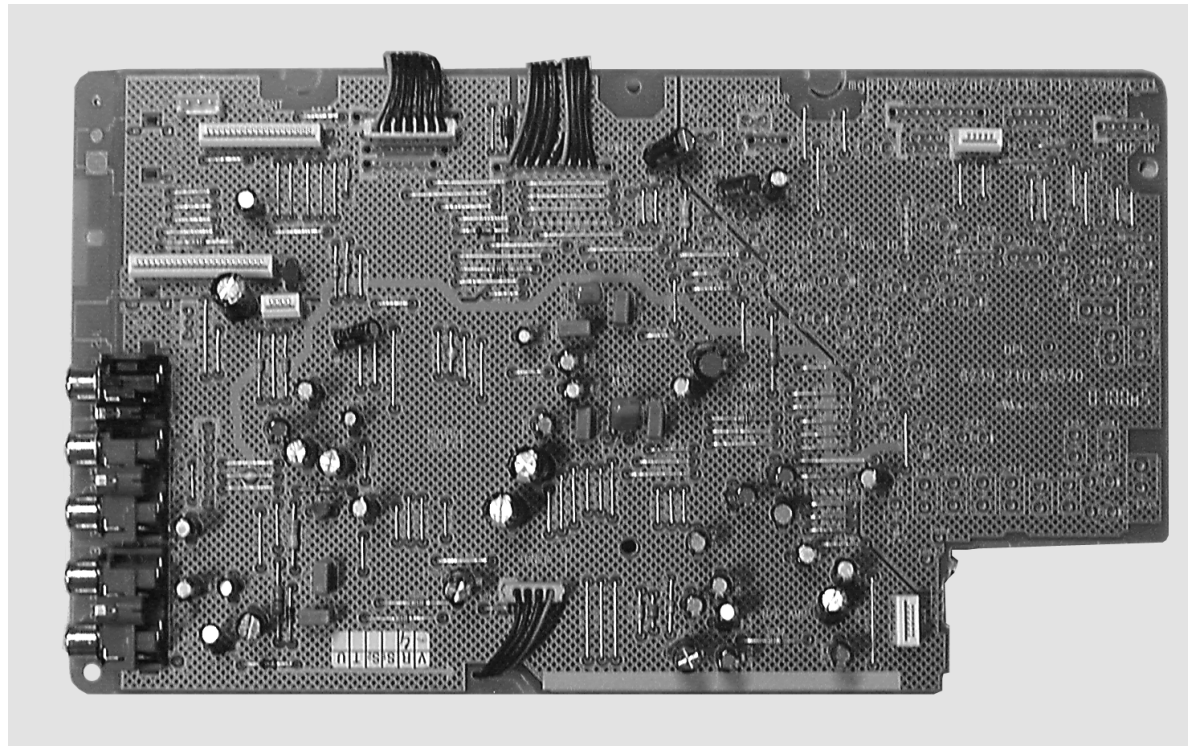
**TRANSISTORS**

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7111	4822 130 42755	BC847C

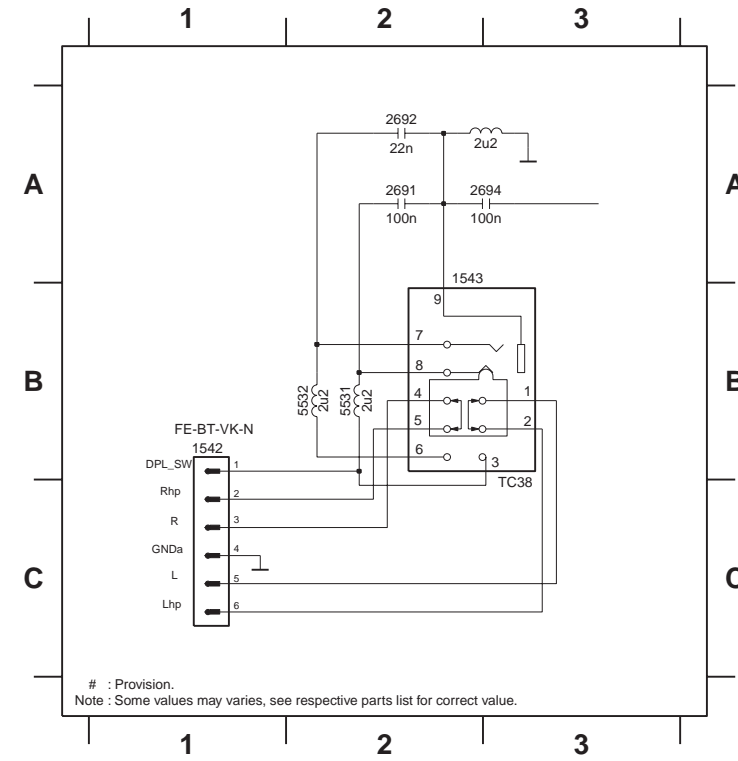
**INTEGRATED CIRCUITS**

7101	4822 209 90924	TEA5757H/V1, RADIO IC
------	----------------	-----------------------

**ELECTRICAL PARTSLIST TUNER ECO5**

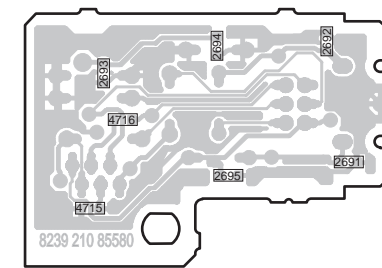
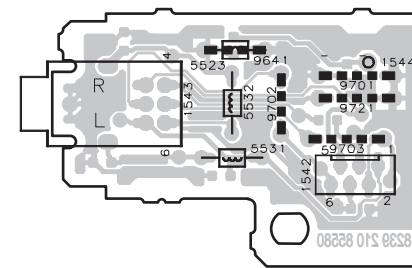


1542 B1 1544 A3 2692 A2 2694 A3 5523 A3 5532 B2  
 1543 A2 2691 A2 2693 A3 2695 A2 5531 B2 9641 A3



**Headphone Board**  
 Componentside view

Copperside view

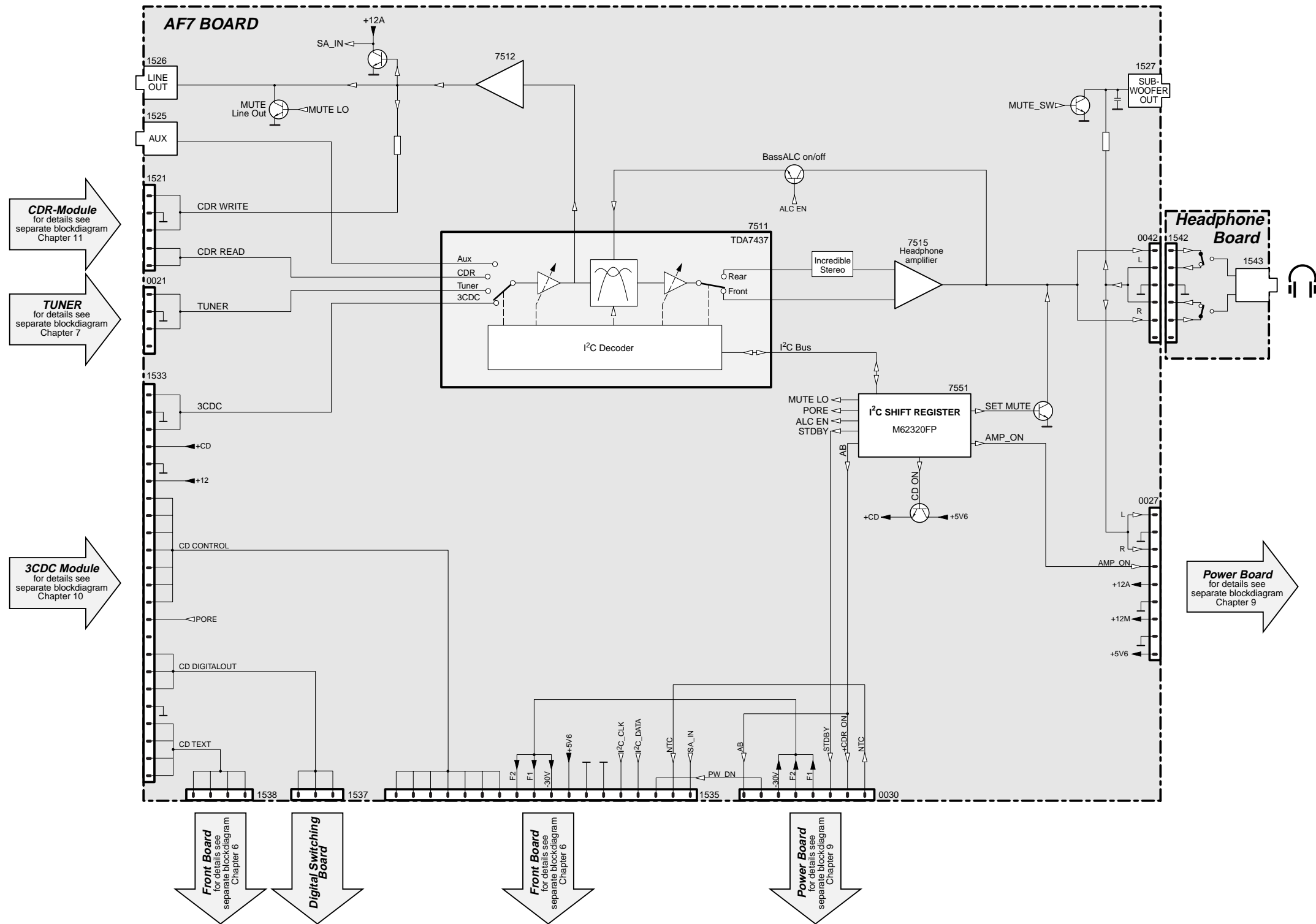


# AF7 Board

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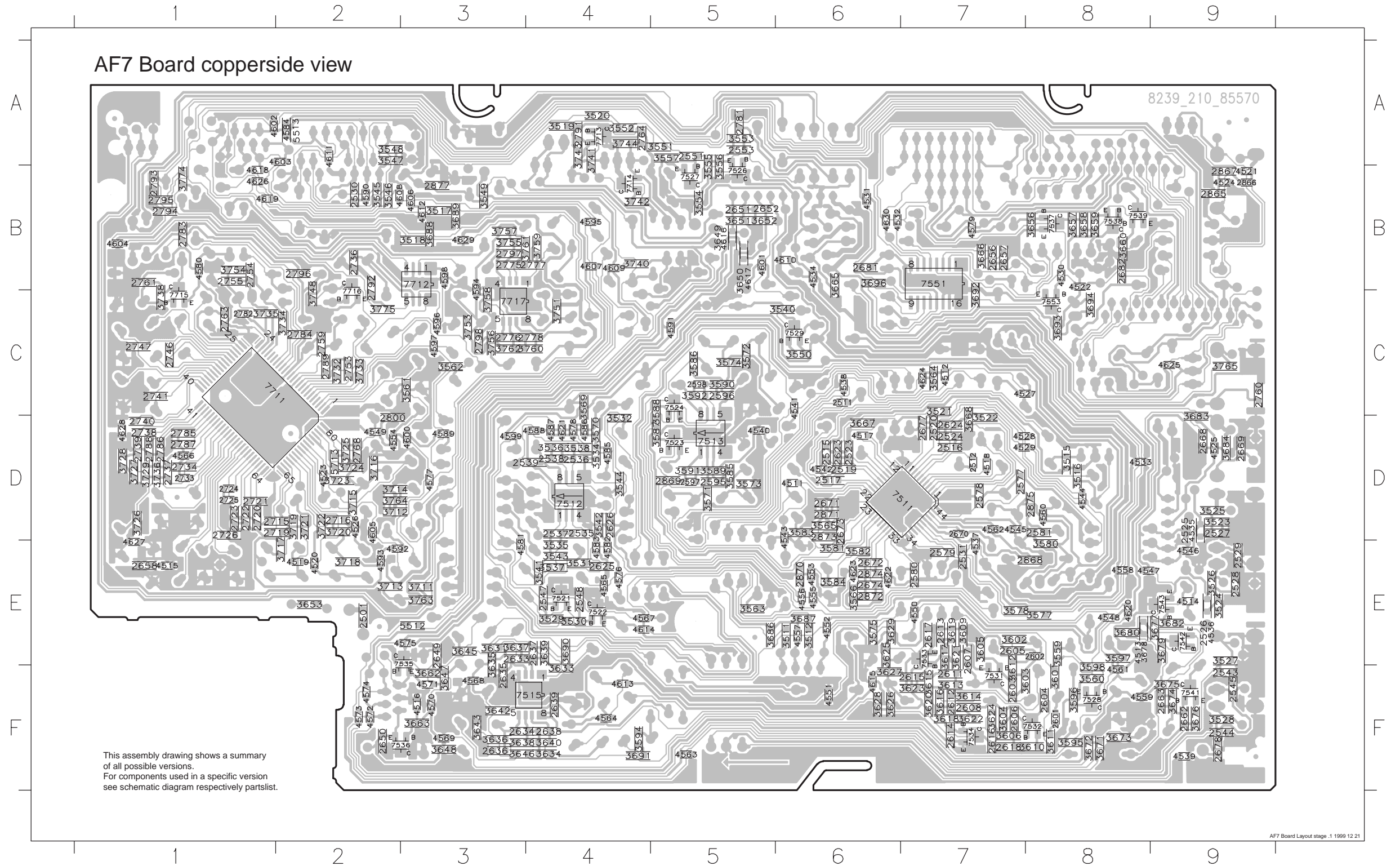
# Blockdiagram AF7 Board



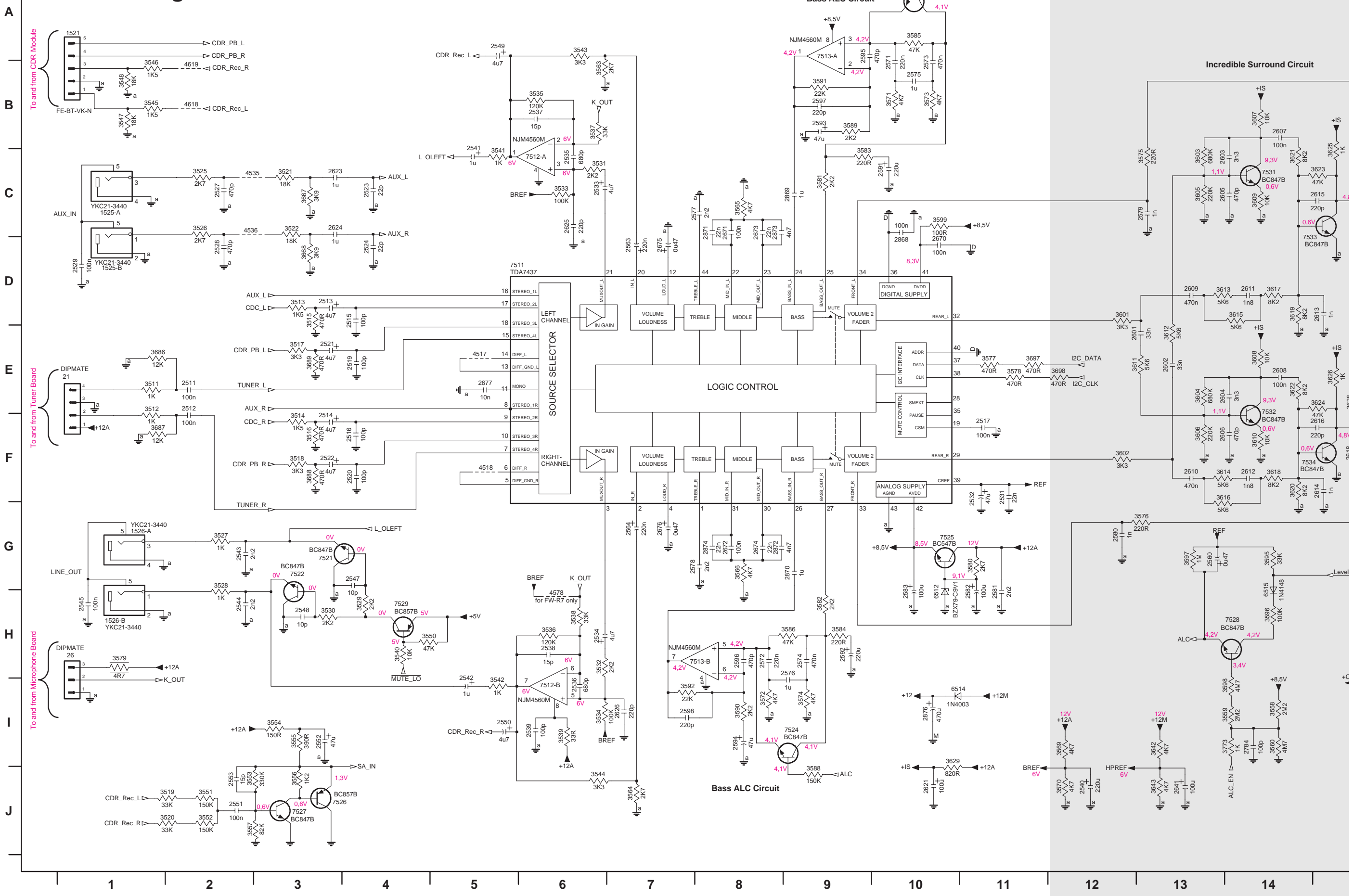


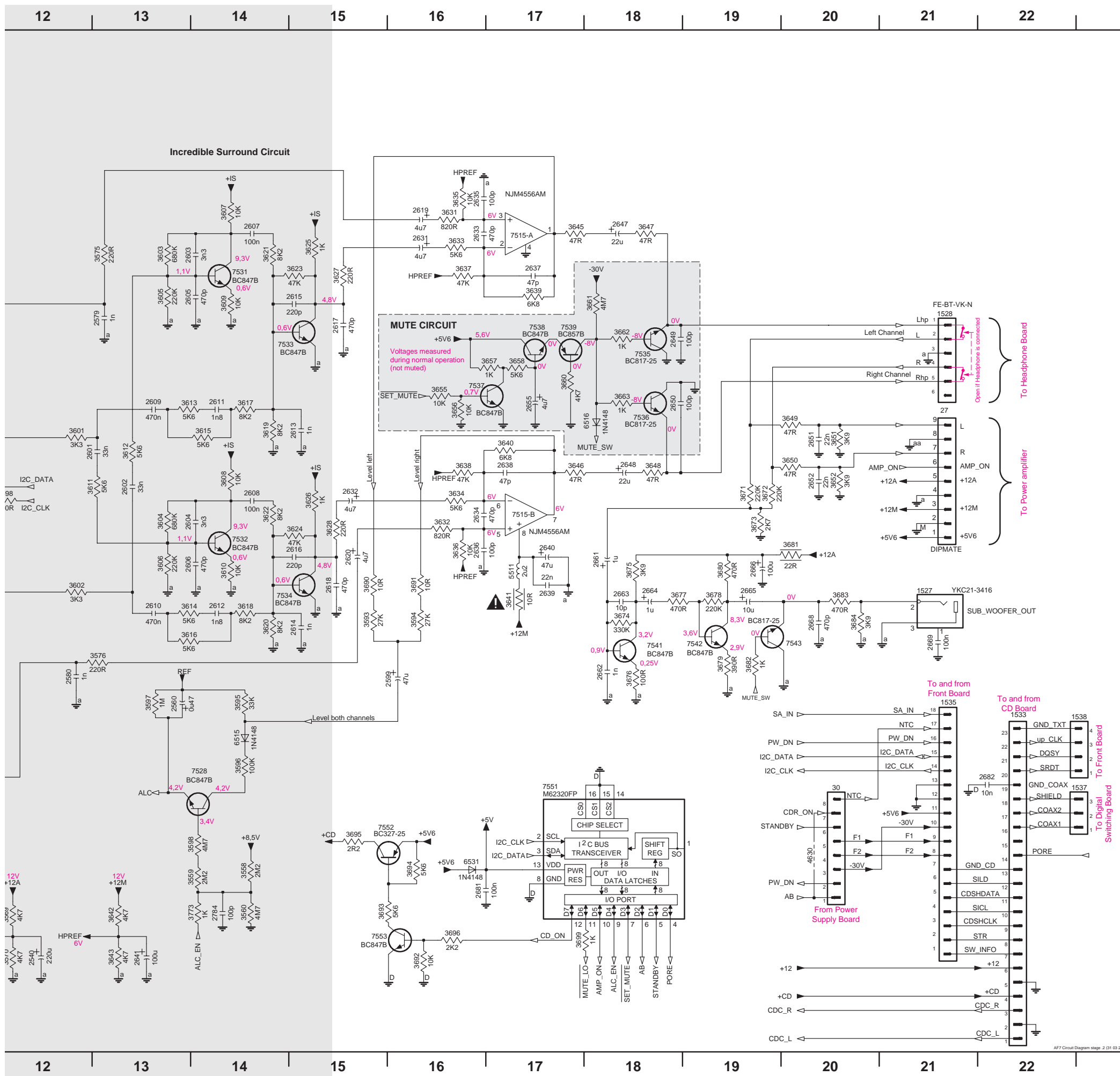
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2511 C6	2547 E4	2614 F7	2663 F9	2736 B2	2784 C2	2874 E6	3535 E4	3561 C3	3589 D5	3618 F7	3646 F3	3676 F9	3717 E2	3748 C2	4518 D7	4542 D6	4566 D1	4590 B2	4614 E4	7521 E4	7713 A4
2512 D7	2548 E4	2615 F7	2668 D9	2737 D1	2785 D1	2875 D8	3536 D4	3562 C3	3590 C5	3619 E7	3647 F3	3677 E9	3718 E2	3751 C4	4519 E2	4543 D6	4567 E4	4591 C5	4615 F6	7522 E4	7714 B4
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2516 D7	2553 A5	2617 E7	2670 D7	2739 D1	2787 D1	2878 D1	3538 D4	3564 C7	3592 C5	3621 E7	3649 B5	3679 E9	3720 D2	3754 B1	4521 B9	4545 D7	4569 F3	4593 E2	4617 B5	7524 C5	7716 C2
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2519 D6	2578 D7	2623 D6	2672 E6	2741 C1	2789 C2	2879 C2	3541 E4	3566 E6	3595 F8	3623 F7	3651 B5	3682 E9	3722 D2	3756 C3	4523 D2	4547 E8	4571 F3	4595 B4	4619 B1	7527 B5	
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AF7 Board copperside view



# Circuit Diagram AF7 Board

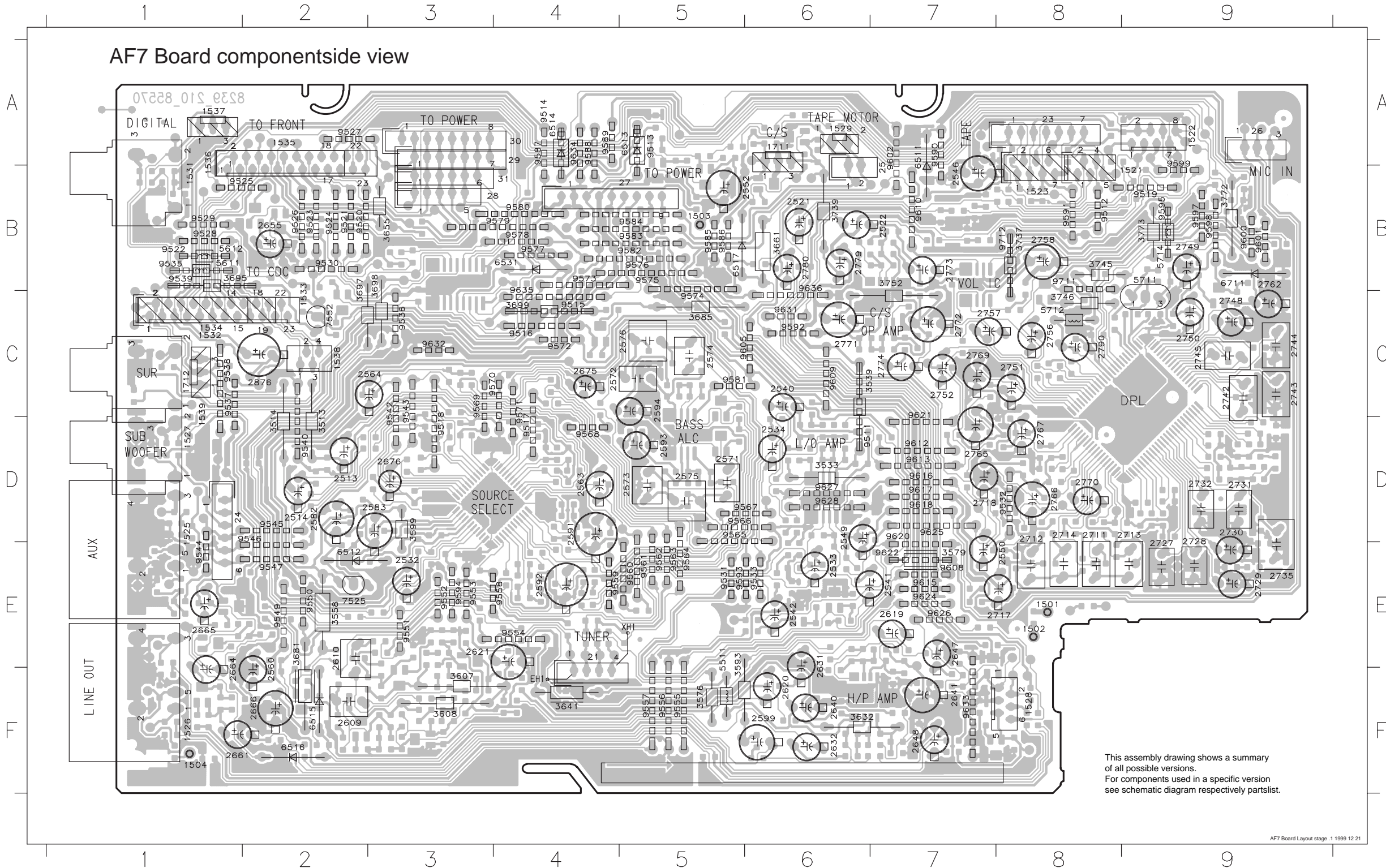




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0027	D21	2619	B16	3554	I3	3655	D16
0030	H20	2620	F15	3555	I3	3656	D16
1521	A1	2621	J10	3556	J3	3657	D17
1525	C1	2623	C3	3557	J3	3658	D17
1526	H1	2624	C3	3558	I14	3660	D17
1527	F21	2625	C6	3559	I14	3661	C18
1528	C21	2626	I7	3560	I14	3662	D18
1533	G22	2631	C16	3563	B6	3663	D18
1535	G21	2632	E15	3564	J7	3667	C3
1537	H22	2633	C16	3565	C8	3668	C3
1538	G22	2634	E16	3566	G8	3671	E19
2216	F15	2635	B16	3569	I12	3672	E19
2355	D17	2636	F16	3570	J12	3673	E19
2511	E2	2637	C17	3571	B10	3674	F18
2512	E2	2638	E17	3572	I8	3675	F18
2513	D3	2639	F17	3573	B10	3676	G18
2514	F3	2640	F17	3574	I9	3677	F18
2515	D4	2641	J13	3575	C13	3678	F19
2516	F4	2647	B18	3576	G13	3679	G19
2517	F11	2648	E18	3577	E11	3680	F19
2519	E4	2649	D18	3578	E11	3681	F20
2520	F4	2650	D18	3579	H1	3682	G19
2521	E3	2651	E20	3580	G11	3683	F20
2522	F3	2652	E20	3581	C9	3684	F20
2523	C4	2661	F18	3582	H9	3686	E1
2524	C4	2662	G18	3583	C9	3687	F1
2527	C2	2663	F18	3584	H9	3688	F3
2528	D2	2664	F18	3585	A10	3689	E3
2531	G11	2665	F19	3586	H9	3690	F15
2532	G11	2666	F19	3587	A10	3691	F16
2533	C6	2668	F20	3588	J9	3692	J16
2534	H6	2669	G21	3589	B9	3693	I15
2535	C6	2670	D10	3590	I8	3694	I16
2536	I6	2671	C8	3591	B9	3695	I15
2537	B6	2672	G8	3592	I7	3696	J16
2539	I6	2673	C8	3593	F15	3697	E11
2540	J12	2674	G8	3594	F16	3698	E12
2541	C5	2675	D7	3595	G14	3699	J17
2542	I5	2676	G7	3596	H14	3773	I14
2543	G2	2677	E5	3597	G13	3929	J10
2544	H2	2681	I16	3598	I14	4517	E5
2545	H1	2682	H22	3599	C10	4518	F5
2547	G4	2784	I14	3601	D12	4535	C2
2548	H3	2868	C10	3602	F12	4536	C2
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2550	I5	2870	G9	3604	E13	4618	B2
2551	J2	2871	C8	3605	C13	4619	B2
2552	I3	2872	G8	3606	F13	4630	I20
2553	J2	2873	C8	3607	B14	5511	F17
2560	G13	2874	G8	3608	E14	5734	F15
2563	D7	2876	I10	3609	C14	6512	H10
2564	G7	3511	E1	3610	F14	6514	I10
2571	B10	3512	E1	3611	E13	6515	H14
2572	H8	3513	D3	3612	E13	6516	D18
2573	B10	3514	F3	3613	D13	6531	I16
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2592	H9	3528	H2	3625	C15	7525	G10
2593	B9	3529	H4	3626	E15	7526	J3
2594	I8	3530	H3	3627	C15	7527	J3
2595	A9	3531	C6	3628	E15	7528	H14
2596	H8	3532	H6	3631	B16	7529	H4
2597	B9	3533	C6	3632	E16	7531	C14
2598	I7	3534	I6	3633	C16	7532	F14
2599	G16	3535	B6	3634	E16	7533	D15
2601	E13	3536	H6	3635	B16	7535	D18
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2603	C14	3538	H6	3637	C16	7537	D17
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2612	F14	3547	B1	3647	B18		
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2614	F15	3550	H4	3649	D20		
2615	C15	3551	J2	3650	E20		

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23 A8	1521 B8	1536 A2	2540 C6	2574 C5	2620 F6	2675 C4	2732 D9	2758 B8	2790 C8	3632 F6	3746 C8	6514 A4	9516 C4	9529 B1	9544 E1	9558 E4	9571 C4	9584 B5	9598 B9	9617 D7	9634 A4
24 D1	1522 A9	1537 A1	2541 E7	2575 D5	2621 E4	2676 D3	2735 E9	2762 B9	2876 C2	3641 F4	3752 C7	6515 F2	9517 D4	9530 B2	9545 D2	9559 E4	9572 C4	9585 B5	9599 B9	9618 D7	9635 C4
25 A6	1523 B8	1538 C2	2542 E6	2576 C5	2631 E6	2711 E8	2742 C9	2765 D8	3513 D2	3655 B3	3772 B9	6516 F2	9518 D3	9531 E5	9546 D2	9560 E5	9573 B4	9586 B5	9600 B9	9620 E7	9636 C6
26 A9	1525 E1	1539 C1	2546 A7	2582 D2	2632 F6	2712 E8	2743 C9	2766 D8	3514 D2	3661 B6	3773 B9	6517 B5	9519 B9	9532 D8	9547 E2	9561 E5	9574 C5	9587 A4	9601 B9	9621 D7	9637 C8
27 B4	1526 F1	1711 A6	2549 D7	2583 D3	2640 F6	2713 E9	2744 C9	2767 D8	3533 D6	3681 F2	5511 F5	6531 B4	9520 B2	9533 E6	9549 E2	9562 E5	9575 B5	9588 A4	9602 A7	9622 E7	9712 B8
28 B3	1527 D1	1712 C1	2550 E8	2591 D5	2641 F7	2714 E8	2745 C9	2769 C7	3539 C6	3685 C5	5611 B1	6711 B9	9521 B2	9535 B1	9550 E2	9563 E5	9576 B5	9589 A4	9605 C6	9624 E7	
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1501 E8	1532 C1	2522 B6	2564 C3	2599 F6	2661 F1	2728 E9	2751 C8	2773 B7	3593 F5	3699 C4	5714 B9	9512 B8	9525 B1	9539 B1	9554 F4	9567 D6	9580 B4	9593 E5	9612 D7	9628 D6	
1502 E8	1533 C1	2532 E3	2571 D5	2609 F2	2664 E1	2729 E9	2752 C7	2774 C7	3599 D3	3737 B8	6511 B7	9513 A5	9526 B2	9540 D2	9555 F5	9568 D4	9581 C5	9594 E3	9613 D7	9631 C6	
1503 B5	1534 C1	2533 E6	2572 C5	2610 E3	2665 E1	2730 D9	2756 C8	2779 B6	3607 F3	3739 B6	6512 E2	9514 A4	9527 A2	9542 C3	9556 F5	9569 C3	9582 B5	9595 B9	9615 E7	9632 C3	

### AF7 Board componentside view



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

## ELECTRICAL PARTSLIST AF7 BOARD

## MISCELLANEOUS

1521 4822 267 10954 FFC SOCKET, 5P  
 1525 4822 267 20452 CINCH SOCKET 2P  
 1526 4822 267 20452 CINCH SOCKET 2P  
 1527 4822 267 31729 CINCH SOCKET, 1P  
 1528 4822 267 10731 FFC SOCKET, 6P

1533 4822 267 10757 FFC SOCKET, 23P, TOP ENTRY  
 1535 4822 265 11553 FFC SOCKET, 19P  
 1538 4822 267 10733 FFC SOCKET, 4P  
 1542 4822 267 10731 FFC SOCKET, 6P  
 1543 4822 265 11529 HEADPHONE SOCKET

## CAPACITORS

2501 © 4822 126 13838 100nF 10% 50V  
 2511 © 4822 126 13838 100nF 10% 50V  
 2512 © 4822 126 13838 100nF 10% 50V  
 2513 4822 124 40769 4,7µF 20% 100V  
 2514 4822 124 40769 4,7µF 20% 100V

2515 © 5322 122 32531 100pF 5% 50V  
 2516 © 5322 122 32531 100pF 5% 50V  
 2517 © 4822 126 14585 100nF 10% 50V  
 2519 © 5322 122 32531 100pF 5% 50V  
 2520 © 5322 122 32531 100pF 5% 50V

2521 4822 124 40769 4,7µF 20% 100V  
 2522 4822 124 40769 4,7µF 20% 100V  
 2523 © 5322 122 32658 22pF 5% 50V  
 2524 © 5322 122 32658 22pF 5% 50V  
 2527 © 5322 122 34099 470pF 10% 63V

2528 © 5322 122 34099 470pF 10% 63V  
 2529 © 4822 126 13838 100nF 10% 50V  
 2531 © 5322 122 32654 22nF 10% 63V  
 2532 4822 124 40433 47µF 20% 25V  
 2533 4822 124 40769 4,7µF 20% 100V

2534 4822 124 40769 4,7µF 20% 100V  
 2535 © 4822 122 32535 680pF  
 2536 © 4822 122 32535 680pF  
 2537 © 4822 126 13486 15pF 2% 63V  
 2538 © 4822 126 13486 15pF 2% 63V

2539 © 5322 122 32531 100pF 5% 50V  
 2540 4822 124 12245 220µF 20% 16V  
 2541 4822 124 21913 1µF 20% 63V  
 2542 4822 124 21913 1µF 20% 63V  
 2543 © 4822 122 33127 2,2nF 10% 63V

2544 © 4822 122 33127 2,2nF 10% 63V  
 2545 © 4822 126 13838 100nF 10% 50V  
 2547 © 5322 122 32448 10pF 5% 50V  
 2548 © 5322 122 32448 10pF 5% 50V  
 2549 4822 124 40769 4,7µF 20% 100V

2550 4822 124 40769 4,7µF 20% 100V  
 2551 © 4822 126 14585 100nF 10% 50V  
 2552 4822 124 41751 47µF 20% 16V  
 2553 © 4822 126 13486 15pF 2% 63V  
 2560 5322 124 41948 0,47µF 20% 50V

2563 4822 124 40746 0,22µF 20% 63V  
 2564 4822 124 40746 0,22µF 20% 63V  
 2571 4822 121 42408 220nF 5% 63V  
 2572 4822 121 42408 220nF 5% 63V  
 2573 4822 121 51252 470nF 5% 63V

2574 4822 121 51252 470nF 5% 63V  
 2575 4822 121 51319 1µF 20% 50V  
 2576 4822 121 51319 1µF 20% 50V  
 2577 © 4822 122 33127 2,2nF 10% 63V  
 2578 © 4822 122 33127 2,2nF 10% 63V

## CAPACITORS

2579 © 5322 122 31647 1nF 10% 63V  
 2580 © 5322 122 31647 1nF 10% 63V  
 2581 © 4822 122 33127 2,2nF 10% 63V  
 2582 4822 124 40207 100µF 20% 25V  
 2583 4822 124 40207 100µF 20% 25V

2591 4822 124 80144 220µF 20% 25V  
 2592 4822 124 80144 220µF 20% 25V  
 2593 4822 124 40433 47µF 20% 25V  
 2594 4822 124 40433 47µF 20% 25V  
 2595 © 5322 122 34099 470pF 10% 63V

2596 © 5322 122 34099 470pF 10% 63V  
 2597 © 4822 122 33575 220pF 5% 50V  
 2598 © 4822 122 33575 220pF 5% 50V  
 2599 4822 124 41751 47µF 20% 16V  
 2601 © 4822 126 12105 33nF 5% 63V

2602 © 4822 126 12105 33nF 5% 63V  
 2603 © 4822 122 33891 3,3nF 10% 63V  
 2604 © 4822 122 33891 3,3nF 10% 63V  
 2605 © 5322 122 34099 470pF 10% 63V  
 2606 © 5322 122 34099 470pF 10% 63V

2607 © 4822 126 14585 100nF 10% 50V  
 2608 © 4822 126 14585 100nF 10% 50V  
 2609 4822 121 51252 470nF 5% 63V  
 2610 4822 121 51252 470nF 5% 63V  
 2611 © 4822 126 10847 1,8nF 10% 50V

2612 © 4822 126 10847 1,8nF 10% 50V  
 2613 © 5322 122 31647 1nF 10% 63V  
 2614 © 5322 122 31647 1nF 10% 63V  
 2615 © 4822 122 33575 220pF 5% 50V  
 2616 © 4822 122 33575 220pF 5% 50V

2617 © 5322 122 34099 470pF 10% 63V  
 2618 © 5322 122 34099 470pF 10% 63V  
 2619 4822 124 40769 4,7µF 20% 100V  
 2620 4822 124 40769 4,7µF 20% 100V  
 2621 4822 124 40207 100µF 20% 25V

2623 © 4822 126 14043 1µF 20% 16V  
 2624 © 4822 126 14043 1µF 20% 16V  
 2625 © 4822 122 33575 220pF 5% 50V  
 2626 © 4822 122 33575 220pF 5% 50V  
 2631 4822 124 40769 4,7µF 20% 100V

2632 4822 124 40769 4,7µF 20% 100V  
 2633 © 5322 122 34099 470pF 10% 63V  
 2634 © 5322 122 34099 470pF 10% 63V  
 2635 © 5322 122 32531 100pF 5% 50V  
 2636 © 5322 122 32531 100pF 5% 50V

2637 © 4822 126 13692 47pF 1% 63V  
 2638 © 4822 126 13692 47pF 1% 63V  
 2639 © 5322 122 32654 22nF 10% 63V  
 2640 4822 124 40433 47µF 20% 25V  
 2641 4822 124 40207 100µF 20% 25V

2647 4822 124 81151 22µF 20% 50V  
 2648 4822 124 81151 22µF 20% 50V  
 2649 © 5322 122 32531 100pF 5% 50V  
 2650 © 5322 122 32531 100pF 5% 50V  
 2651 © 5322 122 32654 22nF 10% 63V

2652 © 5322 122 32654 22nF 10% 63V  
 2655 4822 124 40769 4,7µF 20% 100V  
 2661 4822 124 21913 1µF 20% 63V  
 2662 © 5322 122 31647 1nF 10% 63V  
 2663 © 5322 122 32448 10pF 5% 50V

## ELECTRICAL PARTSLIST AF7 BOARD

## CAPACITORS

2664 4822 124 21913 1µF 20% 63V  
 2665 4822 124 40248 10µF 20% 63V  
 2666 4822 124 40207 100µF 20% 25V  
 2668 © 5322 122 34099 470pF 10% 63V  
 2669 © 4822 126 13838 100nF 10% 50V

2670 © 4822 126 13838 100nF 10% 50V  
 2671 © 4822 126 13838 100nF 10% 50V  
 2672 © 4822 126 13838 100nF 10% 50V  
 2673 © 5322 122 32654 22nF 10% 63V  
 2674 © 5322 122 32654 22nF 10% 63V

2675 5322 124 41948 0,47µF 20% 50V  
 2676 5322 124 41948 0,47µF 20% 50V  
 2677 © 5322 122 34098 10nF 10% 50V  
 2681 © 4822 126 14585 100nF 10% 50V  
 2682 © 5322 122 34098 10nF10%50V

2691 © 5322 122 32654 22nF 10% 63V  
 2692 © 5322 122 32654 22nF 10% 63V  
 2694 © 4822 126 13838 100nF 10% 50V  
 2781 © 5322 122 32654 22nF 10% 63V  
 2784 © 5322 122 32531 100pF 5% 50V

2868 © 4822 126 14585 100nF 10% 50V  
 2869 © 4822 126 14043 1µF 20% 16V  
 2870 © 4822 126 14043 1µF 20% 16V  
 2871 © 5322 122 32654 22nF 10% 63V  
 2872 © 5322 126 10223 4,7nF 10% 63V

2873 © 5322 126 10223 4,7nF 10% 63V  
 2874 © 5322 122 32654 22nF 10% 63V  
 2876 4822 124 80791 470µF 20% 16V

## RESISTORS

3511 © 4822 051 10102 1kΩ 2% 0,25W  
 3512 © 4822 051 10102 1kΩ 2% 0,25W  
 3513 4822 116 52243 1,5kΩ 5% 0,16W  
 3514 4822 116 52243 1,5kΩ 5% 0,16W  
 3515 © 4822 051 20471 470Ω 5% 0,1W

3516 © 4822 051 20471 470Ω 5% 0,1W  
 3517 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3518 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3519 © 4822 051 20333 33kΩ 5% 0,1W  
 3520 © 4822 051 20333 33kΩ 5% 0,1W

3521 © 4822 117 10965 18kΩ 2% 0,1W  
 3522 © 4822 117 10965 18kΩ 2% 0,1W  
 3525 © 4822 117 12955 2,7kΩ 1% 0,1W  
 3526 © 4822 117 12955 2,7kΩ 1% 0,1W  
 3527 © 4822 051 10102 1kΩ 2% 0,25W

3528 © 4822 051 10102 1kΩ 2% 0,25W  
 3529 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3530 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3531 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3532 © 4822 117 11449 2,2kΩ 1% 0,1W

3533 4822 116 52234 100kΩ 5% 0,5W  
 3534 © 4822 117 10837 100kΩ 1% 0,1W  
 3535 © 4822 051 20124 120kΩ 5% 0,1W  
 3536 © 4822 051 20124 120kΩ 5% 0,1W  
 3537 © 4822 051 20333 33kΩ 5% 0,1W

3538 © 4822 051 20333 33kΩ 5% 0,1W  
 3539 4822 052 10339 33Ω 5% NFR  
 3540 © 4822 117 10833 10kΩ 1% 0,1W  
 3541 © 4822 051 10102 1kΩ 2% 0,25W  
 3542 © 4822 051 10102 1kΩ 2% 0,25W

## RESISTORS

3543 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3544 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3545 © 4822 117 11139 1,5kΩ 1% 0,1W  
 3546 © 4822 117 11139 1,5kΩ 1% 0,1W  
 3547 © 4822 117 10965 18kΩ 2% 0,1W

3548 © 4822 117 10965 18kΩ 2% 0,1W  
 3550 © 4822 117 10834 47kΩ 1% 0,1W  
 3551 © 4822 051 20154 150kΩ 5% 0,1W  
 3552 © 4822 051 20154 150kΩ 5% 0,1W  
 3553 © 4822 051 20334 330kΩ 5% 0,1W

3554 © 4822 117 10353 150Ω 5% 0,1W  
 3555 © 4822 051 20391 390Ω 5% 0,1W  
 3556 © 4822 051 20122 1,2kΩ 5% 0,1W  
 3557 © 4822 117 11149 82kΩ 1% 0,1W  
 3558 4822 053 20225 2,2MΩ 5% 0,25W

3559 © 4822 051 20225 2,2MΩ 5% 0,1W  
 3560 © 4822 051 20475 4,7MΩ 5% 0,1W  
 3563 © 4822 117 12955 2,7kΩ 1% 0,1W  
 3564 © 4822 117 12955 2,7kΩ 1% 0,1W  
 3565 © 4822 051 20472 4,7kΩ 5% 0,1W

3566 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3569 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3570 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3571 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3572 © 4822 051 20472 4,7kΩ 5% 0,1W

3573 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3574 © 4822 051 20472 4,7kΩ 5% 0,1W  
 3575 © 4822 117 11503 220Ω 5% 0,1W  
 3576 4822 116 83872 220Ω 5% 0,5W  
 3577 © 4822 051 20471 470Ω 5% 0,1W

3578 © 4822 051 20471 470Ω 5% 0,1W  
 3579 4822 052 10478 4,7Ω 5% NFR  
 3580 © 4822 117 12955 2,7kΩ 1% 0,1W  
 3581 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3582 © 4822 117 11449 2,2kΩ 1% 0,1W

3583 © 4822 117 11503 220Ω 5% 0,1W  
 3584 © 4822 117 11503 220Ω 5% 0,1W  
 3585 © 4822 117 10834 47kΩ 1% 0,1W  
 3586 © 4822 117 10834 47kΩ 1% 0,1W  
 3587 © 4822 051 20154 150kΩ 5% 0,1W

3588 © 4822 051 20154 150kΩ 5% 0,1W  
 3589 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3590 © 4822 117 11449 2,2kΩ 1% 0,1W  
 3591 © 4822 051 20223 22kΩ 5% 0,1W  
 3592 © 4822 051 20223 22kΩ 5% 0,1W

3593 4822 116 52264 27kΩ 5% 0,5W  
 3594 © 4822 051 20273 27kΩ 5% 0,1W  
 3595 © 4822 051 20333 33kΩ 5% 0,1W  
 3596 © 4822 117 10837 100kΩ 1% 0,1W  
 3597 © 4822 051 20105 1MΩ 5% 0,1W

3598 © 4822 051 20475 4,7MΩ 5% 0,1W  
 3599 4822 116 52175 100Ω 5% 0,5W  
 3601 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3602 © 4822 051 20332 3,3kΩ 5% 0,1W  
 3603 © 4822 051 20684 680kΩ 5% 0,1W

3604 © 4822 051 20684 680kΩ 5% 0,1W  
 3605 © 4822 117 13579 220kΩ 1% 0,1W  
 3606 © 4822 117 13579 220kΩ 1% 0,1W  
 3607 4822 050 21003 10kΩ 2% 0,25W  
 3608 4822 050 21003 10kΩ 2% 0,25W

## ELECTRICAL PARTSLIST AF7 BOARD

## RESISTORS

3609	4822 117 10833	10kΩ	1%	0,1W
3610	4822 117 10833	10kΩ	1%	0,1W
3611	4822 051 20562	5,6kΩ	5%	0,1W
3612	4822 051 20562	5,6kΩ	5%	0,1W
3613	4822 051 20562	5,6kΩ	5%	0,1W
3614	4822 051 20562	5,6kΩ	5%	0,1W
3615	4822 051 20562	5,6kΩ	5%	0,1W
3616	4822 051 20562	5,6kΩ	5%	0,1W
3617	4822 051 20822	8,2kΩ	5%	0,1W
3618	4822 051 20822	8,2kΩ	5%	0,1W
3619	4822 051 20822	8,2kΩ	5%	0,1W
3620	4822 051 20822	8,2kΩ	5%	0,1W
3621	4822 051 20822	8,2kΩ	5%	0,1W
3622	4822 051 20822	8,2kΩ	5%	0,1W
3623	4822 117 10834	47kΩ	1%	0,1W
3624	4822 117 10834	47kΩ	1%	0,1W
3625	4822 051 10102	1kΩ	2%	0,25W
3626	4822 051 10102	1kΩ	2%	0,25W
3627	4822 117 11503	220Ω	5%	0,1W
3628	4822 117 11503	220Ω	5%	0,1W
3629	4822 117 11454	820Ω	1%	
3631	4822 117 11454	820Ω	1%	
3632	4822 116 52231	820Ω	5%	0,5W
3633	4822 051 20562	5,6kΩ	5%	0,1W
3634	4822 051 20562	5,6kΩ	5%	0,1W
3635	4822 117 10833	10kΩ	1%	0,1W
3636	4822 117 10833	10kΩ	1%	0,1W
3637	4822 117 10834	47kΩ	1%	0,1W
3638	4822 117 10834	47kΩ	1%	0,1W
3639	4822 117 11507	6,8kΩ	1%	0,1W
3640	4822 117 11507	6,8kΩ	1%	0,1W
3641	4822 052 10109	10Ω	5%	NFR
3642	4822 051 20472	4,7kΩ	5%	0,1W
3643	4822 051 20472	4,7kΩ	5%	0,1W
3645	4822 051 20479	47Ω	5%	0,1W
3646	4822 051 20479	47Ω	5%	0,1W
3647	4822 051 20479	47Ω	5%	0,1W
3648	4822 051 20479	47Ω	5%	0,1W
3649	4822 051 20479	47Ω	5%	0,1W
3650	4822 051 20479	47Ω	5%	0,1W
3651	4822 051 20392	3,9kΩ	5%	0,1W
3652	4822 051 20392	3,9kΩ	5%	0,1W
3655	4822 050 21003	10kΩ	2%	0,25W
3656	4822 117 10833	10kΩ	1%	0,1W
3657	4822 051 10102	1kΩ	2%	0,25W
3658	4822 051 20562	5,6kΩ	5%	0,1W
3660	4822 051 20472	4,7kΩ	5%	0,1W
3661	4822 053 20475	4,7MΩ	5%	0,25W
3662	4822 051 10102	1kΩ	2%	0,25W
3663	4822 051 10102	1kΩ	2%	0,25W
3667	4822 051 20392	3,9kΩ	5%	0,1W
3668	4822 051 20392	3,9kΩ	5%	0,1W
3671	4822 117 13579	220kΩ	1%	0,1W
3672	4822 117 13579	220kΩ	1%	0,1W
3673	4822 117 12955	2,7kΩ	1%	0,1W
3674	4822 051 20334	330kΩ	5%	0,1W
3675	4822 051 20392	3,9kΩ	5%	0,1W
3676	4822 051 20101	100Ω	5%	0,1W
3677	4822 051 20471	470Ω	5%	0,1W
3678	4822 117 13579	220kΩ	1%	0,1W

## RESISTORS

3679	4822 051 20391	390Ω	5%	0,1W
3680	4822 051 20471	470Ω	5%	0,1W
3681	4822 052 10229	22Ω	5%	0,33W
3682	4822 051 10102	1kΩ	2%	0,25W
3683	4822 051 20471	470Ω	5%	0,1W
3684	4822 051 20392	3,9kΩ	5%	0,1W
3686	4822 117 11383	12kΩ	1%	0,1W
3687	4822 117 11383	12kΩ	1%	0,1W
3688	4822 051 20471	470Ω	5%	0,1W
3689	4822 051 20471	470Ω	5%	0,1W
3690	4822 051 20109	10Ω	5%	0,1W
3691	4822 051 20109	10Ω	5%	0,1W
3692	4822 117 10833	10kΩ	1%	0,1W
3693	4822 051 20562	5,6kΩ	5%	0,1W
3694	4822 051 20562	5,6kΩ	5%	0,1W
3695	4822 116 81154	2,2Ω	5%	0,5W
3696	4822 117 11449	2,2kΩ	1%	0,1W
3697	4822 116 83883	470Ω	5%	0,16W
3698	4822 116 83883	470Ω	5%	0,16W
3699	4822 050 11002	1kΩ	5%	0,2W
3773	4822 050 11002	1kΩ	5%	0,2W
4516	4822 051 20008	CHIP JUMPER 0805		
4517	4822 051 20008	CHIP JUMPER 0805		
4518	4822 051 20008	CHIP JUMPER 0805		
4519	4822 051 20008	CHIP JUMPER 0805		
4520	4822 051 20008	CHIP JUMPER 0805		
4521	4822 051 20008	CHIP JUMPER 0805		
4522	4822 051 20008	CHIP JUMPER 0805		
4524	4822 051 20008	CHIP JUMPER 0805		
4525	4822 051 20008	CHIP JUMPER 0805		
4526	4822 051 20008	CHIP JUMPER 0805		
4527	4822 051 20008	CHIP JUMPER 0805		
4528	4822 051 20008	CHIP JUMPER 0805		
4529	4822 051 20008	CHIP JUMPER 0805		
4531	4822 051 20008	CHIP JUMPER 0805		
4532	4822 051 20008	CHIP JUMPER 0805		
4533	4822 051 20008	CHIP JUMPER 0805		
4534	4822 051 20008	CHIP JUMPER 0805		
4535	4822 051 20008	CHIP JUMPER 0805		
4536	4822 051 20008	CHIP JUMPER 0805		
4537	4822 051 20008	CHIP JUMPER 0805		
4538	4822 051 20008	CHIP JUMPER 0805		
4540	4822 051 20008	CHIP JUMPER 0805		
4541	4822 051 20008	CHIP JUMPER 0805		
4542	4822 051 20008	CHIP JUMPER 0805		
4543	4822 051 20008	CHIP JUMPER 0805		
4544	4822 051 20008	CHIP JUMPER 0805		
4545	4822 051 20008	CHIP JUMPER 0805		
4546	4822 051 20008	CHIP JUMPER 0805		
4547	4822 051 20008	CHIP JUMPER 0805		
4548	4822 051 20008	CHIP JUMPER 0805		
4549	4822 051 20008	CHIP JUMPER 0805		
4550	4822 051 20008	CHIP JUMPER 0805		
4551	4822 051 20008	CHIP JUMPER 0805		
4552	4822 051 20008	CHIP JUMPER 0805		
4553	4822 051 20008	CHIP JUMPER 0805		
4554	4822 051 20008	CHIP JUMPER 0805		
4555	4822 051 20008	CHIP JUMPER 0805		
4556	4822 051 20008	CHIP JUMPER 0805		
4557	4822 051 20008	CHIP JUMPER 0805		

## ELECTRICAL PARTSLIST AF7 BOARD

## RESISTORS

4558	4822 051 20008	CHIP JUMPER 0805		
4559	4822 051 20008	CHIP JUMPER 0805		
4560	4822 051 20008	CHIP JUMPER 0805		
4561	4822 051 20008	CHIP JUMPER 0805		
4562	4822 051 20008	CHIP JUMPER 0805		
4563	4822 051 20008	CHIP JUMPER 0805		
4564	4822 051 20008	CHIP JUMPER 0805		
4565	4822 051 20008	CHIP JUMPER 0805		
4567	4822 051 20008	CHIP JUMPER 0805		
4568	4822 051 20008	CHIP JUMPER 0805		
4569	4822 051 20008	CHIP JUMPER 0805		
4570	4822 051 20008	CHIP JUMPER 0805		
4571	4822 051 20008	CHIP JUMPER 0805		
4572	4822 051 20008	CHIP JUMPER 0805		
4573	4822 051 20008	CHIP JUMPER 0805		
4574	4822 051 20008	CHIP JUMPER 0805		
4575	4822 051 20008	CHIP JUMPER 0805		
4576	4822 051 20008	CHIP JUMPER 0805		
4577	4822 051 20008	CHIP JUMPER 0805		
4579	4822 051 20008	CHIP JUMPER 0805		
4580	4822 051 20008	CHIP JUMPER 0805		
4581	4822 051 20008	CHIP JUMPER 0805		
4582	4822 051 20008	CHIP JUMPER 0805		
4583	4822 051 20008	CHIP JUMPER 0805		
4585	4822 051 20008	CHIP JUMPER 0805		
4586	4822 051 20008	CHIP JUMPER 0805		
4587	4822 051 20008	CHIP JUMPER 0805		
4588	4822 051 20008	CHIP JUMPER 0805		
4589	4822 051 20008	CHIP JUMPER 0805		
4591	4822 051 20008	CHIP JUMPER 0805		
4592	4822 051 20008	CHIP JUMPER 0805		
4593	4822 051 20008	CHIP JUMPER 0805		
4595	4822 051 20008	CHIP JUMPER 0805		
4597	4822 051 20008	CHIP JUMPER 0805		
4599	4822 051 20008	CHIP JUMPER 0805		
4600	4822 051 20008	CHIP JUMPER 0805		
4601	4822 051 20008	CHIP JUMPER 0805		
4602	4822 051 20008	CHIP JUMPER 0805		
4603	4822 051 20008	CHIP JUMPER 0805		
4605	4822 051 20008	CHIP JUMPER 0805		
4606	4822 051 20008	CHIP JUMPER 0805		
4607	4822 051 20008	CHIP JUMPER 0805		
4608	4822 051 20008	CHIP JUMPER 0805		
4609	4822 051 20008	CHIP JUMPER 0805		
4611	4822 051 20008	CHIP JUMPER 0805		
4612	4822 051 20008	CHIP JUMPER 0805		
4613	4822 051 20008	CHIP JUMPER 0805		
4614	4822 051 20008	CHIP JUMPER 0805		
4615	4822 051 20008	CHIP JUMPER 0805		
4618	4822 051 20008	CHIP JUMPER 0805		
4619	4822 051 20008	CHIP JUMPER 0805		
4620	4822 051 20008	CHIP JUMPER 0805		
4621	4822 051 20008	CHIP JUMPER 0805		
4622	4822 051 20008	CHIP JUMPER 0805		
4623	4822 051 20008	CHIP JUMPER 0805		
4624	4822 051 20008	CHIP JUMPER 0805		
4625	4822 051 20008	CHIP JUMPER 0805		
4626	4822 051 20008	CHIP JUMPER 0805		
4627	4822 051 20008	CHIP JUMPER 0805		
4629	4822 051 20008	CHIP JUMPER 0805		

## RESISTORS

4630	4822 051 20008	CHIP JUMPER 0805		
4715	4822 051 20008	CHIP JUMPER 0805		
4716	4822 051 20008	CHIP JUMPER 0805		

## COILS

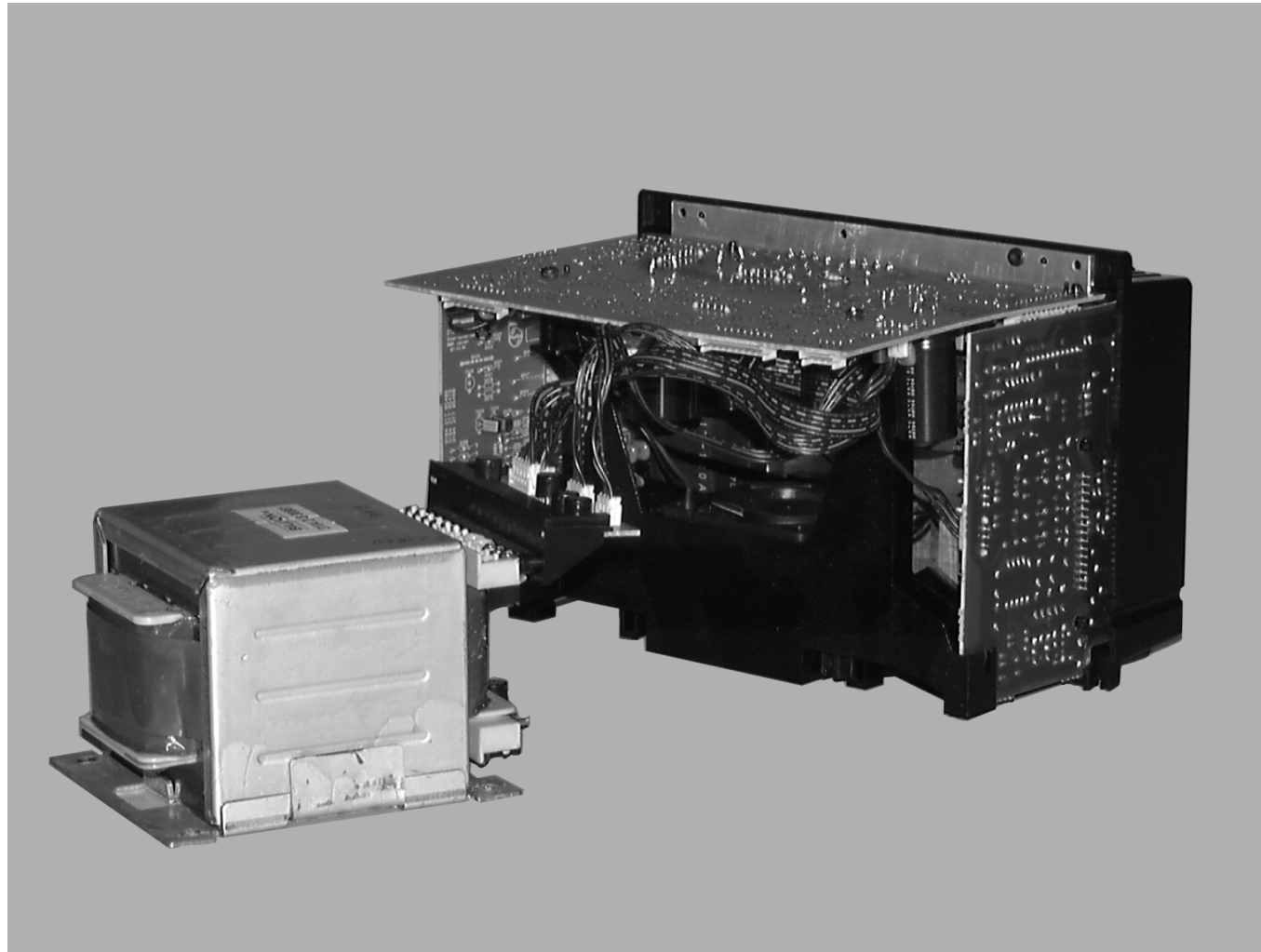
5511	4822 157 62552	2,2μH		
5523	4822 157 62552	2,2μH		
5531	4822 157 62552	2,2μH		
5532	4822 157 62552	2,2μH		

## DIODES

6512	4822 130 30862	BZX79-C9V1		
6514	4822 130 31878	1N4003G		
6515	4822 130 30621	1N4148		
6516	4822 130 30621	1N4148		
6531	4822 130 30621	1N4148		

## TRANSISTORS

7521	4822 130 60511	BC847B		
7522	4822 130 60511	BC847B		
7523	4822 130 60511	BC847B		
7524	4822 130 60511	BC847B		
7525	4822 130 40959	BC547B		
7526	4822 130 60373	BC856B		
7527	4822 130 60511	BC847B		
7528	4822 130 60511	BC847B		
7529	4822 130 60373	BC856B		
7531	4822 130 60511	BC847B		
7532	4822 130 60511	BC847B		
7533	4822 130 60511	BC847B		
7534	4822 130 60511	BC847B		
7535	4822 130 42804	BC817-25		
7536	4822 130 42804	BC817-25		
7537	4822 130 60511	BC847B		
7538	4822 130 60511	BC847B		
7539	4822 130 60373	BC856B		
7541	4822 130 60511	BC847B		



# ***POWER 5-VA Module***

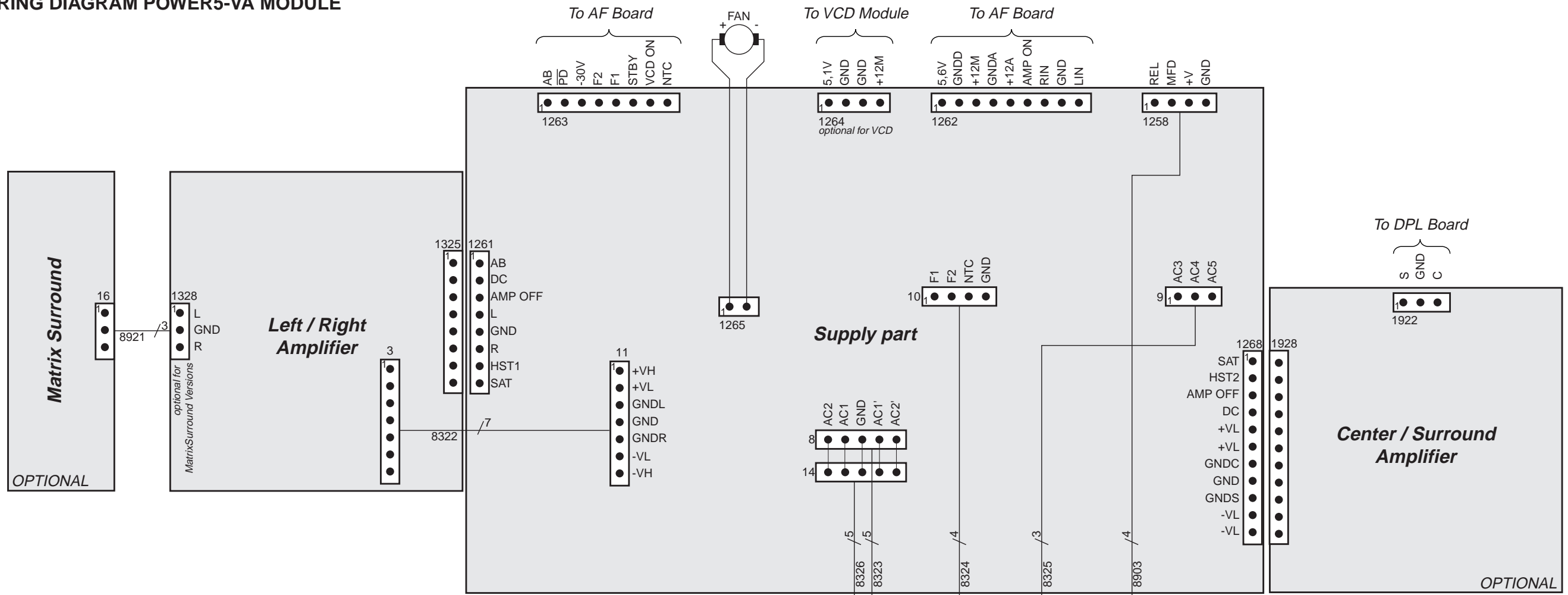
***(not for /37)***

Stage .8

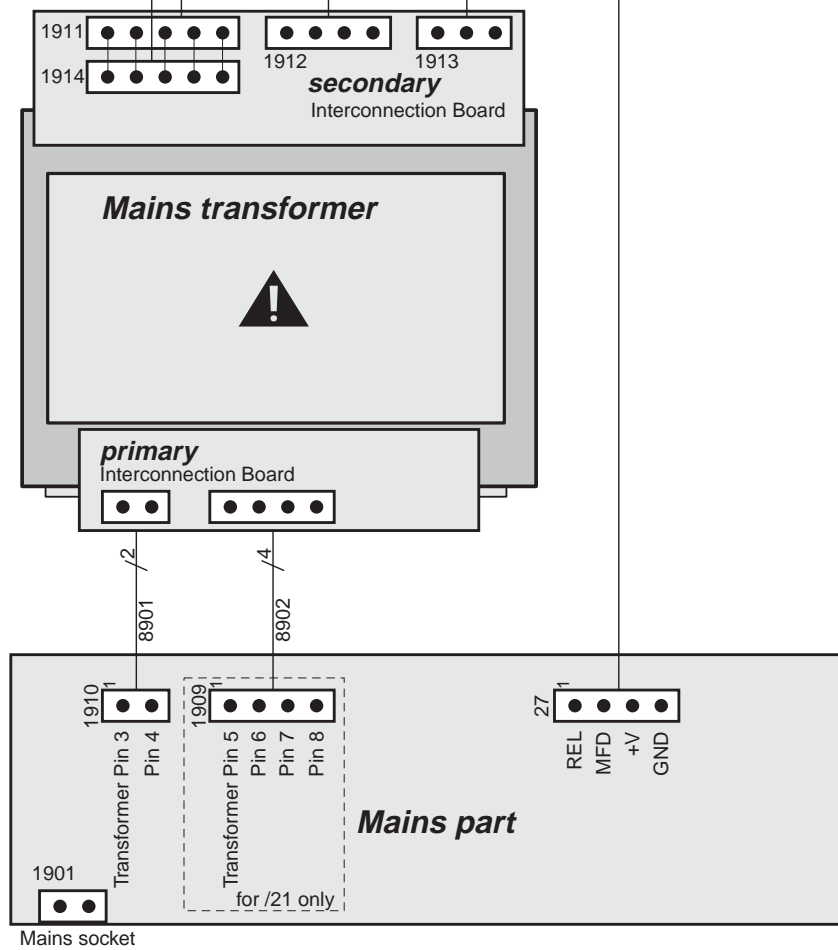
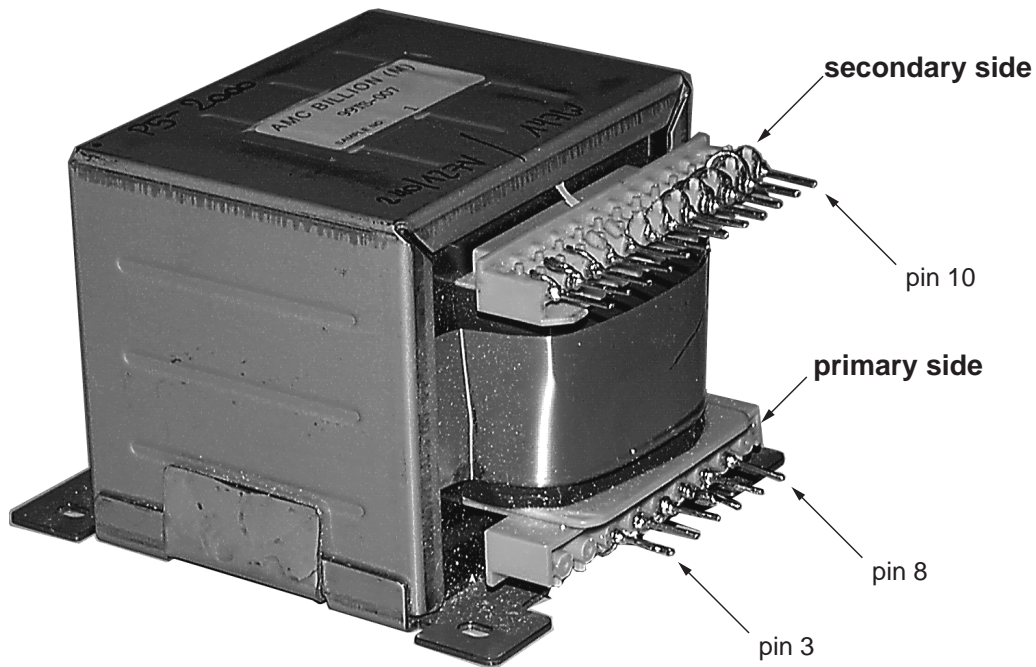
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# WIRING DIAGRAM POWER5-VA MODULE

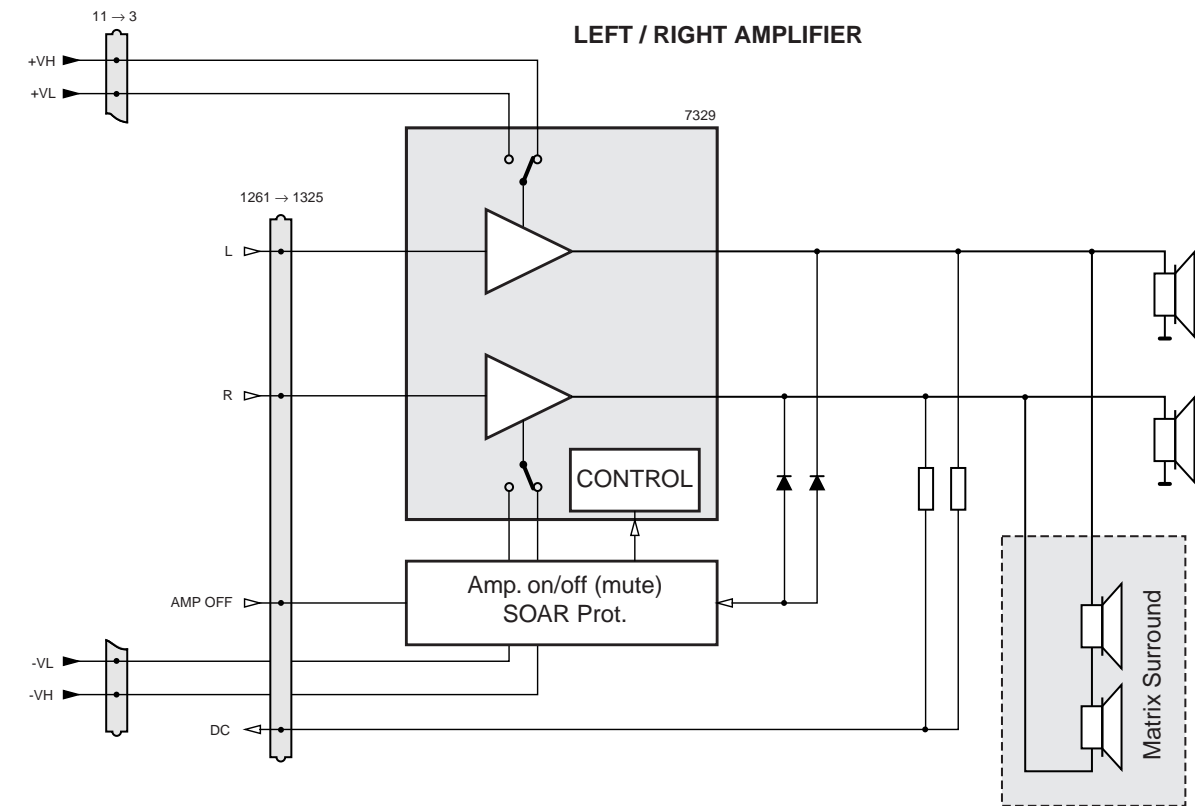
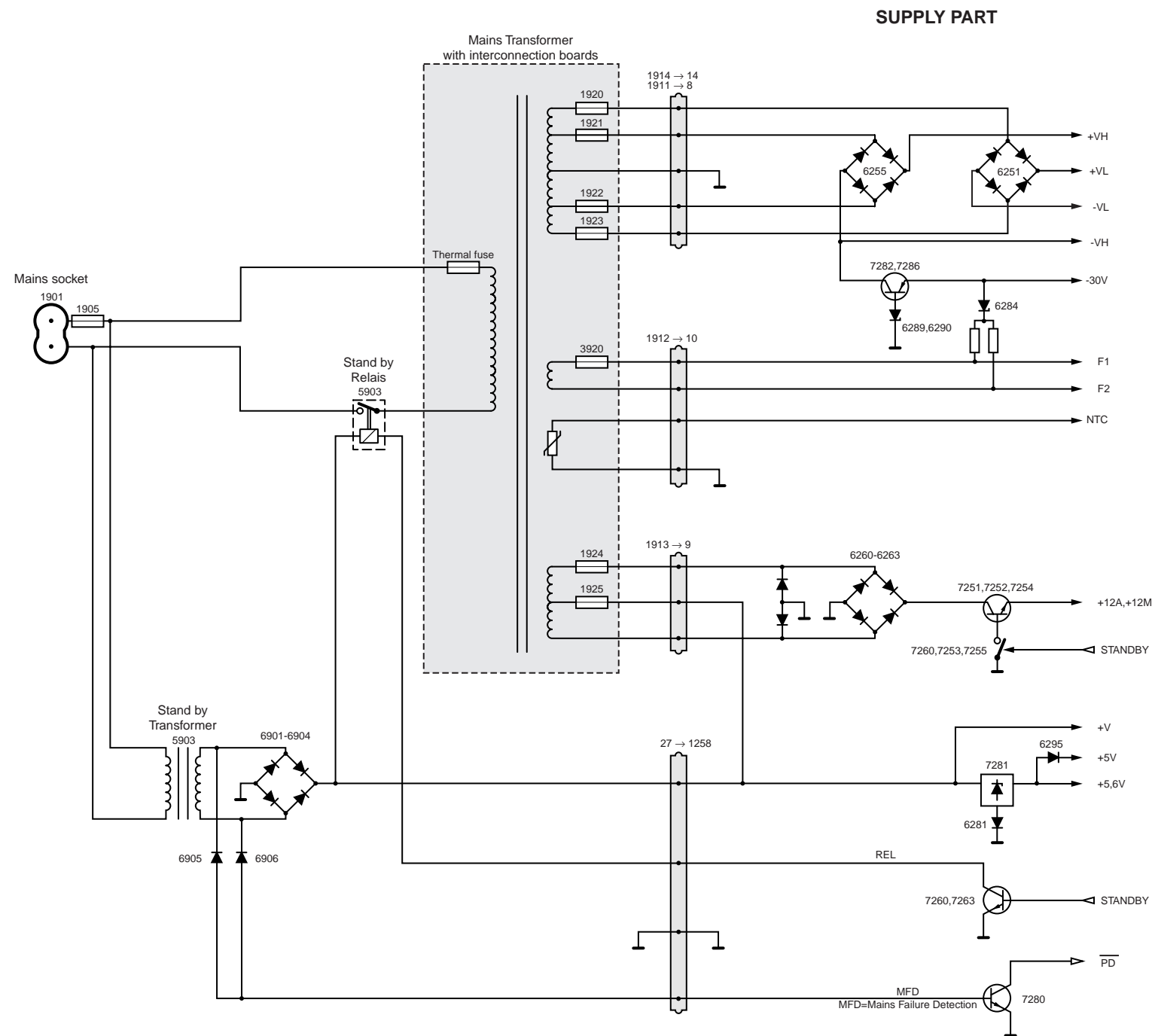


### Mains Transformer /21



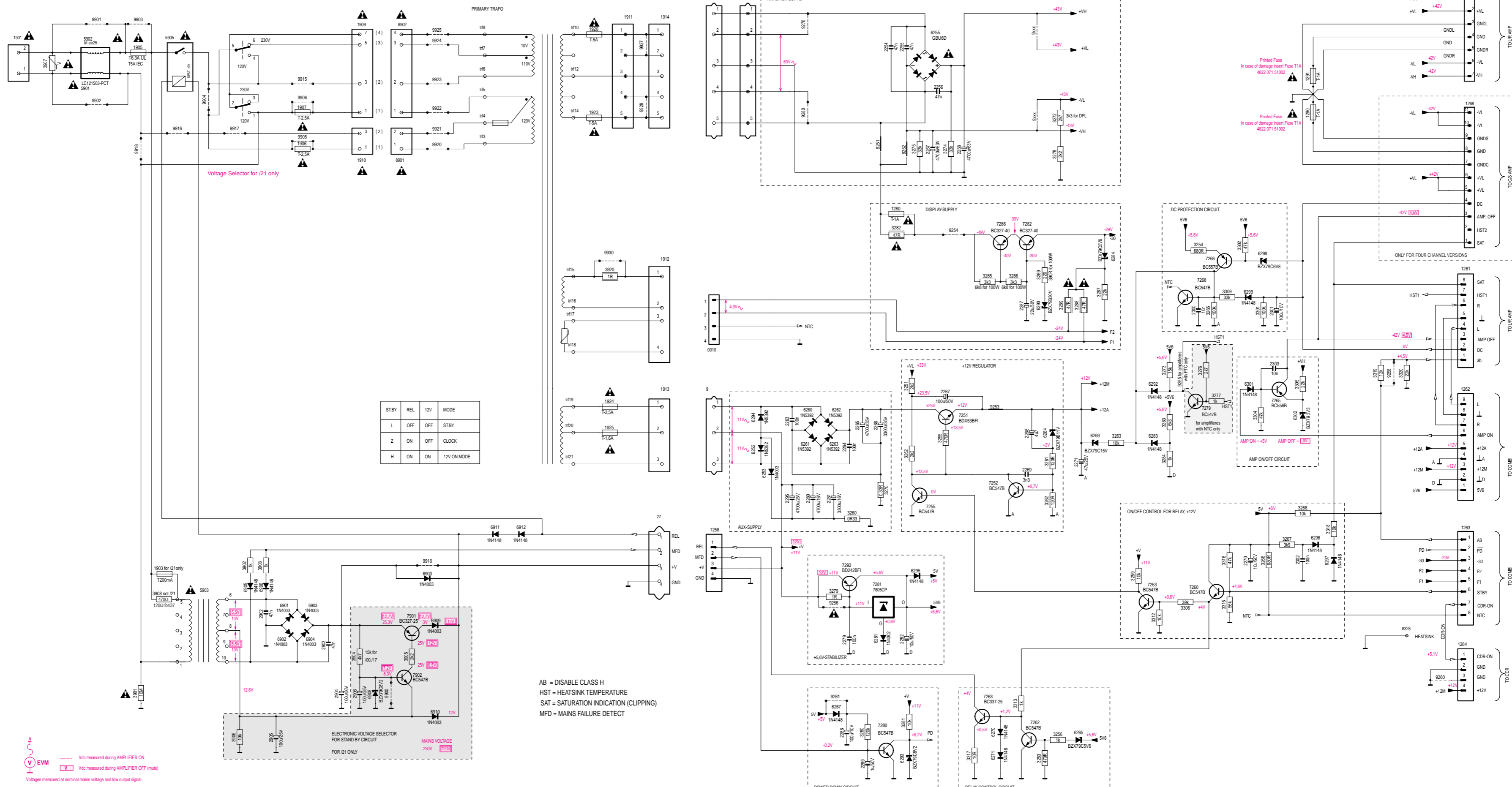


# BLOCK DIAGRAM 70/100W VERSION





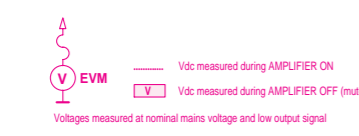
POWER 5-VA SUPPLY PART 70/100W Version



Voltage Selector for /21 only

STBY	REL	12V	MODE
L	OFF	OFF	STBY
Z	ON	OFF	CLOCK
H	ON	ON	12V ON MODE

AB = DISABLE CLASS H  
 HST = HEATSINK TEMPERATURE  
 SAT = SATURATION INDICATION (CLIPPING)  
 MFD = MAINS FAILURE DETECT

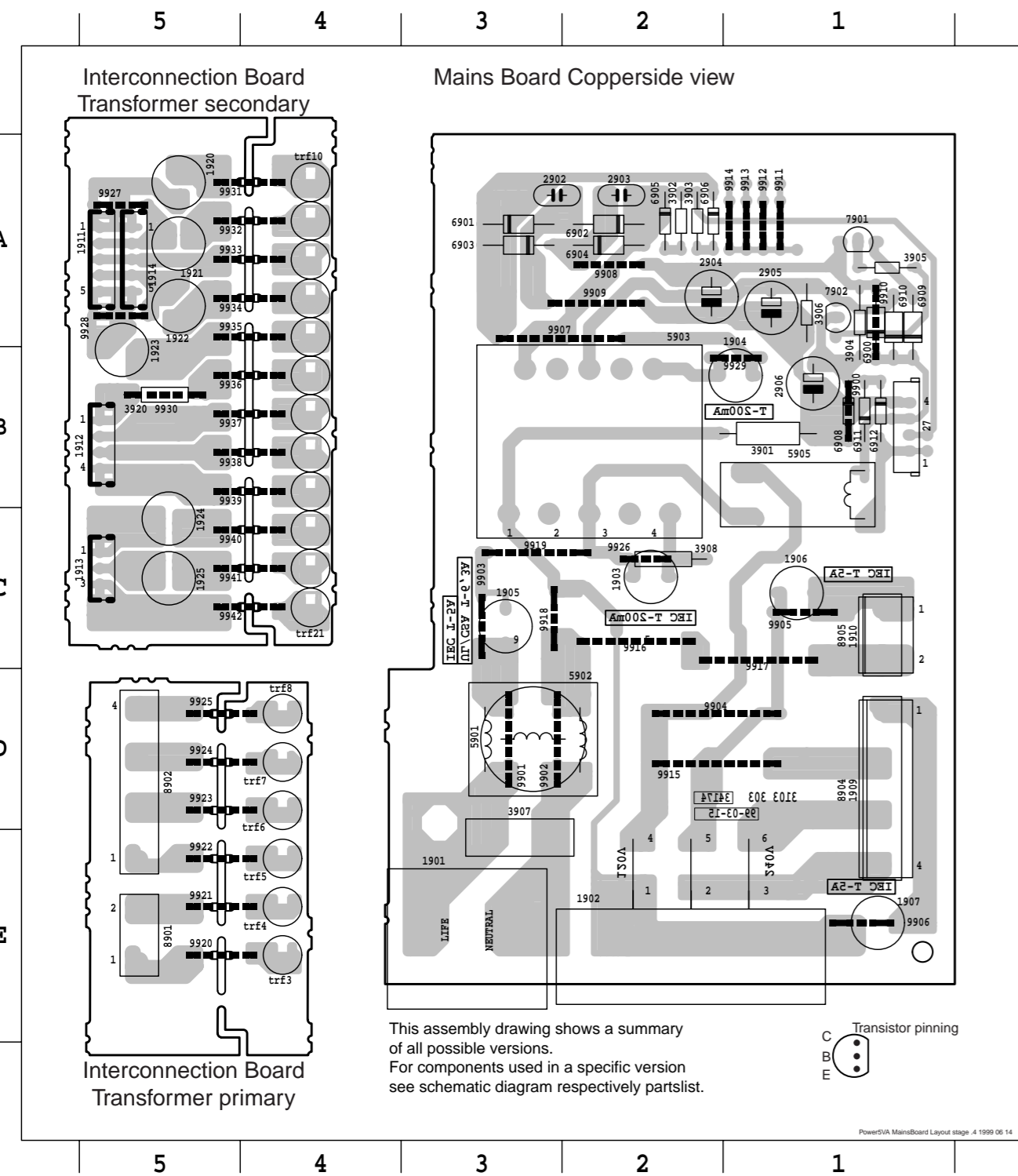


- 0010 G14
- 0011 B29
- 1208 H14
- 1261 F28
- 1262 K39
- 1263 M29
- 1264 M29
- 1265 N29
- 1266 B29
- 1267 B29
- 1268 B29
- 1269 B29
- 1270 B29
- 1271 B29
- 1272 B29
- 1273 B29
- 1274 B29
- 1275 B29
- 1276 B29
- 1277 B29
- 1278 B29
- 1279 B29
- 1280 B29
- 1281 B29
- 1282 B29
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- 1397 B29
- 1398 B29
- 1399 B29
- 1400 B29

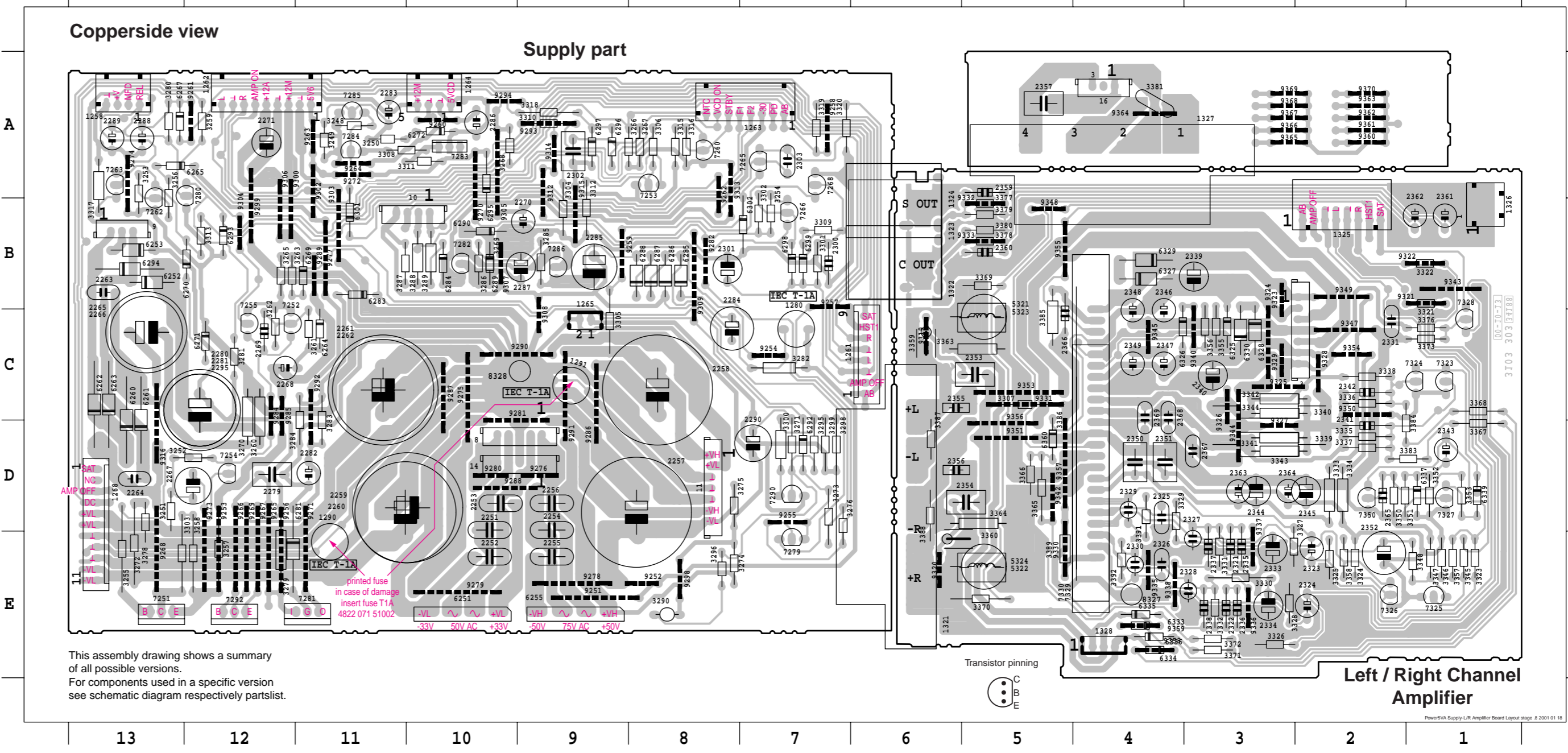
COMPONENT LAYOUT MAINS BOARD

COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

Interconnection Board		Mains Board						
primary side	secondary side							
8901 E 5	1911 A 5	9930 B 4	trf10 A 3	27 B 1	2905 A 1	5905 C 1	7901 A 1	9909 A 2
8902 D 5	1912 B 5	9931 A 4	trf11 A 3	1901 E 3	2906 B 1	6900 B 1	7902 B 1	9910 B 1
9920 E 4	1913 C 5	9932 A 4	trf12 A 3	1902 E 2	3901 B 1	6901 A 3	8904 D 1	9911 A 1
9921 E 4	1914 A 5	9933 A 4	trf13 A 3	1903 C 2	3902 A 2	6902 A 2	8905 C 1	9912 A 1
9922 E 4	1920 A 4	9934 A 4	trf14 B 3	1904 B 2	3903 A 2	6903 A 3	9900 B 1	9913 A 2
9923 D 4	1921 A 4	9935 B 4	trf15 B 3	1905 C 3	3904 B 1	6904 A 2	9901 D 3	9914 A 2
9924 D 4	1922 A 4	9936 B 4	trf16 B 3	1906 C 1	3905 A 1	6905 A 2	9902 D 3	9915 D 2
9925 D 4	1923 B 5	9937 B 4	trf17 B 3	1907 E 1	3906 A 1	6906 A 2	9903 C 3	9916 D 2
trf3 E 4	1924 C 4	9938 B 4	trf18 C 3	1908 D 1	3907 E 3	6908 B 1	9904 D 2	9917 D 1
trf4 E 4	1925 C 4	9939 C 4	trf19 C 3	1910 C 1	3908 C 2	6909 B 1	9905 C 1	9918 C 3
trf5 E 4	3920 B 4	9940 C 4	trf20 C 3	2902 A 3	5901 D 3	6910 B 1	9906 E 1	9919 C 3
trf6 D 4	9927 A 5	9941 C 4	trf21 C 3	2903 A 2	5902 D 3	6911 B 1	9907 B 3	9920 C 2
trf7 D 4	9928 A 5	9942 C 4		2904 A 2	5903 B 2	6912 B 1	9908 A 2	9929 B 2



9360 A 2	9314 A 9	9291 C 9	9272 A 11	9254 C 7	7263 A 13	6292 D 7	6263 C 13	3310 A 9	3287 B 11	3268 A 10	3250 A 11	2281 C 12	2257 D 8	14 D 9	9348 B 5	9327 D 3	7324 C 1	5322 E 5	3372 E 3	3352 D 1	3334 D 2	2367 D 3	2348 C 4	2330 E 4	3 C 2
9361 A 2	9315 B 9	9292 C 11	9273 B 12	9255 D 7	7265 A 7	6293 B 12	6264 C 11	3311 A 10	3288 B 10	3269 B 10	3251 D 13	2282 D 11	2258 C 8	1258 A 13	9349 B 2	9328 C 2	7325 E 1	5323 C 5	3373 C 1	3353 D 1	3335 D 2	2368 C 4	2349 C 4	2331 C 2	1321 D 6
9362 A 2	9316 D 13	9293 A 9	9274 A 13	9256 E 12	7266 B 7	6294 B 13	6265 A 13	3312 B 9	3289 B 10	3270 C 12	3252 D 12	2283 A 11	2259 D 10	1261 C 6	9350 C 2	9329 C 3	7326 E 2	5324 E 5	3374 C 1	3354 C 3	3336 C 2	2369 C 4	2350 D 4	2333 B 3	1322 B 6
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9364 A 4	9257 C 12	9298 E 8	9276 D 9	9259 B 9	7280 A 12	6296 A 9	6269 B 11	3315 A 8	3295 D 8	3272 E 13	3254 B 7	2285 B 9	2261 C 11	1263 A 7	9353 C 5	9331 C 5	7328 C 1	5326 C 1	3376 B 4	3356 E 2	3338 C 1	2371 B 1	2352 E 2	2335 E 3	1324 B 6
9365 A 3	9258 D 13	9299 B 12	9277 B 11	9260 A 10	7281 E 11	6297 A 9	6270 B 12	3316 A 8	3296 E 8	3273 D 8	3255 B 13	2286 A 10	2262 C 11	1264 A 10	9354 C 2	9332 B 5	7329 D 4	5327 B 4	3377 B 4	3357 E 2	3339 D 2	2372 B 1	2353 C 5	2336 E 3	1325 B 2
9366 A 3	9265 B 10	9300 B 12	9278 E 9	9261 A 12	7282 B 10	6298 B 7	6271 C 12	3317 A 13	3298 D 7	3274 E 8	3256 B 13	2287 B 9	2263 B 13	1265 C 9	9355 B 5	9333 B 5	7330 C 4	5328 C 3	3380 B 5	3358 C 6	3340 C 2	2373 E 1	2354 D 5	2337 E 3	1326 B 1
9367 A 3	9305 A 11	9302 A 11	9279 E 10	9262 A 8	7283 A 10	6299 B 7	6272 A 10	3318 A 9	3299 D 7	3275 D 8	3257 A 12	2288 A 13	2264 D 13	1268 D 13	9356 D 5	9335 E 4	7350 D 2	5329 B 4	3381 D 1	3360 E 6	3341 D 3	2374 C 2	2355 C 6	2338 C 3	1328 E 4
9368 A 3	9312 A 7	9303 B 11	9280 D 10	9263 A 11	7284 A 11	6301 B 11	6281 E 12	3319 A 7	3300 D 7	3278 D 13	3258 E 12	2289 A 13	2265 C 13	1280 C 7	9357 D 5	9336 E 3	8327 E 4	6330 C 3	3384 D 1	3363 C 5	3342 C 3	2375 E 3	2356 C 6	2339 B 3	1328 E 4
9369 A 3	9314 A 10	9304 B 12	9281 D 10	9264 A 11	7285 A 11	6302 B 11	6282 B 13	3320 A 7	3301 B 7	3279 E 13	3259 A 12	2290 D 12	2266 C 13	1290 E 11	9358 E 4	9337 C 4	9319 C 6	6331 C 4	3385 C 5	3364 D 5	3343 D 3	2376 E 3	2357 A 5	2340 C 3	1328 E 4
9370 A 2	9315 B 9	9305 A 10	9284 C 12	9265 E 12	7286 B 9	6303 B 13	6284 B 10	6251 E 10	3302 B 7	3280 A 13	3260 C 12	2295 C 12	2267 D 12	1291 C 9	9359 E 4	9338 C 4	9320 B 6	6334 E 4	3386 D 5	3365 D 5	3344 C 5	2377 E 3	2358 A 5	2341 D 2	1328 E 4
	T316 A 10	9306 B 12	9285 C 12	9266 E 12	7290 D 7	6304 B 13	6285 B 8	6252 E 13	3303 B 13	3281 C 12	3261 C 11	2300 B 7	2268 C 12	2251 D 10	T321 A 1	9340 C 3	9321 B 1	6335 E 4	3387 D 6	3366 D 5	3345 E 1	2378 E 3	2359 A 5	2342 C 2	1328 E 4
ADD	----	9307 B 12	9286 C 9	9267 E 12	7292 E 12	6305 B 13	6286 B 8	6253 E 13	3304 B 9	3282 C 7	3262 C 12	2301 B 8	2269 C 12	2252 E 10	----	9342 D 5	9322 B 1	6336 E 4	3388 D 6	3367 D 1	3346 E 1	2379 E 3	2360 B 5	2343 D 1	1328 E 4
3276 D 6	116 A 4	9308 C 9	9287 C 10	9268 E 13	8328 C 9	6306 C 13	6287 B 8	6254 E 12	3305 C 9	3283 D 11	3263 B 12	2302 A 9	2270 B 9	2253 D 10	8 D 9	9343 B 1	9323 B 3	6337 D 1	3389 E 5	3368 C 1	3347 E 1	2380 E 3	2361 D 3	2344 D 3	1328 E 4
7279 D 7	1327 A 4	9309 B 8	9288 D 10	9269 E 12	9251 E 9	6307 C 12	6288 B 8	6260 D 13	3306 A 8	3284 D 11	3265 B 12	2303 A 7	2271 A 12	2254 D 9	9 B 13	9344 D 3	9324 C 3	6339 D 1	3391 D 4	3369 B 5	3348 E 1	2381 E 3	2362 D 3	2345 D 3	1328 E 4
9257 B 7	2357 A 5	9312 A 7	9289 B 11	9270 A 11	9252 E 8	6308 A 10	6289 B 10	6261 D 13	3308 A 10	3285 B 9	3266 A 8	2304 A 11	2272 A 12	2255 E 9	10 B 10	9345 C 4	9325 C 3	6340 D 5	3392 E 4	3370 E 5	3350 D 2	2382 E 3	2363 C 5	2346 C 4	1328 E 4
9282 B 8	3381 A 4	9313 A 8	9290 C 10	9271 E 11	9253 E 12	6309 B 7	6290 B 10	6262 C 13	3309 B 7	3286 B 9	3267 A 8	2305 A 11	2280 C 12	2256 D 9	11 D 8	9347 C 2	9326 C 3	7323 C 1	5321 C 5	3371 E 3	3351 D 2	2383 D 2	2364 C 5	2347 C 4	1329 D 4

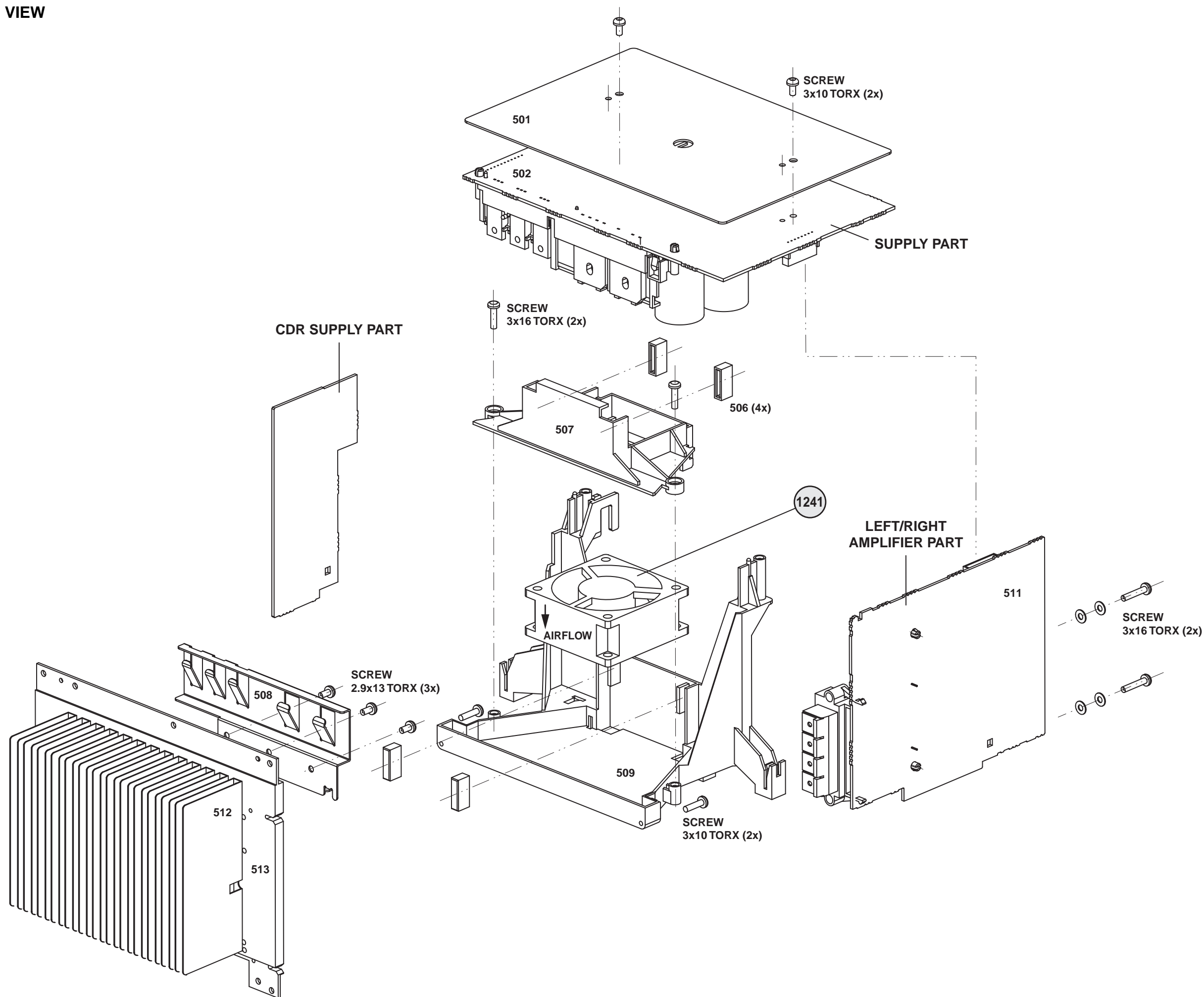








EXPLODED VIEW





**ELECTRICAL PARTSLIST POWER BOARD****MECHANICAL PARTS**

	4822 466 93148	SPACER
401	4822 256 10555	RUCKSACK P5 (L/R-MTX)
401	4822 256 10557	RUCKSACK P5 (L/R-C/S)
401	4822 256 10558	RUCKSACK P5 (L/R)
1241	4822 361 11161	KD1206PTS3, FAN

**MISCELLANEOUS**

1321	4822 267 31176	SPEAKER TERMINAL
1901	4822 265 31015▲	MAINS SOCKET, IEC
1901	4822 265 31016▲	MAINS SOCKET, UL
1902	4822 272 10269▲	VOLTAGE SELECTOR
1903	4822 071 52001▲	FUSE 200mA/T
1905	4822 071 55002▲	FUSE T5A
1905	4822 252 51123▲	FUSE T6,3A
1906	4822 071 55002▲	FUSE T5A
1907	4822 071 55002▲	FUSE T5A
1920	4822 071 55002▲	FUSE T5A
1921	4822 071 55002▲	FUSE T5A
1922	4822 071 55002▲	FUSE T5A
1923	4822 071 55002▲	FUSE T5A
1924	4822 071 52502▲	FUSE T 2,5A
1925	4822 071 51602▲	FUSE 1,6A
5903	4822 146 11142▲	STBY TRANSFORMER, USA
5903	4822 146 11143▲	STBY TRANSFORMER, EUROPE
5903	4822 146 11144▲	STBY TRANSFORMER, OVERSEA
5905	4822 280 10382▲	STAND BY RELAIS, SDT-SS-109DM

**CAPACITORS**

2251	5322 121 42578	100nF	10%	100V
2252	5322 121 42578	100nF	10%	100V
2253	5322 121 42578	100nF	10%	100V
2254	4822 121 43526	47nF	5%	100V
2255	4822 121 43526	47nF	5%	100V
2256	4822 121 43526	47nF	5%	100V
2257	4822 124 12423	4700µF	20%	63V
2258	4822 124 12423	4700µF	20%	63V
2260	4822 124 80415	4700µF	20%	50V
2262	4822 124 80415	4700µF	20%	50V
2263	5322 121 42386	100nF	5%	63V
2264	5322 121 42386	100nF	5%	63V
2265	4822 124 80563	4700µF	20%	35V
2267	4822 124 40255	100µF	20%	50V
2268	4822 124 40769	4,7µF	20%	100V
2269	4822 121 51387	10nF	20%	16V
2269	4822 122 10577	3,3nF	10%	16V
2269	4822 122 33197	1nF	10%	50V
2270	4822 124 40248	10µF	20%	63V
2270	4822 124 41579	10µF	20%	50V
2271	4822 124 40433	47µF	20%	25V
2279	5322 121 42386	100nF	5%	63V
2280	4822 124 12328	6800µF	20%	16V
2282	4822 124 40248	10µF	20%	63V
2282	4822 124 41579	10µF	20%	50V
2289	4822 124 21913	1µF	20%	63V
2289	4822 124 40242	1µF	20%	63V
2290	4822 124 40207	100µF	20%	25V
2300	4822 121 51387	10nF	20%	16V
2301	4822 124 41584	100µF	20%	10V
2303	4822 121 41857	10nF	5%	250V
2321	4822 122 33847	10pF	5%	50V
2322	4822 122 33847	10pF	5%	50V
2323	4822 124 22652	2,2µF	20%	50V
2323	4822 124 41576	2,2µF	20%	50V

**CAPACITORS**

2324	4822 124 22652	2,2µF	20%	50V
2324	4822 124 41576	2,2µF	20%	50V
2325	4822 122 33532	3,3nF	5%	50V
2326	4822 122 33532	3,3nF	5%	50V
2327	5322 122 32334	220pF	10%	100V
2328	5322 122 32334	220pF	10%	100V
2329	5322 122 32311	470pF	10%	100V
2330	5322 122 32311	470pF	10%	100V
2331	5322 122 32261	4,7nF	10%	100V
2333	4822 124 81151	22µF	20%	50V
2334	4822 124 81151	22µF	20%	50V
2335	4822 122 33847	10pF	5%	50V
2336	4822 122 33847	10pF	5%	50V
2341	4822 126 11585	22nF	20%	50V
2342	4822 126 11585	22nF	20%	50V
2343	4822 124 22652	2,2µF	20%	50V
2343	4822 124 41579	10µF	20%	50V
2344	4822 124 40764	22µF	20%	100V
2345	4822 124 40764	22µF	20%	100V
2346	4822 124 40248	10µF	20%	63V
2346	4822 124 41579	10µF	20%	50V
2347	4822 124 40248	10µF	20%	63V
2347	4822 124 41579	10µF	20%	50V
2348	4822 124 81043	10µF	20%	100V
2349	4822 124 81043	10µF	20%	100V
2350	5322 121 42386	100nF	5%	63V
2351	5322 121 42386	100nF	5%	63V
2352	4822 124 40181	220µF	20%	10V
2353	5322 121 42386	100nF	5%	63V
2354	5322 121 42386	100nF	5%	63V
2355	5322 122 32261	4,7nF	10%	100V
2356	5322 122 32261	4,7nF	10%	100V
2365	4822 126 12785	47nF	20%	50V
2902	4822 121 43526	47nF	5%	100V
2903	4822 121 43526	47nF	5%	100V
2904	4822 124 40255	100µF	20%	50V
2905	4822 124 40207	100µF	20%	25V

**RESISTORS**

3251	4822 116 52256	2,2kΩ	5%	0,16W
3252	4822 116 52256	2,2kΩ	5%	0,16W
3254	4822 116 52228	680Ω	5%	0,5W
3255	4822 116 83883	470Ω	5%	0,16W
3259	4822 050 21003	10kΩ	2%	0,25W
3259	4822 116 83864	10kΩ	5%	0,5W
3260	4822 117 11342	0,33Ω	5%	2W
3261	4822 116 52206	120Ω	5%	0,5W
3261	4822 116 83876	270Ω	5%	0,16W
3262	4822 116 52206	120Ω	5%	0,5W
3263	4822 050 21003	10kΩ	2%	0,25W
3264	4822 116 83864	10kΩ	5%	0,5W
3265	4822 116 52234	100kΩ	5%	0,5W
3266	4822 116 52228	680Ω	5%	0,5W
3267	4822 116 52276	3,9kΩ	5%	0,5W
3268	4822 050 21003	10kΩ	2%	0,25W
3269	4822 116 83864	10kΩ	5%	0,5W
3270	4822 117 11342	0,33Ω	5%	2W
3271	4822 050 11002	1kΩ	5%	0,2W
3272	4822 116 52263	2,7kΩ	5%	0,5W
3272	4822 116 52269	3,3kΩ	5%	0,5W
3273	4822 116 52244	15kΩ	5%	0,5W
3274	4822 050 23303	33kΩ	1%	0,6W

**ELECTRICAL PARTSLIST POWER BOARD****RESISTORS**

3275	4822 050 23303	33kΩ	1%	0,6W
3278	4822 116 52256	2,2kΩ	5%	0,16W
3280	4822 116 52239	120kΩ	5%	0,5W
3281	4822 050 21003	10kΩ	2%	0,25W
3281	4822 116 83864	10kΩ	5%	0,5W
3282	4822 052 10479	47Ω	5%	0,3W
3285	4822 116 52269	3,3kΩ	5%	0,5W
3286	4822 116 52269	3,3kΩ	5%	0,5W
3287	4822 116 52257	22kΩ	5%	0,5W
3288	4822 052 10479	47Ω	5%	0,3W
3289	4822 052 10479	47Ω	5%	0,3W
3290	4822 117 120631	10kΩ NTC		
3295	4822 116 83876	270Ω	5%	0,16W
3296	4822 116 83883	470Ω	5%	0,16W
3298	4822 116 52219	330Ω	5%	0,5W
3299	4822 116 52219	330Ω	5%	0,5W
3300	4822 052 10568	5,6Ω	5%	0,33W
3302	4822 116 83884	47kΩ	5%	0,16W
3304	4822 116 83884	47kΩ	5%	0,16W
3305	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 83882	39kΩ	5%	0,5W
3307	4822 116 52256	2,2kΩ	5%	0,16W
3309	4822 050 23303	33kΩ	1%	0,6W
3309	4822 116 52271	33kΩ	5%	0,16W
3312	4822 050 21003	10kΩ	2%	0,25W
3312	4822 116 83864	10kΩ	5%	0,5W
3313	4822 050 11002	1kΩ	5%	0,2W
3315	4822 116 52291	56kΩ	5%	0,5W
3315	4822 116 83884	47kΩ	5%	0,16W
3316	4822 116 83884	47kΩ	5%	0,16W
3317	4822 052 10109	10Ω	5%	NFR
3317	4822 116 52176	10Ω	5%	0,5W
3321	4822 050 21003	10kΩ	2%	0,25W
3321	4822 116 83864	10kΩ	5%	0,5W
3322	4822 050 21003	10kΩ	2%	0,25W
3322	4822 116 83864	10kΩ	5%	0,5W
3323	4822 116 52234	100kΩ	5%	0,5W
3324	4822 050 21003	10kΩ	2%	0,25W
3324	4822 116 83864	10kΩ	5%	0,5W
3325	4822 050 11002	1kΩ	5%	0,2W
3325	4822 116 52207	1,2kΩ	5%	0,5W
3326	4822 050 11002	1kΩ	5%	0,2W
3326	4822 116 52207	1,2kΩ	5%	0,5W
3327	4822 116 52291	56kΩ	5%	0,5W
3328	4822 116 52291	56kΩ	5%	0,5W
3329	4822 116 52226	560Ω	5%	0,5W
3329	4822 116 83883	470Ω	5%	0,16W
3330	4822 116 52226	560Ω	5%	0,5W
3330	4822 116 83883	470Ω	5%	0,16W
3331	4822 116 52291	56kΩ	5%	0,5W
3332	4822 116 52291	56kΩ	5%	0,5W
3333	4822 052 10479	47Ω	5%	0,3W
3334	4822 052 10479	47Ω	5%	0,3W
3335	4822 050 11002	1kΩ	5%	0,2W
3335	4822 116 52207	1,2kΩ	5%	0,5W
3336	4822 050 11002	1kΩ	5%	0,2W
3336	4822 116 52207	1,2kΩ	5%	0,5W
3337	4822 050 11002	1kΩ	5%	0,2W
3338	4822 050 11002	1kΩ	5%	0,2W

**RESISTORS**

3339	4822 113 80633	0,1Ω	5%	3W
3340	4822 113 80633	0,1Ω	5%	3W
3341	4822 117 11744	0,22Ω	5%	1W
3342	4822 117 11744	0,22Ω	5%	1W
3343	4822 117 11744	0,22Ω	5%	1W
3344	4822 117 11744	0,22Ω	5%	1W
3345	4822 116 52234	100kΩ	5%	0,5W
3346	4822 050 21003	10kΩ	2%	0,25W
3346	4822 116 83864	10kΩ	5%	0,5W
3347	4822 050 23303	33kΩ	1%	0,6W
3347	4822 116 52271	33kΩ	5%	0,16W
3348	4822 116 83872	220Ω	5%	0,5W
3350	4822 050 11002	1kΩ	5%	0,2W
3351	4822 116 52234	100kΩ	5%	0,5W
3352	4822 116 52234	100kΩ	5%	0,5W
3353	4822 116 52257	22kΩ	5%	0,5W
3355	4822 116 83961	6,8kΩ	5%	0,16W
3356	4822 116 83961	6,8kΩ	5%	0,16W
3357	4822 116 52234	100kΩ	5%	0,5W
3358	4822 050 11002	1kΩ	5%	0,2W
3363	4822 053 10478	4,7Ω	5%	1W
3364	4822 053 10478	4,7Ω	5%	1W
3365	4822 116 52234	100kΩ	5%	0,5W
3365	4822 116 52304	82kΩ	5%	0,5W
3366	4822 116 52234	100kΩ	5%	0,5W
3366	4822 116 52304	82kΩ	5%	0,5W
3367	4822 116 52304	82kΩ	5%	0,5W
3368	4822 116 52304	82kΩ	5%	0,5W
3369	4822 116 83884	47kΩ	5%	0,16W
3370	4822 116 83884	47kΩ	5%	0,16W
3383	4822 050 21003	10kΩ	2%	0,25W
3383	4822 116 52269	3,3kΩ	5%	0,5W
3383	4822 116 83864	10kΩ	5%	0,5W
3384	4822 050 21003	10kΩ	2%	0,25W
3384	4822 116 52269	3,3kΩ	5%	0,5W
3384	4822 116 83864	10kΩ	5%	0,5W
3385	4822 052 10108	1Ω	5%	0,33W
3387	4822 050 21003	10kΩ	2%	0,25W
3388	4822 050 21003	10kΩ	2%	0,25W
3391	4822 116 52176	10Ω	5%	0,5W
3392	4822 116 52176	10Ω	5%	0,5W
3901	4822 053 21106	10MΩ	5%	0,5W
3902	4822 050 11002	1kΩ	5%	0,2W
3903	4822 050 11002	1kΩ	5%	0,2W
3904	4822 116 52244	15kΩ	5%	0,5W
3904	4822 116 52283	4,7kΩ	5%	0,5W
3905	4822 116 52256	2,2kΩ	5%	0,16W
3906	4822 050 21003	10kΩ	2%	0,25W
3908	4822 053 10471	470Ω	5%	1W
3920	4822 052 10108	1Ω	5%	0,33W

**COILS**

5321	4822 157 70599	1μH		
5322	4822 157 70599	1μH		
5901	4822 157 11832	400μH		
5902	4822 157 11628	MAINS CHOKE		

**DIODES**

6251	4822 130 11139	GBU8D		
6251	4822 130 83302	BRIDGE RECTIFIER GBU4D		
6252	4822 130 31878	1N4003G		
6252	5322 130 80686	1N5392		
6253	4822 130 31878	1N4003G		

**ELECTRICAL PARTSLIST POWER BOARD****DIODES**

6255	4822 130 11139	GBU8D
6260	4822 130 31878	1N4003G
6260	5322 130 80686	1N5392
6261	4822 130 31878	1N4003G
6261	5322 130 80686	1N5392
6262	4822 130 31878	1N4003G
6262	5322 130 80686	1N5392
6263	4822 130 31878	1N4003G
6263	5322 130 80686	1N5392
6264	4822 130 61219	BZX79-C10
6264	9331 668 80133	DIO REG BZX79-B11
6269	4822 130 34281	BZX79-C15
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148
6281	4822 130 31878	1N4003G
6284	4822 130 34173	BZX79-B5V6
6289	4822 130 34281	BZX79-C15
6290	4822 130 34281	BZX79-C15
6292	4822 130 30621	1N4148
6293	4822 130 34382	BZX79-B8V2
6294	4822 130 31878	1N4003G
6294	5322 130 80686	1N5392
6295	4822 130 30621	1N4148
6298	4822 130 34278	BZX79-C6V8
6299	4822 130 30621	1N4148
6301	4822 130 30621	1N4148
6302	5322 130 31504	BZX79-B3V3
6325	4822 130 34278	BZX79-C6V8
6326	4822 130 34278	BZX79-C6V8
6333	4822 130 34281	BZX79-C15
6334	4822 130 34281	BZX79-C15
6337	4822 130 30621	1N4148
6339	4822 130 30621	1N4148
6360	4822 130 34281	BZX79-C15
6900	4822 130 31878	1N4003G
6901	4822 130 31878	1N4003G
6902	4822 130 31878	1N4003G
6903	4822 130 31878	1N4003G
6904	4822 130 31878	1N4003G
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6908	4822 130 34382	BZX79-B8V2
6909	4822 130 32245	BYV10-40
6910	4822 130 31878	1N4003G
6911	4822 130 30621	1N4148
6912	4822 130 30621	1N4148

**TRANSISTORS**

7251	4822 130 10812	BDX53BFI
7251	9322 139 23687	BDX53BFP
7252	4822 130 40959	BC547B
7253	4822 130 40959	BC547B
7253	4822 130 44568	BC557B
7255	4822 130 40959	BC547B
7260	4822 130 40959	BC547B
7263	4822 130 40959	BC547B
7263	4822 130 40981	BC337-25
7265	4822 130 41691	BC556B
7266	4822 130 44568	BC557B
7268	4822 130 40959	BC547B
7280	4822 130 40959	BC547B
7282	4822 130 41246	BC327-25
7282	4822 130 41327	BC327-40
7286	4822 130 41246	BC327-25
7286	4822 130 41327	BC327-40
7290	4822 130 41246	BC327-25
7323	4822 130 44461	BC546B
7324	4822 130 44461	BC546B
7325	4822 130 40959	BC547B
7326	4822 130 40959	BC547B
7327	4822 130 44461	BC546B
7350	4822 130 41691	BC556B
7901	4822 130 41246	BC327-25
7902	4822 130 40959	BC547B

**INTEGRATED CIRCUITS**

7281	4822 209 31841	L7805CP
7329	4822 209 17383	POWER AMPLIFIER STK496-090
7329	9322 131 91682	POWER AMPLIFIER STK407-090

**ATTENTION!**

**In course of production different types of power amplifier have been used.**

**It is not allowed to use STK496 instead of STK407 respectively otherwise!**

Power Amplifier STK496-xxx has to be replaced by 4822 209 17383  
Power Amplifier STK407-xxx has to be replaced by 9322 131 91682

**ELECTRICAL PARTSLIST POWER SUPPLY CDR BOARD****MISCELLANEOUS**

1350 4822 071 52502▲ FUSE T 2,5A  
 1353 4822 071 53151▲ FUSE 315mA

**CAPACITORS**

2350 4822 124 11947 10μF 20% 16V  
 2351 4822 124 40433 47μF 20% 25V  
 2352 4822 124 12328 6800μF 20% 16V  
 2353 4822 124 40769 4,7μF 20% 100V  
 2354 4822 124 80791 470μF 20% 16V

2355 4822 124 80791 470μF 20% 16V  
 2356 5322 121 42386 100nF 5% 63V  
 2357 5322 121 42386 100nF 5% 63V  
 2358 4822 124 81144 1000μF 20% 16V  
 2359 4822 124 40433 47μF 20% 25V

2360 4822 124 41584 100μF 20% 10V  
 2361 4822 124 23052 100μF 20% 16V  
 2363 4822 124 23052 100μF 20% 16V

**RESISTORS**

2362 4822 117 12063 10kΩ NTC  
 3350 4822 116 52269 3,3kΩ 5% 0,5W  
 3351 4822 116 52175 100Ω 5% 0,5W  
 3352 4822 050 11002 1kΩ 5% 0,2W  
 3353 4822 050 11002 1kΩ 5% 0,2W

3354 4822 116 52234 100kΩ 5% 0,5W  
 3355 4822 116 52283 4,7kΩ 5% 0,5W  
 3356 4822 116 52175 100Ω 5% 0,5W  
 3357 4822 116 52206 120Ω 5% 0,5W  
 3358 4822 053 11151▲ 150Ω 5% 2W

3359 4822 050 21101 110Ω 1% 0,6W  
 3360 4822 050 11002 1kΩ 5% 0,2W  
 3361 4822 050 21003 10kΩ 2% 0,25W  
 3362 4822 116 52257 22kΩ 5% 0,5W  
 3363 4822 116 52226 560Ω 5% 0,5W

3364 4822 116 83883 470Ω 5% 0,16W  
 3365 4822 116 83872 220Ω 5% 0,5W  
 3366 4822 052 10568▲ 5,6Ω 5% 0,33W  
 3369 4822 116 52226 560Ω 5% 0,5W  
 3370 4822 116 52249 1,8kΩ 5% 0,16W

3371 4822 116 52234 100kΩ 5% 0,5W  
 3372 4822 050 11002 1kΩ 5% 0,2W  
 3373 4822 050 21003 10kΩ 2% 0,25W  
 3374 4822 116 83882 39kΩ 5% 0,5W  
 3375 4822 050 21003 10kΩ 2% 0,25W

3376 4822 053 11151▲ 150Ω 5% 2W  
 3377 4822 116 52249 1,8kΩ 5% 0,16W  
 3378 4822 116 52249 1,8kΩ 5% 0,16W

**DIODES**

6350 5322 130 80686 1N5392  
 6351 5322 130 80686 1N5392  
 6352 5322 130 80686 1N5392  
 6353 5322 130 80686 1N5392  
 6354 3198 010 53980 DIO REG BZX79-B3V9

6355 4822 130 34173 BZX79-B5V6  
 6356 5322 130 31504 BZX79-B3V3  
 6357 4822 130 31878 1N4003G  
 6358 4822 130 31878 1N4003G  
 6359 4822 130 30621 1N4148

6360 4822 130 31878 1N4003G  
 6361 4822 130 31878 1N4003G  
 6362 4822 130 34174 BZX79-B4V7  
 6363 4822 130 31981 BZX79-B3V9  
 6364 4822 130 34233 BZX79-B5V1

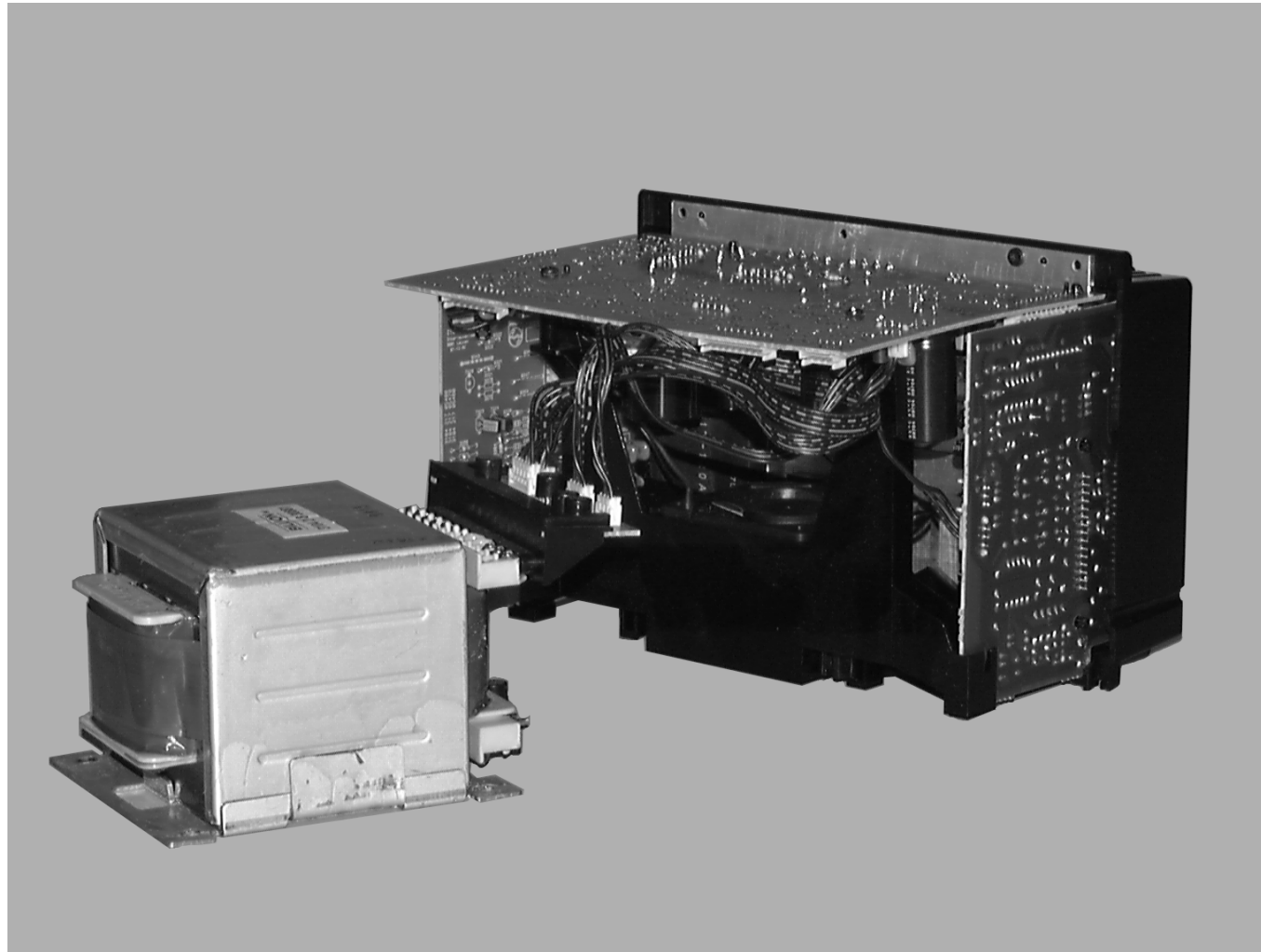
6365 4822 130 31981 BZX79-B3V9

**TRANSISTORS**

7350 9336 500 90126 BC557C  
 7351 4822 130 40995 BD438  
 7352 4822 130 40995 BD438  
 7353 4822 130 44503 BC547C  
 7354 4822 130 44503 BC547C

7355 4822 130 41344 BC337-40  
 7356 4822 130 44503 BC547C  
 7357 4822 130 41327 BC327-40  
 7358 4822 130 41246 BC327-25  
 7359 9336 500 90126 BC557C

7360 4822 130 44503 BC547C



## ***POWER 5-VA Module***

***(only for /37)***

Stage .8

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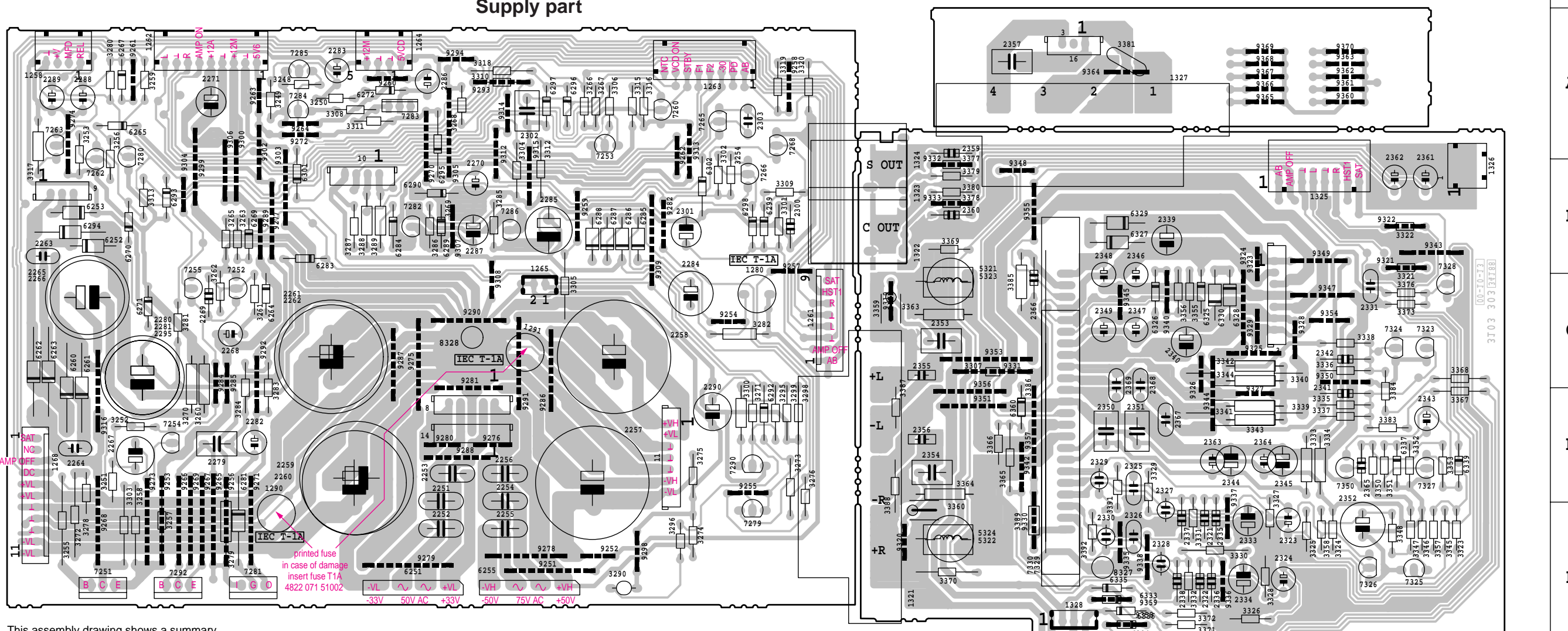
# COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

9360 A 2	9314 A 9	9291 C 9	9272 A 11	9254 C 7	7263 A 13	6292 D 7	6263 C 13	3310 A 9	3287 B 11	3268 A 10	3250 A 11	2281 C 12	2257 D 8	14 D 9	9348 B 5	9327 D 3	7324 C 1	5322 E 5	3372 E 3	3352 D 1	3334 D 2	2367 D 3	2348 C 4	2330 E 4	3 C 2
9361 A 2	9315 B 9	9292 C 11	9273 E 12	9255 D 7	7265 A 7	6293 B 12	6264 C 11	3311 A 10	3288 B 10	3269 B 10	3251 D 13	2282 D 11	2258 C 8	1258 A 13	9349 B 2	9328 C 2	7325 E 1	5323 C 5	3373 C 1	3353 D 1	3335 D 2	2368 C 4	2349 C 4	2331 C 2	1321 D 6
9362 A 2	9316 D 13	9293 A 9	9274 A 13	9256 E 12	7266 B 7	6294 B 13	6265 A 13	3312 B 9	3289 B 10	3270 C 12	3252 D 12	2283 A 11	2259 D 10	1261 C 6	9350 C 2	9329 C 3	7326 E 2	5324 E 5	3374 C 1	3354 C 3	3336 C 2	2369 C 4	2350 D 4	2332 B 6	6
9363 A 2	T256 C 13	9294 A 10	9275 C 10	9258 A 7	7268 A 7	6295 A 10	6267 A 13	3313 B 12	3290 E 8	3271 D 7	3253 A 13	2284 C 8	2260 D 11	1262 A 12	9351 D 5	9330 E 5	7327 D 1	6325 C 4	3377 B 5	3356 C 3	3337 D 2	2370 C 5	2351 D 4	2334 B 6	6
9364 A 4	T257 C 12	9298 E 8	9276 D 9	9259 B 9	7280 A 12	6296 A 9	6269 B 11	3315 A 8	3295 D 7	3272 E 13	3254 B 7	2285 B 9	2261 C 11	1263 A 7	9353 C 5	9331 C 5	7328 C 1	6326 C 3	3378 B 5	3357 E 1	3338 C 2	2371 B 1	2352 E 2	2335 E 3	1324 B 6
9365 A 3	T258 D 13	9299 B 12	9277 B 11	9260 A 10	7281 E 11	6297 A 9	6270 B 12	3316 A 8	3296 E 8	3273 D 7	3255 E 13	2286 A 10	2262 C 11	1264 A 10	9354 C 2	9332 B 5	7329 D 4	6327 C 4	3379 B 5	3358 E 2	3339 D 2	2372 B 1	2353 C 5	2336 E 3	1325 B 2
9366 A 3	T265 B 10	9300 B 12	9278 E 9	9261 A 12	7282 B 10	6298 B 7	6271 C 12	3317 A 13	3298 D 7	3274 E 8	3256 B 13	2287 B 9	2263 B 13	1265 C 9	9355 B 5	9333 B 5	7330 C 4	6328 C 3	3380 B 5	3359 C 6	3340 C 2	2373 B 1	2354 D 5	2337 E 3	1326 B 1
9367 A 3	T305 A 11	9302 A 11	9279 E 10	9262 A 8	7283 A 10	6299 B 7	6272 A 10	3318 A 9	3299 D 7	3275 D 8	3257 E 12	2288 A 13	2264 D 13	1268 D 13	9356 D 5	9335 E 4	7330 D 2	6329 B 4	3383 D 1	3360 E 6	3341 D 3	2374 E 2	2355 C 6	2338 E 3	1328 B 4
9368 A 3	T312 A 7	9303 B 11	9280 D 10	9263 A 11	7284 A 11	6301 B 11	6281 E 12	3319 A 7	3300 D 7	3278 D 13	3258 E 12	2289 A 13	2265 C 13	1280 C 7	9357 D 5	9336 C 3	8327 B 4	6330 C 3	3384 D 1	3363 C 5	3342 C 3	2375 E 2	2356 D 6	2339 C 3	1321 E 3
9369 A 3	T314 A 10	9304 B 12	9281 D 10	9264 A 11	7285 A 11	6302 B 7	6283 B 11	3320 A 7	3301 B 7	3279 E 12	3259 A 12	2290 D 7	2266 C 13	1290 E 11	9358 E 4	9337 E 3	9319 C 6	6333 E 4	3385 C 5	3364 D 5	3343 D 3	2376 E 3	2357 A 5	2340 C 3	1322 E 3
9370 A 2	T315 B 9	9305 A 10	9284 C 12	9265 E 12	7286 B 9	6251 E 10	6284 B 10	3302 B 7	3280 A 13	3280 A 13	3260 C 12	2295 C 12	2267 D 12	1291 C 9	9359 E 4	9338 E 4	9320 E 6	6334 E 4	3386 D 5	3365 D 5	3344 C 3	2377 E 3	2360 B 5	2341 D 2	2323 E 2
	T316 A 10	9306 B 12	9285 C 12	9266 E 12	7290 D 7	6252 C 12	6285 B 8	6252 B 13	3303 E 13	3281 C 12	3261 C 11	2300 B 7	2268 C 12	1251 D 10	T321 A 1	9340 C 3	9321 B 1	6335 E 4	3387 D 6	3366 D 5	3345 E 1	2378 E 3	2361 B 1	2342 C 2	2324 E 2
ADD	---	9307 B 10	9286 C 9	9267 E 12	7292 E 12	6253 B 13	6286 B 8	6253 B 13	3304 B 9	3282 C 7	3262 C 12	2301 B 8	2269 C 12	1252 E 10	---	9342 D 5	9322 B 1	6336 E 4	3388 D 6	3367 D 1	3346 E 1	2379 D 4	2362 B 1	2343 D 1	2325 D 4
3276 D 6	16 A 4	9308 C 9	9287 C 10	9268 E 13	8328 C 9	6254 D 12	6287 B 8	6255 E 9	3305 C 9	3283 D 11	3263 B 12	2302 A 9	2270 B 9	1253 D 10	8 D 9	9343 B 1	9323 B 3	6337 D 1	3389 E 5	3368 C 1	3347 E 1	2380 E 3	2363 D 3	2344 D 3	2326 E 4
7279 D 7	1327 A 4	9309 B 8	9288 D 10	9269 E 12	9251 E 9	6255 C 12	6288 B 8	6260 D 13	3306 A 8	3284 D 11	3265 B 12	2303 A 7	2271 A 12	1254 D 9	9 B 13	9344 D 3	9324 C 3	6339 D 1	3391 D 4	3369 B 5	3348 E 1	2381 E 3	2364 D 3	2345 D 2	2327 E 3
9257 B 7	2357 A 5	9312 A 9	9289 B 11	9270 A 10	9252 E 8	6262 A 8	6289 B 10	6261 D 13	3308 A 10	3285 B 9	3266 A 8	3248 A 11	2279 D 12	1255 E 9	10 B 10	9345 C 4	9325 C 3	6360 D 5	3392 E 4	3370 E 5	3350 D 2	2382 E 3	2365 D 2	2346 C 4	2328 E 3
9282 B 8	3381 A 4	9313 A 8	9290 C 10	9271 E 11	9253 E 12	6262 C 13	6290 B 10	6262 C 13	3309 B 7	3286 B 10	3267 A 8	3249 A 11	2280 C 12	1256 D 9	11 D 8	9347 C 2	9326 C 3	7323 C 1	5321 C 5	3371 E 3	3351 D 2	2383 D 2	2366 C 5	2347 C 4	2329 D 4

13 12 11 10 9 8 7 6 5 4 3 2 1

## Copperside view

### Supply part



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

Transistor pinning

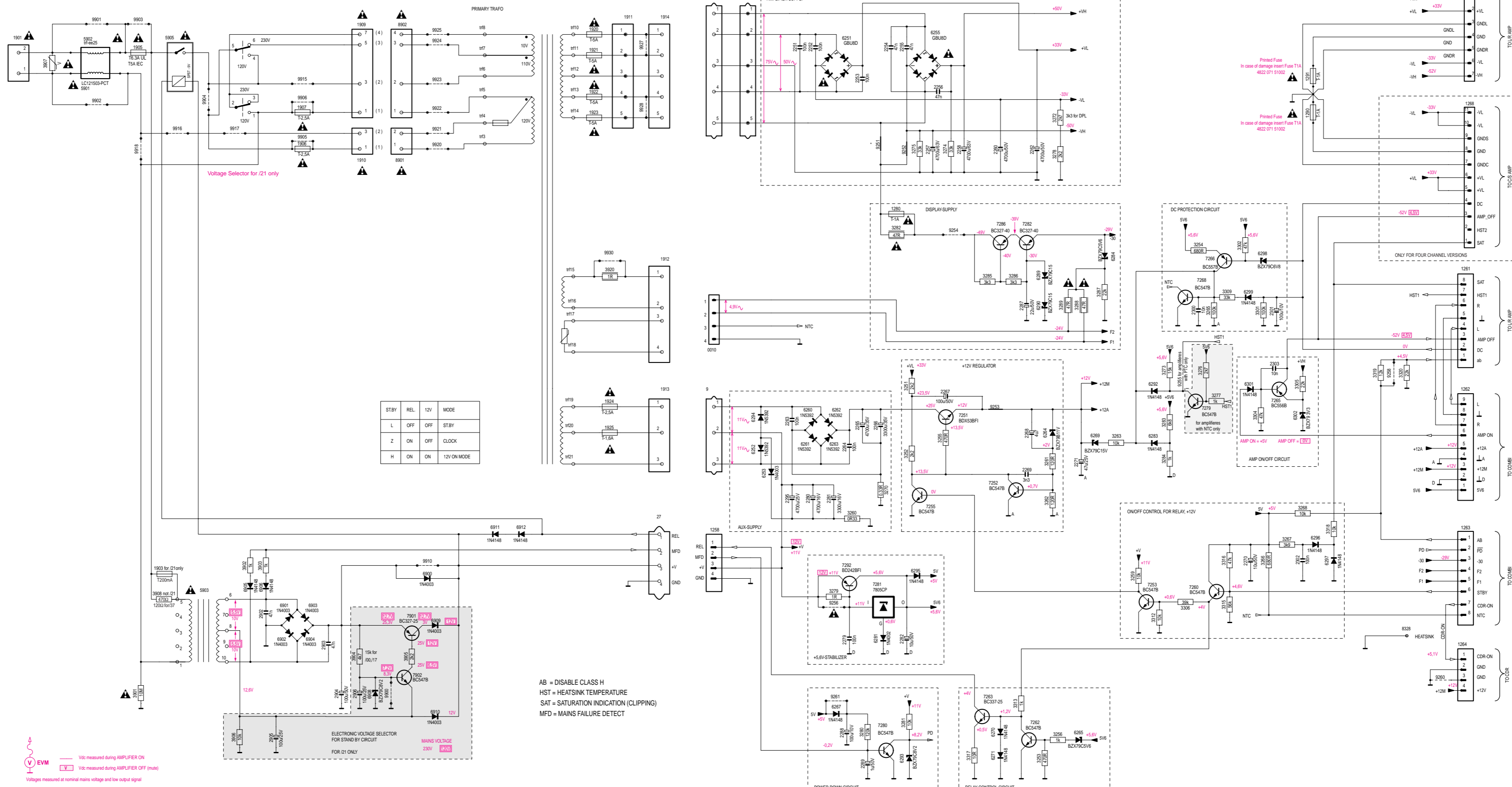


## Left / Right Channel Amplifier

13 12 11 10 9 8 7 6 5 4 3 2 1

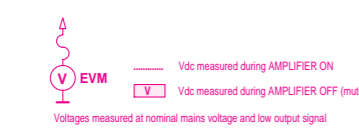


# POWER 5-VA SUPPLY PART 130W Version



STBY	REL	12V	MODE
L	OFF	OFF	STBY
Z	ON	OFF	CLOCK
H	ON	ON	12V ON MODE

AB = DISABLE CLASS H  
 HST = HEATSINK TEMPERATURE  
 SAT = SATURATION INDICATION (CLIPPING)  
 MFD = MAINS FAILURE DETECT

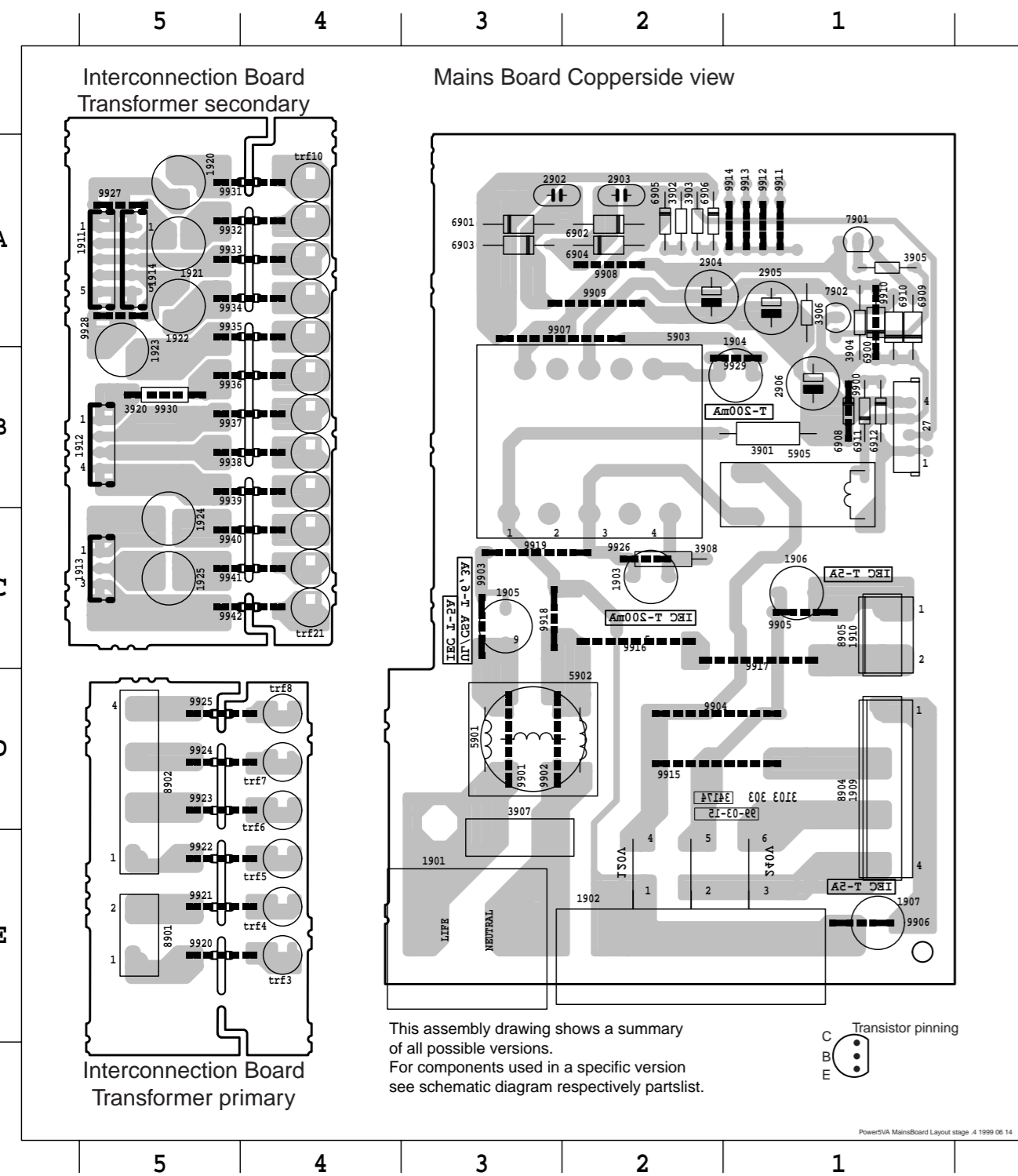


- 0010 G14
- 0011 B29
- 0012 B14
- 0013 F23
- 0014 M 6
- 0015 M 6
- 0016 M 6
- 0017 M 6
- 0018 M 6
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- 0071 M 6
- 0072 M 6
- 0073 M 6
- 0074 M 6
- 0075 M 6
- 0076 M 6
- 0077 M 6
- 0078 M 6
- 0079 M 6
- 0080 M 6
- 0081 M 6
- 0082 M 6
- 0083 M 6
- 0084 M 6
- 0085 M 6
- 0086 M 6
- 0087 M 6
- 0088 M 6
- 0089 M 6
- 0090 M 6
- 0091 M 6
- 0092 M 6
- 0093 M 6
- 0094 M 6
- 0095 M 6
- 0096 M 6
- 0097 M 6
- 0098 M 6
- 0099 M 6
- 0100 M 6

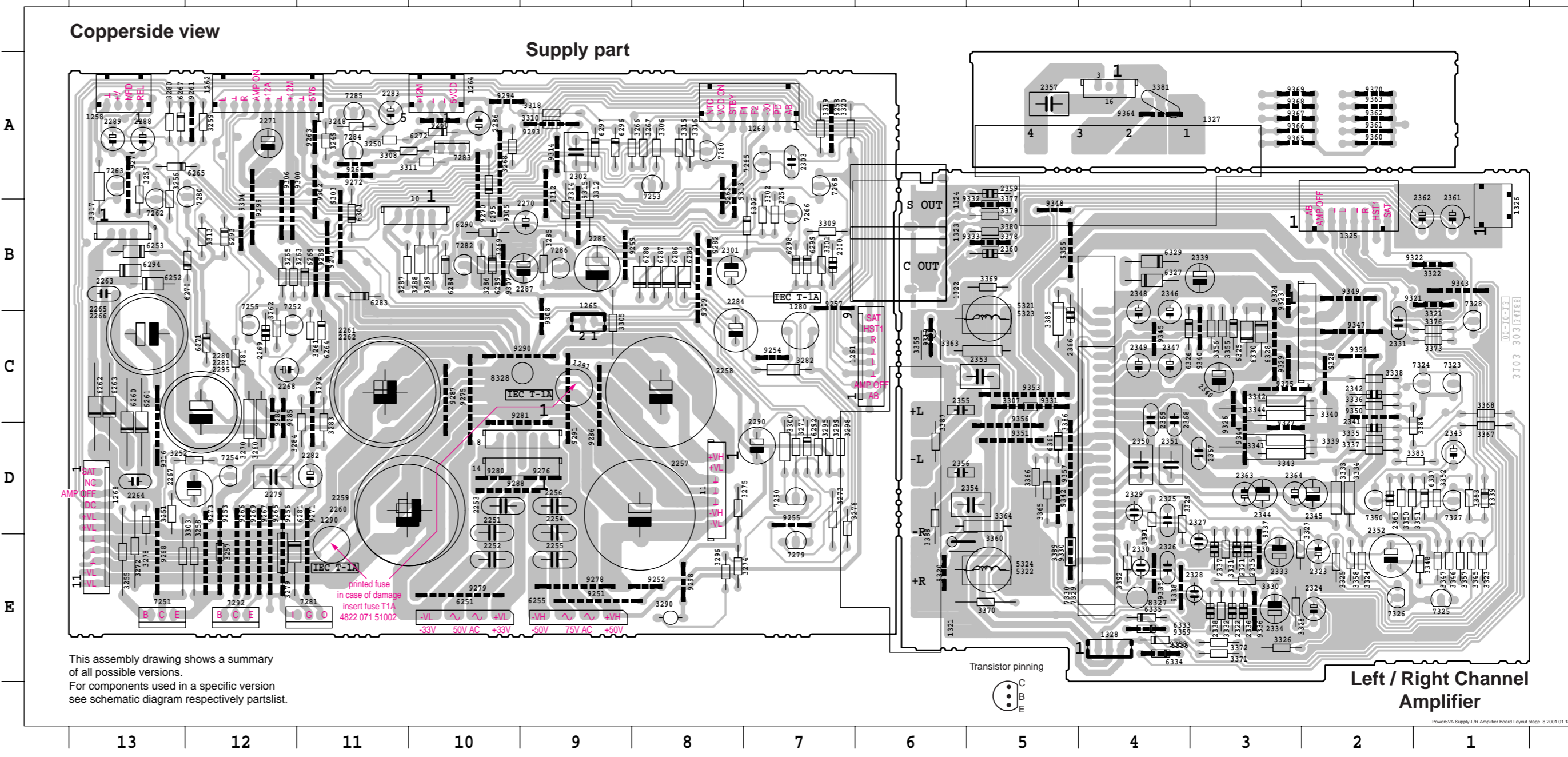
COMPONENT LAYOUT MAINS BOARD

COMPONENT LAYOUT SUPPLY PART & L/R AMPLIFIER PART

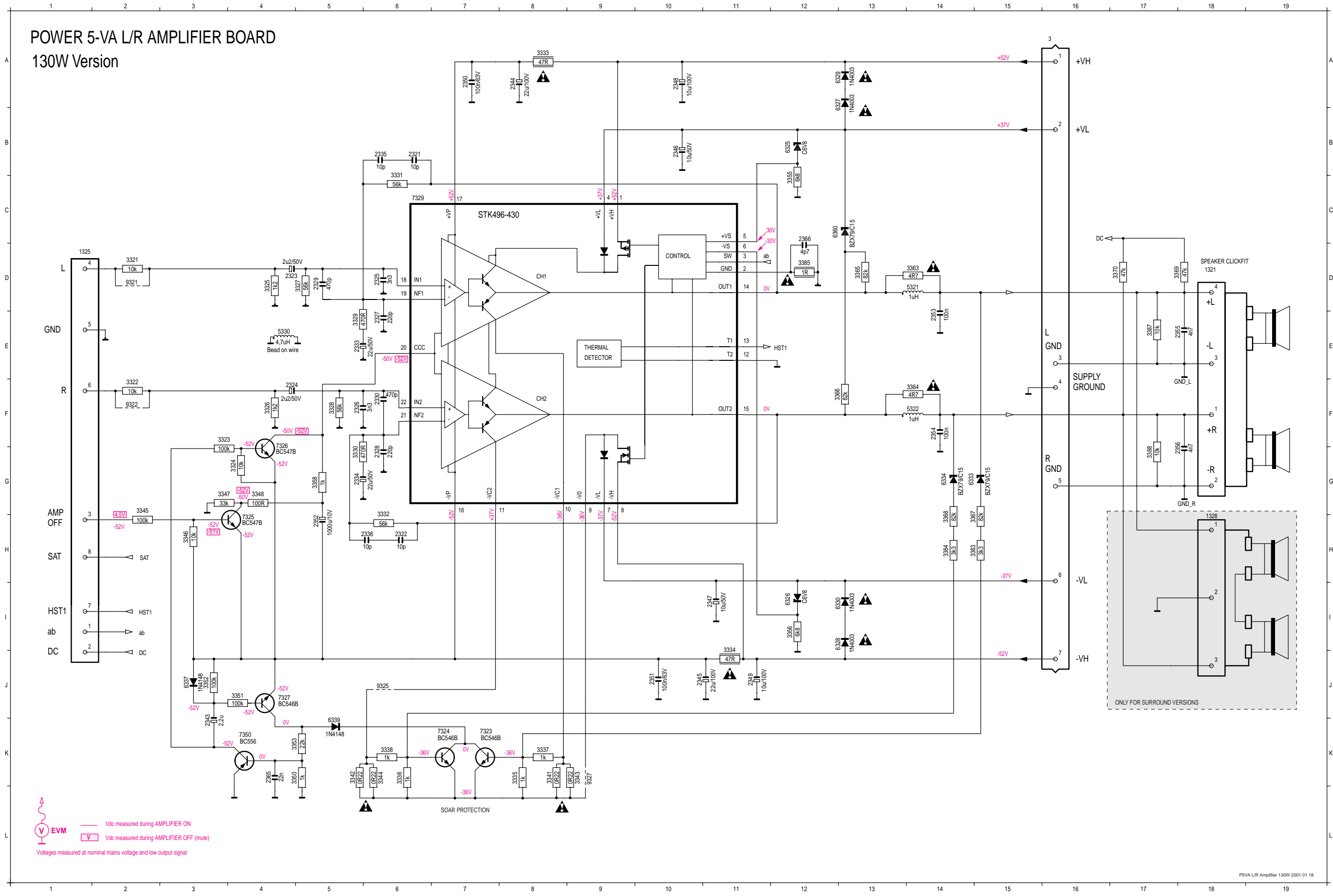
Interconnection Board primary side		secondary side		Mains Board					
8901 E 5	1911 A 5	9930 B 4	trf10 A 3	27 B 1	2905 A 1	5905 C 1	7901 A 1	9909 A 2	
8902 D 5	1912 B 5	9931 A 4	trf11 A 3	1901 E 3	2906 B 1	6900 B 1	7902 B 1	9910 B 1	
9920 E 4	1913 C 5	9932 A 4	trf12 A 3	1902 E 2	3901 B 1	6901 A 3	8904 D 1	9911 A 1	
9921 E 4	1914 A 5	9933 A 4	trf13 A 3	1903 C 2	3902 A 2	6902 A 2	8905 C 1	9912 A 1	
9922 E 4	1920 A 4	9934 A 4	trf14 B 3	1904 B 2	3903 A 2	6903 A 3	9900 B 1	9913 A 2	
9923 D 4	1921 A 4	9935 B 4	trf15 B 3	1905 C 3	3904 B 1	6904 A 2	9901 D 3	9914 A 2	
9924 D 4	1922 A 4	9936 B 4	trf16 B 3	1906 C 1	3905 A 1	6905 A 2	9902 D 3	9915 D 2	
9925 D 4	1923 B 5	9937 B 4	trf17 B 3	1907 E 1	3906 A 1	6906 A 2	9903 C 3	9916 D 2	
trf3 E 4	1924 C 4	9938 B 4	trf18 C 3	1908 D 1	3907 E 3	6908 B 1	9904 D 2	9917 D 1	
trf4 E 4	1925 C 4	9939 C 4	trf19 C 3	1910 C 1	3908 C 2	6909 B 1	9905 C 1	9918 C 3	
trf5 E 4	3920 B 4	9940 C 4	trf20 C 3	2902 A 3	5901 D 3	6910 B 1	9906 E 1	9919 C 3	
trf6 D 4	9927 A 5	9941 C 4	trf21 C 3	2903 A 2	5902 D 3	6911 B 1	9907 B 3	9920 C 2	
trf7 D 4	9928 A 5	9942 C 4		2904 A 2	5903 B 2	6912 B 1	9908 A 2	9929 B 2	



9360 A 2	9314 A 9	9291 C 9	9272 A 11	9254 C 7	7263 A 13	6292 D 7	6263 C 13	3310 A 9	3287 B 11	3268 A 10	3250 A 11	2281 C 12	2257 D 8	14 D 9	9348 B 5	9327 D 3	7324 C 1	5322 E 5	3372 E 3	3352 D 1	3334 D 2	2367 D 3	2348 C 4	2330 E 4	3 C 2
9361 A 2	9315 B 9	9292 C 11	9273 E 12	9255 D 7	7265 A 7	6293 B 12	6264 C 11	3311 A 10	3288 B 10	3269 B 10	3251 D 13	2282 D 11	2258 C 8	1258 A 13	9349 B 2	9328 C 2	7325 E 1	5323 C 5	3373 C 1	3353 D 1	3335 D 2	2368 C 4	2349 C 4	2331 C 2	1321 D 6
9362 A 2	9316 D 13	9293 A 9	9274 A 13	9256 E 12	7266 B 7	6294 B 13	6265 A 13	3312 B 9	3289 B 10	3270 C 12	3252 D 12	2283 A 11	2259 D 10	1261 C 6	9350 C 2	9329 C 3	7326 E 2	5324 E 5	3374 C 1	3354 C 3	3336 C 2	2369 C 4	2350 D 4	2333 B 3	1322 B 6
9363 A 2	9256 C 13	9294 A 10	9275 C 10	9258 A 7	7268 A 7	6295 A 10	6267 A 13	3313 B 12	3290 E 8	3271 D 7	3253 A 13	2284 C 8	2260 D 11	1262 A 12	9351 D 5	9330 E 5	7327 D 1	6325 C 3	3377 B 5	3356 C 3	3337 D 2	2370 C 5	2351 D 4	2334 E 3	1323 B 6
9364 A 4	9257 C 12	9298 E 8	9276 D 9	9259 B 9	7280 A 12	6296 A 9	6269 B 11	3315 A 8	3295 D 8	3272 E 13	3254 B 7	2285 B 9	2261 C 11	1263 A 7	9353 C 5	9331 C 5	7328 C 1	6326 C 4	3378 B 5	3357 E 2	3338 C 2	2321 B 1	2352 E 2	2335 E 3	1324 B 6
9365 A 3	9258 D 13	9299 B 12	9277 B 11	9260 A 10	7281 E 11	6297 A 9	6270 B 12	3316 A 8	3296 E 8	3273 D 8	3255 E 13	2286 A 10	2262 C 11	1264 A 10	9354 C 2	9332 B 5	7329 D 4	6327 B 4	3379 B 5	3358 E 2	3339 D 2	2322 B 1	2353 C 5	2336 E 3	1325 B 2
9366 A 3	9265 B 10	9300 B 12	9278 E 9	9261 A 12	7282 B 10	6298 B 7	6271 C 12	3317 A 13	3298 D 7	3274 E 8	3256 B 13	2287 B 9	2263 B 13	1265 C 9	9355 B 5	9333 B 5	7330 C 4	6328 C 3	3380 B 5	3359 C 6	3340 C 2	2323 E 1	2354 D 5	2337 E 3	1326 B 1
9367 A 3	9305 A 11	9302 A 11	9279 E 10	9262 A 8	7283 A 10	6299 B 7	6272 A 10	3318 A 9	3299 D 7	3275 D 8	3257 A 12	2288 A 13	2264 D 13	1268 D 13	9356 D 5	9335 E 4	7350 D 2	6329 B 4	3383 D 1	3360 E 6	3341 D 3	2324 E 2	2355 C 6	2338 B 3	1328 E 4
9368 A 3	9312 A 7	9303 B 11	9280 D 10	9263 A 11	7284 A 11	6301 B 11	6281 E 12	3319 A 7	3300 D 7	3278 D 13	3258 E 12	2289 A 13	2265 C 13	1280 C 7	9357 D 5	9336 E 3	8327 E 4	6330 C 3	3384 D 1	3363 C 5	3342 C 3	2325 E 3	2356 C 6	2339 B 3	1328 E 4
9369 A 3	9314 A 10	9304 B 12	9281 D 10	9264 A 11	7285 A 11	6302 B 11	6282 B 13	3320 A 7	3301 B 7	3279 E 13	3259 A 12	2290 D 7	2266 C 13	1290 E 11	9358 E 4	9337 E 4	9319 C 6	6331 C 4	3385 C 5	3364 D 5	3343 D 3	2326 E 3	2357 A 5	2340 C 3	1328 E 4
9370 A 2	9315 B 9	9305 A 10	9284 C 12	9265 E 12	7286 B 9	7251 E 13	6284 B 10	6251 E 10	3302 B 7	3280 A 13	3260 C 12	2295 C 12	2267 D 12	1291 C 9	9359 E 4	9338 E 4	9320 B 6	6334 E 4	3386 D 5	3365 D 5	3344 C 3	2327 E 3	2358 A 5	2341 D 2	1328 E 4
	T316 A 10	9306 B 12	9285 C 12	9266 E 12	7290 D 7	7252 C 12	6285 B 8	6252 E 13	3303 B 13	3281 C 12	3261 C 11	2300 B 7	2268 C 12	2251 D 10	T321 A 1	9340 C 3	9321 B 1	6335 E 4	3387 D 6	3366 D 5	3345 E 1	2328 E 3	2359 A 5	2342 C 2	1328 E 4
ADD	----	----	9286 C 9	9267 E 12	7292 E 12	7253 A 4	6286 B 8	6253 B 13	3304 B 9	3282 C 7	3262 C 12	2301 B 8	2269 C 12	2252 E 10	----	9342 D 5	9322 B 1	6336 E 4	3388 D 6	3367 D 1	3346 E 1	2329 D 4	2362 B 1	2343 D 1	1328 E 4
3276 D 6	116 A 4	9308 C 9	9287 C 10	9268 E 13	8328 C 9	7254 D 12	6287 B 8	6255 E 9	3305 C 9	3283 D 11	3263 B 12	2302 A 9	2270 B 9	2253 D 10	8 D 9	9343 B 1	9323 B 3	6337 D 1	3389 E 5	3368 C 1	3347 E 1	2330 C 3	2363 D 3	2344 D 3	1328 E 4
7279 D 7	1327 A 4	9309 B 8	9288 D 10	9269 E 12	9251 E 9	7255 C 12	6288 B 8	6260 D 13	3306 A 8	3284 D 11	3265 B 12	2303 A 7	2271 A 12	2254 D 9	9 B 13	9344 D 3	9324 C 3	6339 D 1	3391 D 4	3369 B 5	3348 E 1	2331 E 3	2364 D 3	2345 D 3	1328 E 4
9257 B 7	2357 A 5	9312 A 7	9289 B 11	9270 A 11	9252 E 8	7260 E 8	6289 B 10	6261 D 13	3308 A 10	3285 B 9	3266 A 8	3248 A 11	2279 D 12	2255 E 9	10 B 10	9345 C 4	9325 C 3	6360 D 5	3392 E 4	3370 E 5	3350 D 2	2332 E 2	2365 D 2	2346 C 4	1328 E 4
9282 B 8	3381 A 4	9313 A 8	9290 C 10	9271 E 11	9253 E 12	7262 B 13	6290 B 10	6262 C 13	3309 B 7	3286 B 9	3267 A 8	3249 A 11	2280 C 12	2256 D 9	11 D 8	9347 C 2	9326 C 3	7323 C 1	5321 C 5	3371 E 3	3351 D 2	2333 D 2	2366 C 5	2347 C 4	1329 D 4

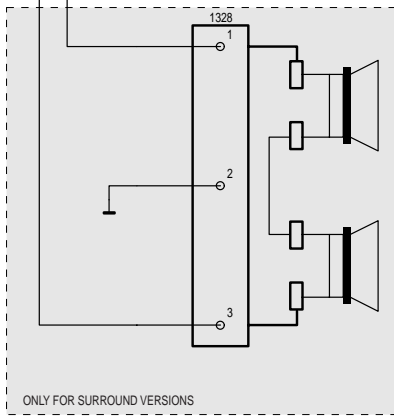


# POWER 5-VA L/R AMPLIFIER BOARD 130W Version

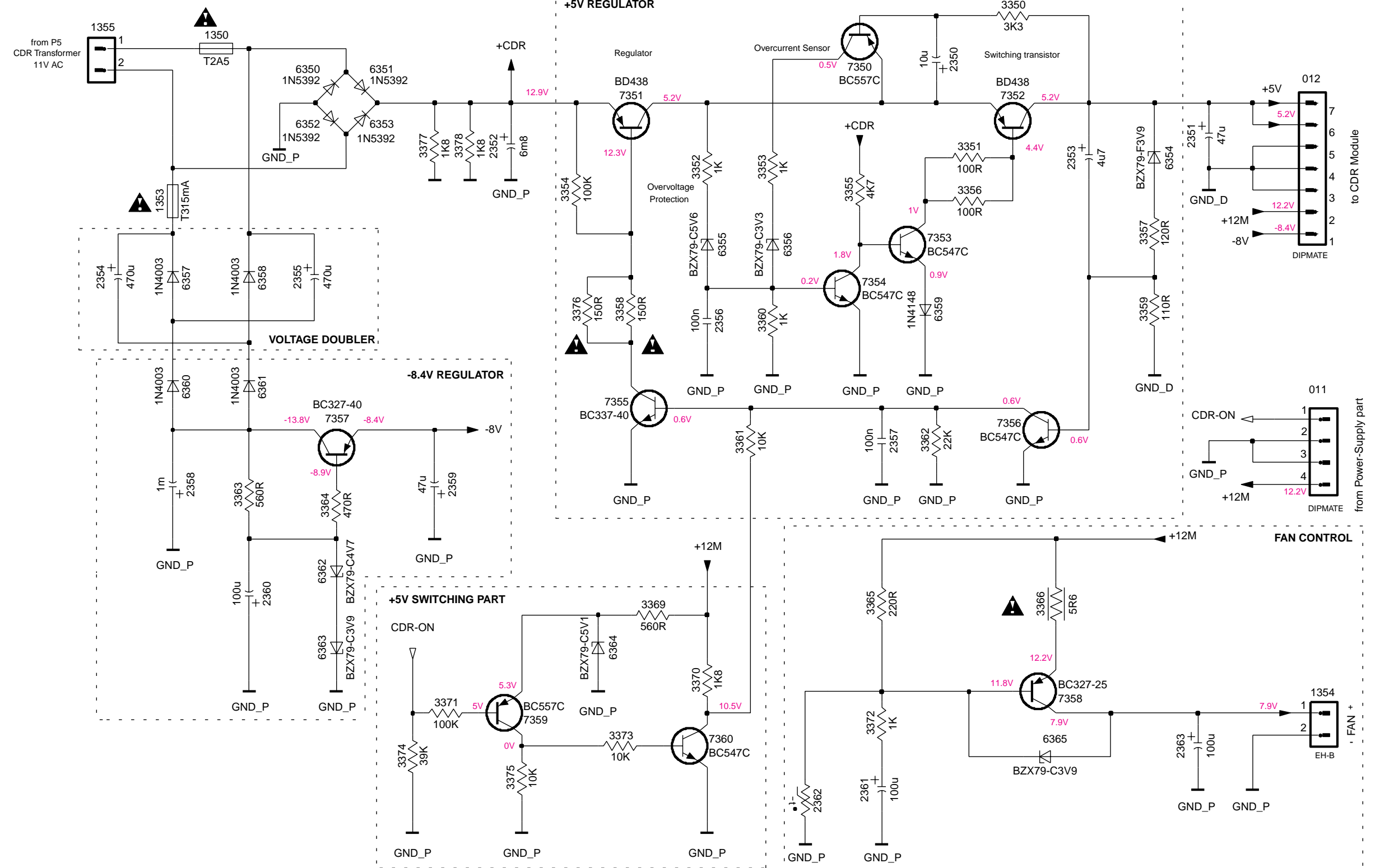


EVM  
 Vdc measured during AMPLIFIER ON  
 Vdc measured during AMPLIFIER OFF (mute)  
 Voltages measured at nominal mains voltage and low output signal

- 1321 D18
- 1325 D1
- 1328 G18
- 2321 B6
- 2322 H6
- 2323 D4
- 2324 F4
- 2325 D5
- 2326 F5
- 2327 E6
- 2328 G6
- 2329 D6
- 2330 F6
- 2331 E3
- 2332 E5
- 2333 G5
- 2334 G5
- 2335 B6
- 2336 H6
- 2337 B6
- 2338 H6
- 2341 K7
- 2342 K6
- 2343 K3
- 2344 A8
- 2345 J10
- 2346 B10
- 2347 I11
- 2348 A10
- 2349 J11
- 2350 A7
- 2351 J10
- 2352 H5
- 2353 E14
- 2354 F14
- 2355 E18
- 2356 G18
- 2363 A7
- 2364 J10
- 2365 K4
- 2366 C12
- 2367 B8
- 2368 I8
- 2369 I9
- 3 A16
- 321 D2
- 322 F2
- 323 F3
- 324 G4
- 325 D4
- 326 F4
- 327 F5
- 328 F5
- 329 E5
- 330 G5
- 331 C6
- 332 H6
- 333 A8
- 334 J11
- 335 K8
- 336 K6
- 337 K8
- 338 K6
- 339 K9
- 340 K5
- 341 K8
- 342 K3
- 343 G3
- 344 K5
- 345 G2
- 346 H3
- 347 G3
- 348 G4
- 349 K5
- 350 K5
- 351 J4
- 352 C3
- 353 K5
- 354 C12
- 355 I2
- 356 G5
- 357 D14
- 358 E14
- 359 D13
- 360 F13
- 361 H15
- 362 H14
- 363 D18
- 364 E17
- 365 H15
- 366 H14
- 367 D12
- 368 C13
- 369 E17
- 370 D17
- 371 H15
- 372 H14
- 373 D12
- 374 F14
- 375 F14
- 376 B12
- 377 I12
- 378 A13
- 379 I13
- 380 A13
- 381 I13
- 382 G14
- 383 G14
- 384 J3
- 385 K5
- 386 C12
- 387 K7
- 388 K4
- 389 H4
- 390 G4
- 391 J4
- 392 C6
- 393 K4
- 394 D2
- 395 J6
- 396 J6
- 397 K9
- 398 K10
- 399 I12
- 400 F12
- 401 D12
- 402 G14
- 403 G15

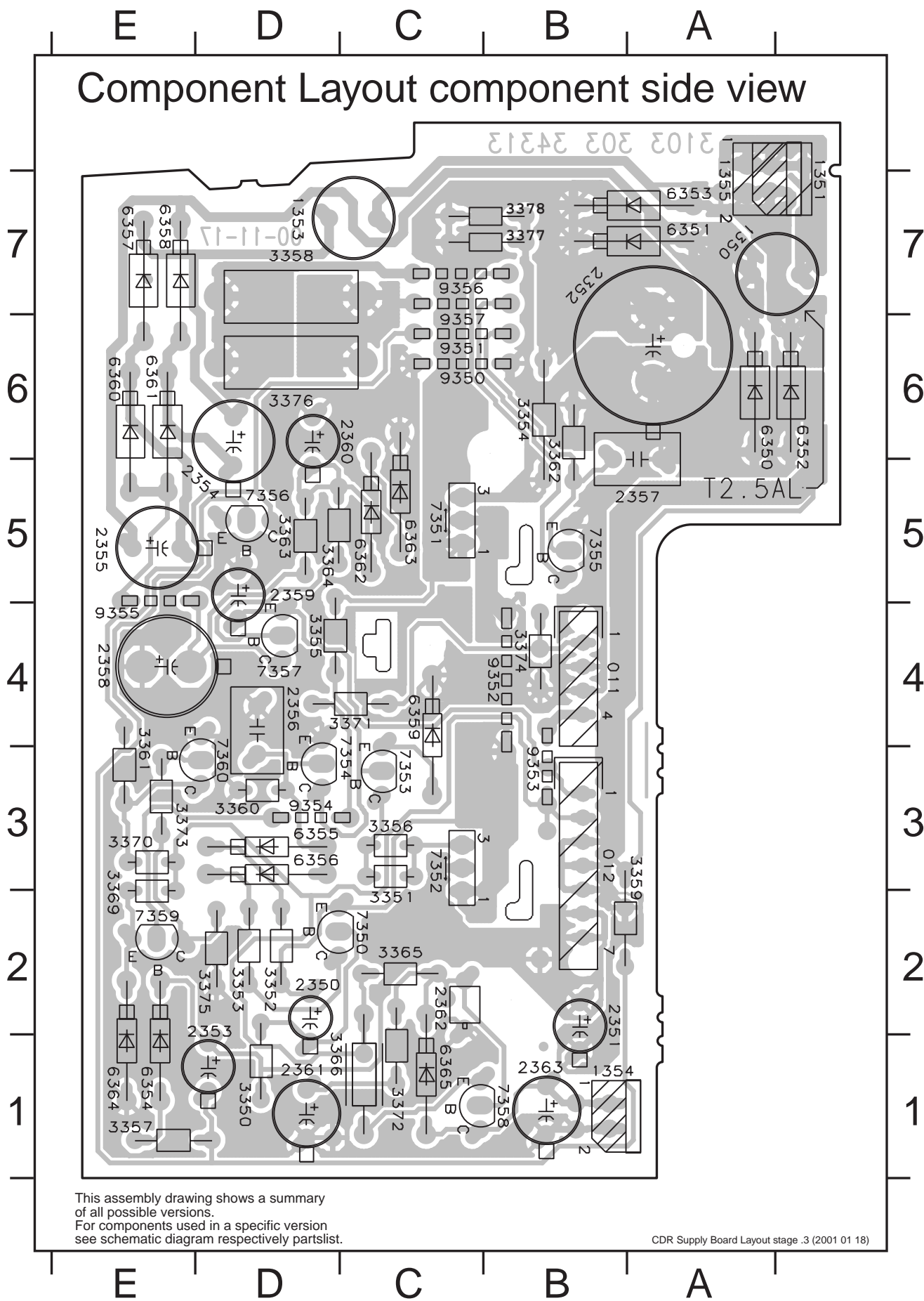


# POWER SUPPLY CDR

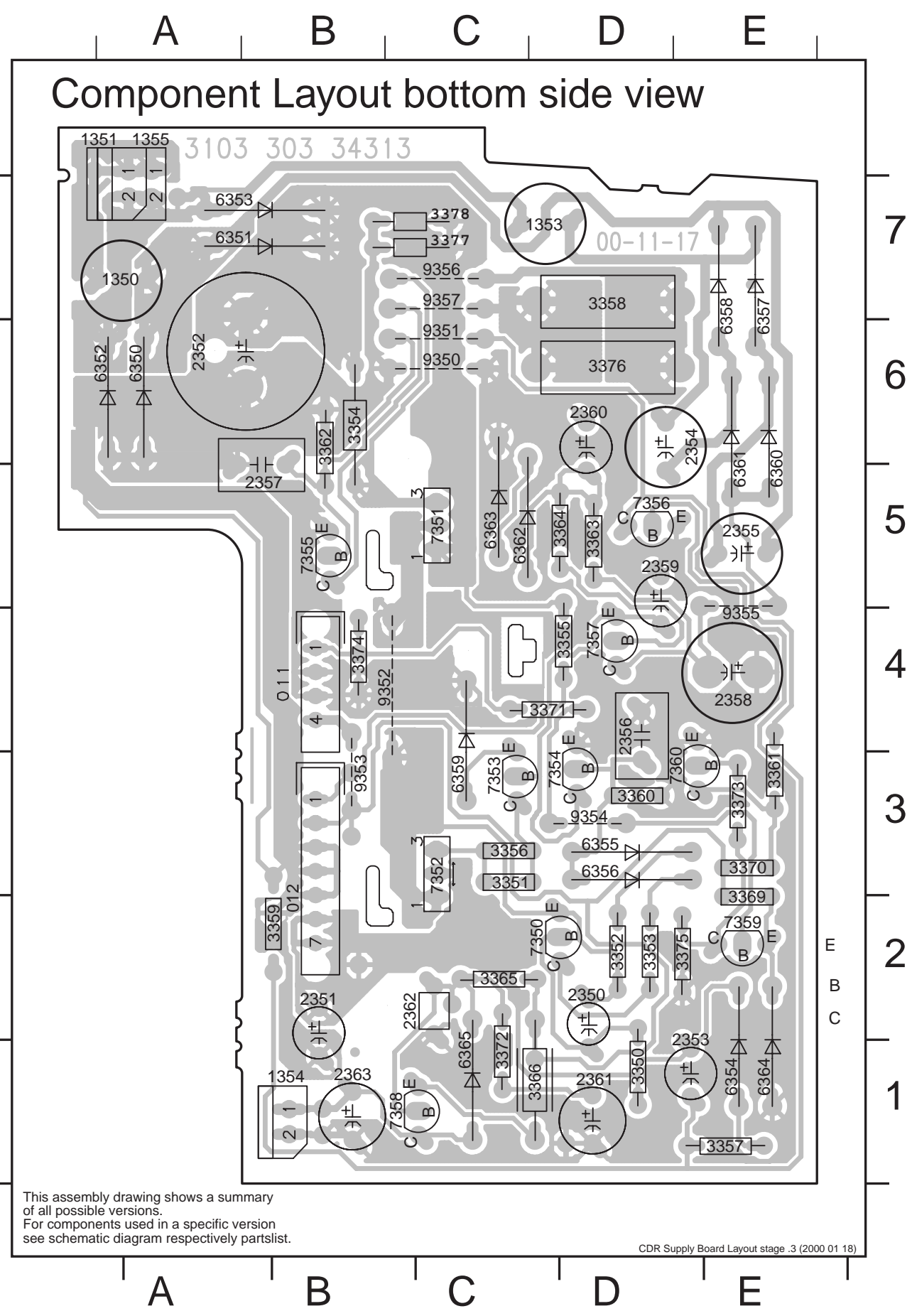


Circuit Diagram PowerSupply CDR (18.01.2001)

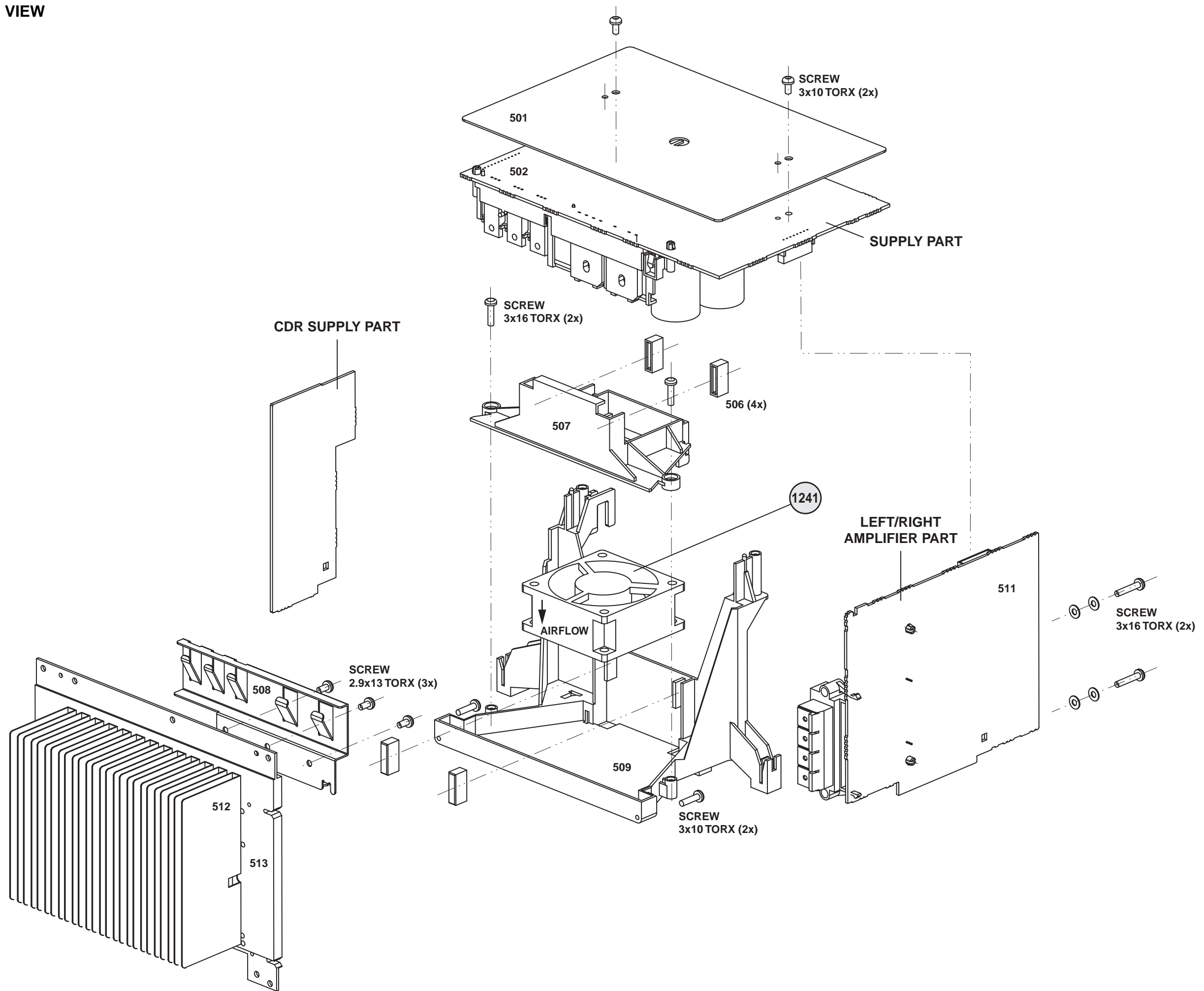
- 011 C9
- 012 A9
- 1350 A2
- 1351 A1
- 1353 B2
- 1354 E9
- 1355 A1
- 2350 A7
- 2351 B8
- 2352 B4
- 2353 B8
- 2354 C1
- 2355 C2
- 2356 C5
- 2357 D6
- 2358 D2
- 2359 D3
- 2360 E2
- 2361 F6
- 2362 F6
- 2363 F8
- 3350 A7
- 3351 B7
- 3352 B5
- 3353 B6
- 3354 B4
- 3355 B6
- 3356 B7
- 3357 B8
- 3358 C5
- 3359 C8
- 3360 C6
- 3361 D5
- 3362 D7
- 3363 D2
- 3364 D3
- 3365 E6
- 3366 E7
- 3369 E5
- 3370 E5
- 3371 E3
- 3372 E6
- 3373 F5
- 3374 F3
- 3375 F4
- 3376 C4
- 6350 A3
- 6351 A3
- 6352 B3
- 6353 B3
- 6354 B8
- 6355 B5
- 6356 B6
- 6357 C2
- 6358 C2
- 6359 C7
- 6360 C7
- 6361 C2
- 6362 D3
- 6363 E3
- 6364 E4
- 6365 F7
- 7350 A6
- 7351 A5
- 7352 A7
- 7353 B7
- 7354 C6
- 7355 C5
- 7356 C7
- 7357 C3
- 7358 E7
- 7359 E4
- 7360 F5



- 011 B4
- 012 B3
- 1350 A7
- 1351 A7
- 1353 D7
- 1354 B1
- 1355 A7
- 2350 D2
- 2351 B2
- 2352 B7
- 2353 E2
- 2354 E5
- 2355 E5
- 2356 D4
- 2357 B5
- 2358 E4
- 2359 D5
- 2360 D6
- 2361 D1
- 2362 C2
- 2363 B1
- 2364 D1
- 2365 C2
- 2366 D2
- 2367 D2
- 2368 B6
- 2369 D4
- 2370 C3
- 2371 E1
- 2372 D7
- 2373 B3
- 2374 D3
- 2375 E3
- 2376 B5
- 2377 D5
- 2378 D5
- 2379 C2
- 2380 D5
- 2381 C1
- 2382 C1
- 2383 E3
- 2384 B4
- 2385 E2
- 2386 D6
- 2387 C1
- 2388 C1
- 2389 A6
- 2390 A7
- 2391 A7
- 2392 E1
- 2393 D3
- 2394 D3
- 2395 D3
- 2396 E7
- 2397 E7
- 2398 C4
- 2399 E6
- 2400 E6
- 2401 D5
- 2402 C5
- 2403 E1
- 2404 C1
- 2405 D2
- 2406 C5
- 2407 C3
- 2408 C3
- 2409 D3
- 2410 B5
- 2411 D5
- 2412 D4
- 2413 C1
- 2414 E2
- 2415 E3
- 2416 C6
- 2417 C6
- 2418 C4
- 2419 C4
- 2420 B3
- 2421 D3
- 2422 E4
- 2423 E4
- 2424 C7
- 2425 C6



EXPLODED VIEW



**ELECTRICAL PARTSLIST POWER BOARD****MECHANICAL PARTS**

	4822 466 93148	SPACER
401	4822 256 10555	RUCKSACK P5 (L/R-MTX)
401	4822 256 10557	RUCKSACK P5 (L/R-C/S)
401	4822 256 10558	RUCKSACK P5 (L/R)
1241	4822 361 11161	KD1206PTS3, FAN

**MISCELLANEOUS**

1321	4822 267 31176	SPEAKER TERMINAL
1901	4822 265 31015▲	MAINS SOCKET, IEC
1901	4822 265 31016▲	MAINS SOCKET, UL
1902	4822 272 10269▲	VOLTAGE SELECTOR
1903	4822 071 52001▲	FUSE 200mA/T
1905	4822 071 55002▲	FUSE T5A
1905	4822 252 51123▲	FUSE T6,3A
1906	4822 071 55002▲	FUSE T5A
1907	4822 071 55002▲	FUSE T5A
1920	4822 071 55002▲	FUSE T5A
1921	4822 071 55002▲	FUSE T5A
1922	4822 071 55002▲	FUSE T5A
1923	4822 071 55002▲	FUSE T5A
1924	4822 071 52502▲	FUSE T 2,5A
1925	4822 071 51602▲	FUSE 1,6A
5903	4822 146 11142▲	STBY TRANSFORMER, USA
5903	4822 146 11143▲	STBY TRANSFORMER, EUROPE
5903	4822 146 11144▲	STBY TRANSFORMER, OVERSEA
5905	4822 280 10382▲	STAND BY RELAIS, SDT-SS-109DM

**CAPACITORS**

2251	5322 121 42578	100nF	10%	100V
2252	5322 121 42578	100nF	10%	100V
2253	5322 121 42578	100nF	10%	100V
2254	4822 121 43526	47nF	5%	100V
2255	4822 121 43526	47nF	5%	100V
2256	4822 121 43526	47nF	5%	100V
2257	4822 124 12423	4700µF	20%	63V
2258	4822 124 12423	4700µF	20%	63V
2260	4822 124 80415	4700µF	20%	50V
2262	4822 124 80415	4700µF	20%	50V
2263	5322 121 42386	100nF	5%	63V
2264	5322 121 42386	100nF	5%	63V
2265	4822 124 80563	4700µF	20%	35V
2267	4822 124 40255	100µF	20%	50V
2268	4822 124 40769	4,7µF	20%	100V
2269	4822 121 51387	10nF	20%	16V
2269	4822 122 10577	3,3nF	10%	16V
2269	4822 122 33197	1nF	10%	50V
2270	4822 124 40248	10µF	20%	63V
2270	4822 124 41579	10µF	20%	50V
2271	4822 124 40433	47µF	20%	25V
2279	5322 121 42386	100nF	5%	63V
2280	4822 124 12328	6800µF	20%	16V
2282	4822 124 40248	10µF	20%	63V
2282	4822 124 41579	10µF	20%	50V
2289	4822 124 21913	1µF	20%	63V
2289	4822 124 40242	1µF	20%	63V
2290	4822 124 40207	100µF	20%	25V
2300	4822 121 51387	10nF	20%	16V
2301	4822 124 41584	100µF	20%	10V
2303	4822 121 41857	10nF	5%	250V
2321	4822 122 33847	10pF	5%	50V
2322	4822 122 33847	10pF	5%	50V
2323	4822 124 22652	2,2µF	20%	50V
2323	4822 124 41576	2,2µF	20%	50V

**CAPACITORS**

2324	4822 124 22652	2,2µF	20%	50V
2324	4822 124 41576	2,2µF	20%	50V
2325	4822 122 33532	3,3nF	5%	50V
2326	4822 122 33532	3,3nF	5%	50V
2327	5322 122 32334	220pF	10%	100V
2328	5322 122 32334	220pF	10%	100V
2329	5322 122 32311	470pF	10%	100V
2330	5322 122 32311	470pF	10%	100V
2331	5322 122 32261	4,7nF	10%	100V
2333	4822 124 81151	22µF	20%	50V
2334	4822 124 81151	22µF	20%	50V
2335	4822 122 33847	10pF	5%	50V
2336	4822 122 33847	10pF	5%	50V
2341	4822 126 11585	22nF	20%	50V
2342	4822 126 11585	22nF	20%	50V
2343	4822 124 22652	2,2µF	20%	50V
2343	4822 124 41579	10µF	20%	50V
2344	4822 124 40764	22µF	20%	100V
2345	4822 124 40764	22µF	20%	100V
2346	4822 124 40248	10µF	20%	63V
2346	4822 124 41579	10µF	20%	50V
2347	4822 124 40248	10µF	20%	63V
2347	4822 124 41579	10µF	20%	50V
2348	4822 124 81043	10µF	20%	100V
2349	4822 124 81043	10µF	20%	100V
2350	5322 121 42386	100nF	5%	63V
2351	5322 121 42386	100nF	5%	63V
2352	4822 124 40181	220µF	20%	10V
2353	5322 121 42386	100nF	5%	63V
2354	5322 121 42386	100nF	5%	63V
2355	5322 122 32261	4,7nF	10%	100V
2356	5322 122 32261	4,7nF	10%	100V
2365	4822 126 12785	47nF	20%	50V
2902	4822 121 43526	47nF	5%	100V
2903	4822 121 43526	47nF	5%	100V
2904	4822 124 40255	100µF	20%	50V
2905	4822 124 40207	100µF	20%	25V

**RESISTORS**

3251	4822 116 52256	2,2kΩ	5%	0,16W
3252	4822 116 52256	2,2kΩ	5%	0,16W
3254	4822 116 52228	680Ω	5%	0,5W
3255	4822 116 83883	470Ω	5%	0,16W
3259	4822 050 21003	10kΩ	2%	0,25W
3259	4822 116 83864	10kΩ	5%	0,5W
3260	4822 117 11342	0,33Ω	5%	2W
3261	4822 116 52206	120Ω	5%	0,5W
3261	4822 116 83876	270Ω	5%	0,16W
3262	4822 116 52206	120Ω	5%	0,5W
3263	4822 050 21003	10kΩ	2%	0,25W
3264	4822 116 83864	10kΩ	5%	0,5W
3265	4822 116 52234	100kΩ	5%	0,5W
3266	4822 116 52228	680Ω	5%	0,5W
3267	4822 116 52276	3,9kΩ	5%	0,5W
3268	4822 050 21003	10kΩ	2%	0,25W
3269	4822 116 83864	10kΩ	5%	0,5W
3270	4822 117 11342	0,33Ω	5%	2W
3271	4822 050 11002	1kΩ	5%	0,2W
3272	4822 116 52263	2,7kΩ	5%	0,5W
3272	4822 116 52269	3,3kΩ	5%	0,5W
3273	4822 116 52244	15kΩ	5%	0,5W
3274	4822 050 23303	33kΩ	1%	0,6W
3275	4822 050 23303	33kΩ	1%	0,6W

**ELECTRICAL PARTSLIST POWER BOARD****RESISTORS**

3278	4822 116 52256	2,2kΩ	5%	0,16W
3280	4822 116 52239	120kΩ	5%	0,5W
3281	4822 116 83864	10kΩ	5%	0,5W
3282	4822 052 10479	47Ω	5%	0,3W
3285	4822 116 52269	3,3kΩ	5%	0,5W
3286	4822 116 52269	3,3kΩ	5%	0,5W
3287	4822 116 52257	22kΩ	5%	0,5W
3288	4822 052 10479	47Ω	5%	0,3W
3289	4822 052 10479	47Ω	5%	0,3W
3290	4822 117 12063	10kΩ NTC		
3295	4822 116 83876	270Ω	5%	0,16W
3296	4822 116 83883	470Ω	5%	0,16W
3298	4822 116 52219	330Ω	5%	0,5W
3299	4822 116 52219	330Ω	5%	0,5W
3300	4822 052 10568	5,6Ω	5%	0,33W
3302	4822 116 83884	47kΩ	5%	0,16W
3304	4822 116 83884	47kΩ	5%	0,16W
3305	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 52257	22kΩ	5%	0,5W
3306	4822 116 83882	39kΩ	5%	0,5W
3307	4822 116 52256	2,2kΩ	5%	0,16W
3309	4822 050 23303	33kΩ	1%	0,6W
3312	4822 116 83864	10kΩ	5%	0,5W
3313	4822 050 11002	1kΩ	5%	0,2W
3315	4822 116 52291	56kΩ	5%	0,5W
3315	4822 116 83884	47kΩ	5%	0,16W
3316	4822 116 83884	47kΩ	5%	0,16W
3317	4822 052 10109	10Ω	5%	NFR
3321	4822 116 83864	10kΩ	5%	0,5W
3322	4822 116 83864	10kΩ	5%	0,5W
3323	4822 116 52234	100kΩ	5%	0,5W
3324	4822 116 83864	10kΩ	5%	0,5W
3325	4822 050 11002	1kΩ	5%	0,2W
3325	4822 116 52207	1,2kΩ	5%	0,5W
3326	4822 050 11002	1kΩ	5%	0,2W
3326	4822 116 52207	1,2kΩ	5%	0,5W
3327	4822 116 52291	56kΩ	5%	0,5W
3328	4822 116 52291	56kΩ	5%	0,5W
3329	4822 116 52226	560Ω	5%	0,5W
3329	4822 116 83883	470Ω	5%	0,16W
3330	4822 116 52226	560Ω	5%	0,5W
3330	4822 116 83883	470Ω	5%	0,16W
3331	4822 116 52291	56kΩ	5%	0,5W
3332	4822 116 52291	56kΩ	5%	0,5W
3333	4822 052 10479	47Ω	5%	0,3W
3334	4822 052 10479	47Ω	5%	0,3W
3335	4822 050 11002	1kΩ	5%	0,2W
3335	4822 116 52207	1,2kΩ	5%	0,5W
3336	4822 050 11002	1kΩ	5%	0,2W
3336	4822 116 52207	1,2kΩ	5%	0,5W
3337	4822 050 11002	1kΩ	5%	0,2W
3338	4822 050 11002	1kΩ	5%	0,2W
3339	4822 113 80633	0,1Ω	5%	3W
3340	4822 113 80633	0,1Ω	5%	3W
3341	4822 117 11744	0,22Ω	5%	1W
3342	4822 117 11744	0,22Ω	5%	1W
3343	4822 117 11744	0,22Ω	5%	1W
3344	4822 117 11744	0,22Ω	5%	1W
3345	4822 116 52234	100kΩ	5%	0,5W
3346	4822 116 83864	10kΩ	5%	0,5W

**RESISTORS**

3347	4822 050 23303	33kΩ	1%	0,6W
3348	4822 116 83872	220Ω	5%	0,5W
3350	4822 050 11002	1kΩ	5%	0,2W
3351	4822 116 52234	100kΩ	5%	0,5W
3352	4822 116 52234	100kΩ	5%	0,5W
3353	4822 116 52257	22kΩ	5%	0,5W
3355	4822 116 83961	6,8kΩ	5%	0,16W
3356	4822 116 83961	6,8kΩ	5%	0,16W
3357	4822 116 52234	100kΩ	5%	0,5W
3358	4822 050 11002	1kΩ	5%	0,2W
3363	4822 053 10478	4,7Ω	5%	1W
3364	4822 053 10478	4,7Ω	5%	1W
3365	4822 116 52234	100kΩ	5%	0,5W
3365	4822 116 52304	82kΩ	5%	0,5W
3366	4822 116 52234	100kΩ	5%	0,5W
3366	4822 116 52304	82kΩ	5%	0,5W
3367	4822 116 52304	82kΩ	5%	0,5W
3368	4822 116 52304	82kΩ	5%	0,5W
3369	4822 116 83884	47kΩ	5%	0,16W
3370	4822 116 83884	47kΩ	5%	0,16W
3383	4822 050 21003	10kΩ	2%	0,25W
3383	4822 116 52269	3,3kΩ	5%	0,5W
3383	4822 116 83864	10kΩ	5%	0,5W
3384	4822 050 21003	10kΩ	2%	0,25W
3384	4822 116 52269	3,3kΩ	5%	0,5W
3385	4822 052 10108	1Ω	5%	0,33W
3387	4822 050 21003	10kΩ	2%	0,25W
3388	4822 050 21003	10kΩ	2%	0,25W
3391	4822 116 52176	10Ω	5%	0,5W
3392	4822 116 52176	10Ω	5%	0,5W
3901	4822 053 21106	10MΩ	5%	0,5W
3902	4822 050 11002	1kΩ	5%	0,2W
3903	4822 050 11002	1kΩ	5%	0,2W
3904	4822 116 52244	15kΩ	5%	0,5W
3904	4822 116 52283	4,7kΩ	5%	0,5W
3905	4822 116 52256	2,2kΩ	5%	0,16W
3906	4822 050 21003	10kΩ	2%	0,25W
3908	4822 053 10471	470Ω	5%	1W
3920	4822 052 10108	1Ω	5%	0,33W

**COILS**

5321	4822 157 70599	1μH	
5322	4822 157 70599	1μH	
5901	4822 157 11832	400μH	
5902	4822 157 11628	MAINS CHOKE	

**DIODES**

6251	4822 130 11139	BRIDGE RECTIFIER GBU8D	
6251	4822 130 83302	BRIDGE RECTIFIER GBU4D	
6252	4822 130 31878	1N4003G	
6252	5322 130 80686	1N5392	
6253	4822 130 31878	1N4003G	
6255	4822 130 11139	GBU8D	
6260	4822 130 31878	1N4003G	
6260	5322 130 80686	1N5392	
6261	4822 130 31878	1N4003G	
6261	5322 130 80686	1N5392	
6262	4822 130 31878	1N4003G	
6262	5322 130 80686	1N5392	
6263	4822 130 31878	1N4003G	
6263	5322 130 80686	1N5392	
6264	4822 130 61219	BZX79-C10	



**ELECTRICAL PARTSLIST POWER BOARD****DIODES**

6264	9331 668 80133	DIO REG BZX79-B11
6269	4822 130 34281	BZX79-C15
6270	4822 130 30621	1N4148
6271	4822 130 30621	1N4148
6281	4822 130 31878	1N4003G
6284	4822 130 34173	BZX79-B5V6
6289	4822 130 34281	BZX79-C15
6290	4822 130 34281	BZX79-C15
6292	4822 130 30621	1N4148
6293	4822 130 34382	BZX79-B8V2
6294	4822 130 31878	1N4003G
6294	5322 130 80686	1N5392
6295	4822 130 30621	1N4148
6298	4822 130 34278	BZX79-C6V8
6299	4822 130 30621	1N4148
6301	4822 130 30621	1N4148
6302	5322 130 31504	BZX79-B3V3
6325	4822 130 34278	BZX79-C6V8
6326	4822 130 34278	BZX79-C6V8
6333	4822 130 34281	BZX79-C15
6334	4822 130 34281	BZX79-C15
6337	4822 130 30621	1N4148
6339	4822 130 30621	1N4148
6360	4822 130 34281	BZX79-C15
6900	4822 130 31878	1N4003G
6901	4822 130 31878	1N4003G
6902	4822 130 31878	1N4003G
6903	4822 130 31878	1N4003G
6904	4822 130 31878	1N4003G
6905	4822 130 30621	1N4148
6906	4822 130 30621	1N4148
6908	4822 130 34382	BZX79-B8V2
6909	4822 130 32245	BYV10-40
6910	4822 130 31878	1N4003G
6911	4822 130 30621	1N4148
6912	4822 130 30621	1N4148

**TRANSISTORS**

7251	4822 130 10812	BDX53BFI
7251	9322 139 23687	BDX53BFP
7252	4822 130 40959	BC547B
7253	4822 130 40959	BC547B
7253	4822 130 44568	BC557B
7255	4822 130 40959	BC547B
7260	4822 130 40959	BC547B
7263	4822 130 40959	BC547B
7263	4822 130 40981	BC337-25
7265	4822 130 41691	BC556B
7266	4822 130 44568	BC557B
7268	4822 130 40959	BC547B
7280	4822 130 40959	BC547B
7282	4822 130 41246	BC327-25
7282	4822 130 41327	BC327-40
7286	4822 130 41246	BC327-25
7286	4822 130 41327	BC327-40
7290	4822 130 41246	BC327-25
7323	4822 130 44461	BC546B
7324	4822 130 44461	BC546B
7325	4822 130 40959	BC547B
7326	4822 130 40959	BC547B
7327	4822 130 44461	BC546B
7350	4822 130 41691	BC556B
7901	4822 130 41246	BC327-25
7902	4822 130 40959	BC547B

**INTEGRATED CIRCUITS**

7281	4822 209 31841	L7805CP
7329	4822 209 17384	POWER AMPLIFIER STK411-230E

**ELECTRICAL PARTSLIST POWER SUPPLY CDR BOARD****MISCELLANEOUS**

1350	4822 071 52502▲	FUSE T 2,5A
1353	4822 071 53151▲	FUSE 315mA

**CAPACITORS**

2350	4822 124 11947	10µF	20%	16V
2351	4822 124 40433	47µF	20%	25V
2352	4822 124 12328	6800µF	20%	16V
2353	4822 124 40769	4,7µF	20%	100V
2354	4822 124 80791	470µF	20%	16V

2355	4822 124 80791	470µF	20%	16V
2356	5322 121 42386	100nF	5%	63V
2357	5322 121 42386	100nF	5%	63V
2358	4822 124 81144	1000µF	20%	16V
2359	4822 124 40433	47µF	20%	25V

2360	4822 124 41584	100µF	20%	10V
2361	4822 124 23052	100µF	20%	16V
2363	4822 124 23052	100µF	20%	16V

**RESISTORS**

2362	4822 117 12063	10kΩ		NTC
3350	4822 116 52269	3,3kΩ	5%	0,5W
3351	4822 116 52175	100Ω	5%	0,5W
3352	4822 050 11002	1kΩ	5%	0,2W
3353	4822 050 11002	1kΩ	5%	0,2W

3354	4822 116 52234	100kΩ	5%	0,5W
3355	4822 116 52283	4,7kΩ	5%	0,5W
3356	4822 116 52175	100Ω	5%	0,5W
3357	4822 116 52206	120Ω	5%	0,5W
3358	4822 053 11151▲	150Ω	5%	2W

3359	4822 050 21101	110Ω	1%	0,6W
3360	4822 050 11002	1kΩ	5%	0,2W
3361	4822 050 21003	10kΩ	2%	0,25W
3362	4822 116 52257	22kΩ	5%	0,5W
3363	4822 116 52226	560Ω	5%	0,5W

3364	4822 116 83883	470Ω	5%	0,16W
3365	4822 116 83872	220Ω	5%	0,5W
3366	4822 052 10568▲	5,6Ω	5%	0,33W
3369	4822 116 52226	560Ω	5%	0,5W
3370	4822 116 52249	1,8kΩ	5%	0,16W

3371	4822 116 52234	100kΩ	5%	0,5W
3372	4822 050 11002	1kΩ	5%	0,2W
3373	4822 050 21003	10kΩ	2%	0,25W
3374	4822 116 83882	39kΩ	5%	0,5W
3375	4822 050 21003	10kΩ	2%	0,25W

3376	4822 053 11151▲	150Ω	5%	2W
3377	4822 116 52249	1,8kΩ	5%	0,16W
3378	4822 116 52249	1,8kΩ	5%	0,16W

**DIODES**

6350	5322 130 80686	1N5392
6351	5322 130 80686	1N5392
6352	5322 130 80686	1N5392
6353	5322 130 80686	1N5392
6354	3198 010 53980	DIO REG BZX79-B3V9

6355	4822 130 34173	BZX79-B5V6
6356	5322 130 31504	BZX79-B3V3
6357	4822 130 31878	1N4003G
6358	4822 130 31878	1N4003G
6359	4822 130 30621	1N4148

6360	4822 130 31878	1N4003G
6361	4822 130 31878	1N4003G
6362	4822 130 34174	BZX79-B4V7
6363	4822 130 31981	BZX79-B3V9
6364	4822 130 34233	BZX79-B5V1

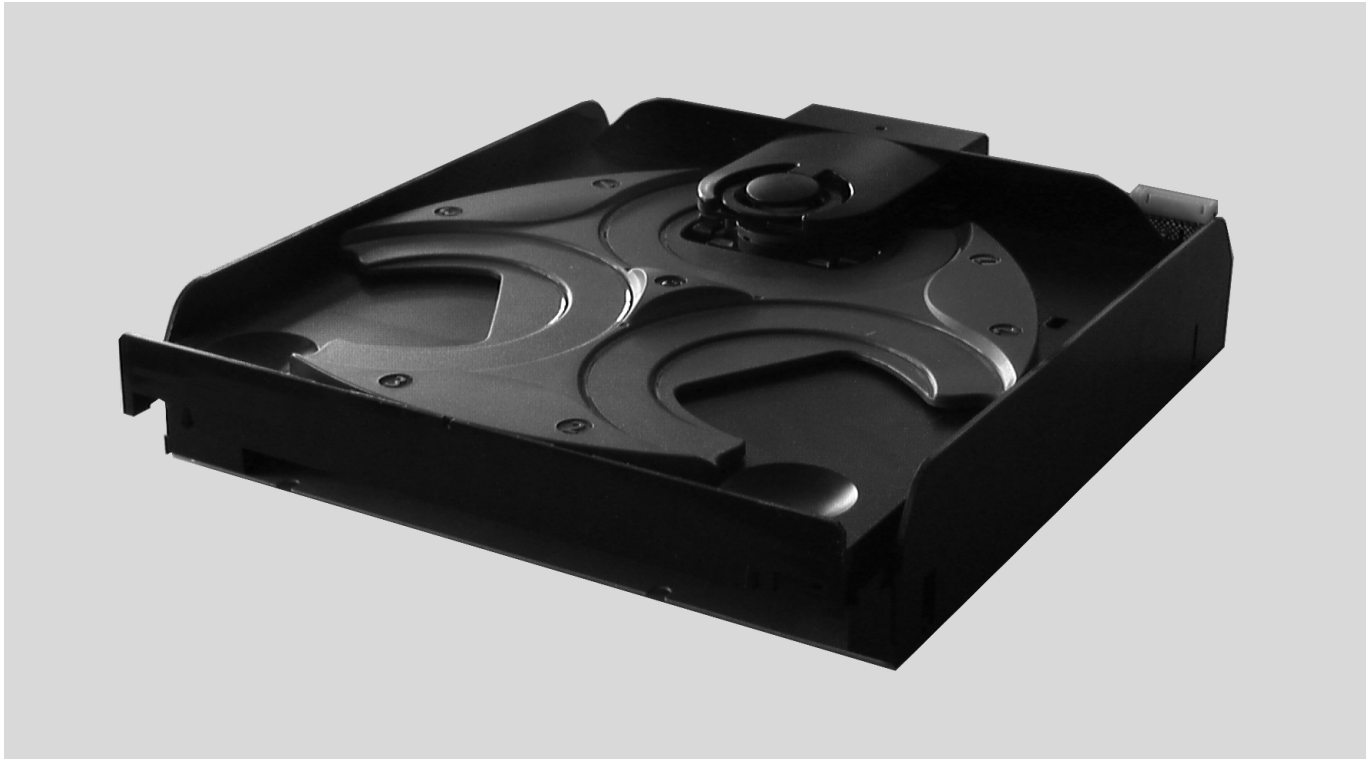
6365	4822 130 31981	BZX79-B3V9
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**TRANSISTORS**

7350	9336 500 90126	BC557C
7351	4822 130 40995	BD438
7352	4822 130 40995	BD438
7353	4822 130 44503	BC547C
7354	4822 130 44503	BC547C

7355	4822 130 41344	BC337-40
7356	4822 130 44503	BC547C
7357	4822 130 41327	BC327-40
7358	4822 130 41246	BC327-25
7359	9336 500 90126	BC557C

7360	4822 130 44503	BC547C
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# **3CDC99-DS Module**

## **(3 Disc Carousel Changer)**

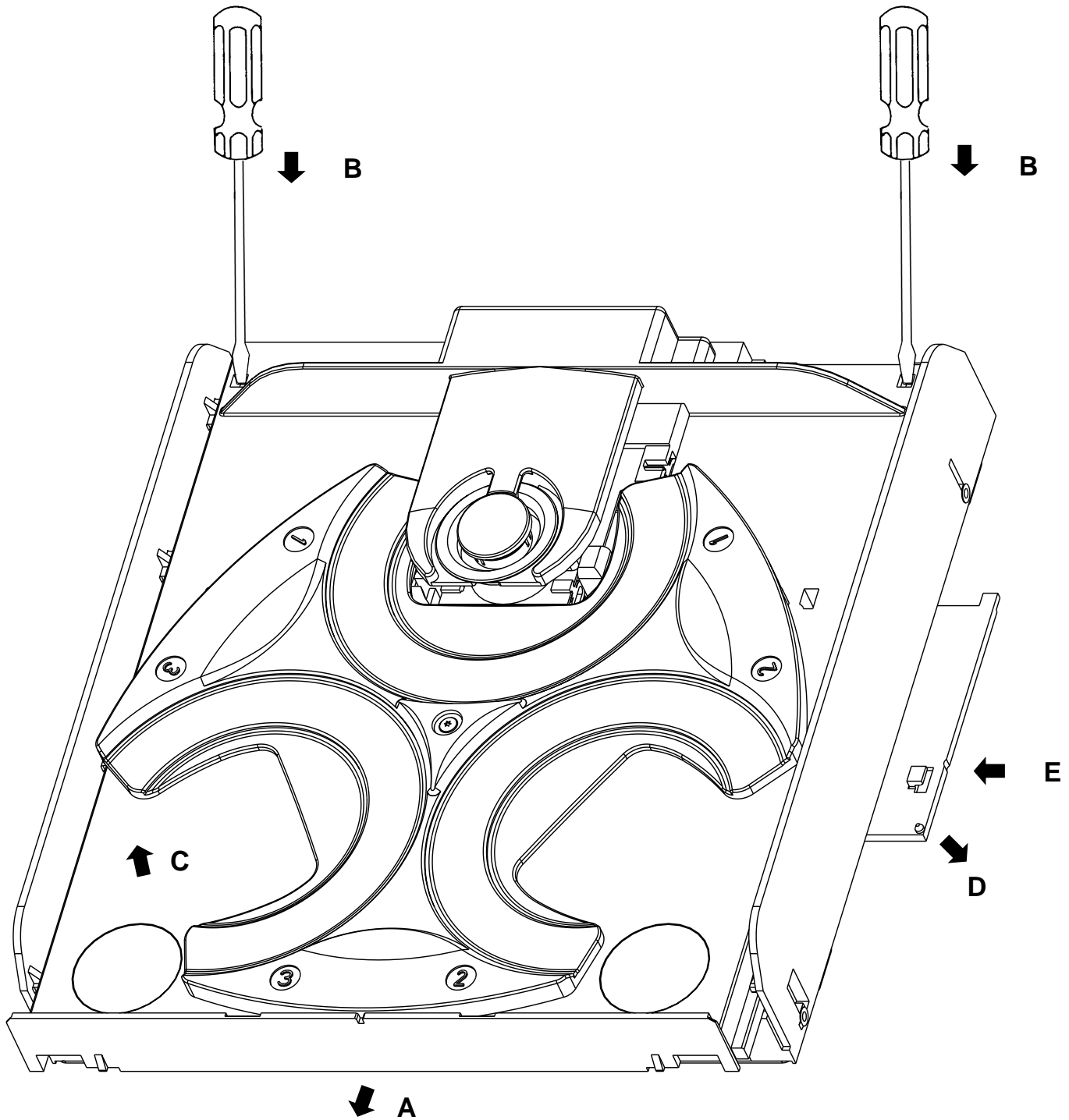
stage .4

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## Dismantling Hints



### Dismantling of Drawer

- A Pull drawer outwards
- B Unlock drawer with screwdriver
- C Lift drawer to demount from chassis

### Dismantling of Flex Plate

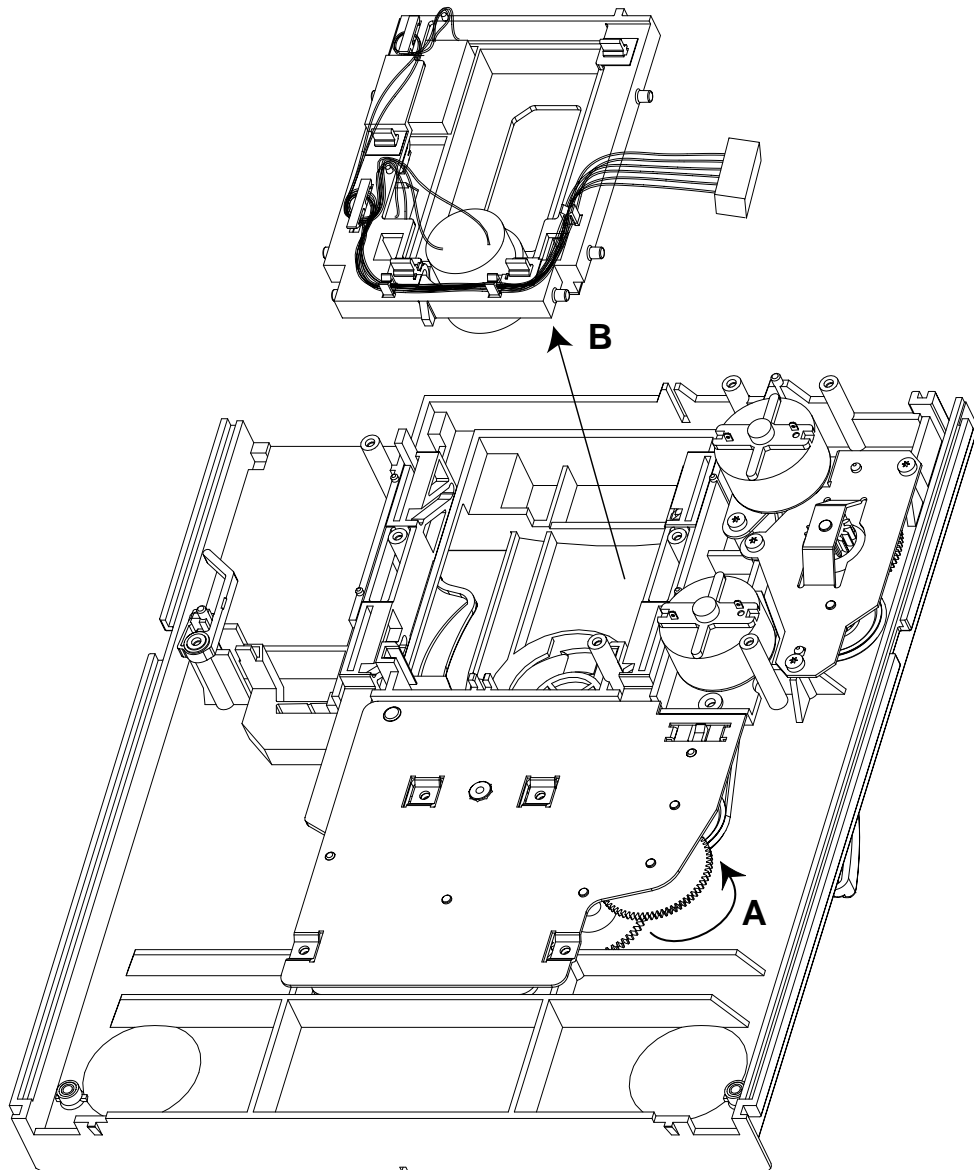
- D Lift plate to unlock pin from bottom plate
- E Move plate inwards to demount from bottom plate

## Servicing Hints

### Replacement of CD Drive

See also exploded view of changer mechanism.

1. Dismantle printed circuit board: remove 5 screws.
2. Disconnect flexfoil cable and JST connector.  
**Pay attention to WARNING!**
3. Loosen 2 screws (pos 107,108) and remove CD drive-lockings (pos 105,106).
4. Turn gearwheel (pos 42) of disc change mechanism by finger to move CD drive support in upper position as shown in picture below (A).
5. Dismantle CD drive support (pos 95) (B).
6. Replace CD drive (pos 100). The wire tree of JST connector has to be desoldered and resoldered on the new CD drive again.

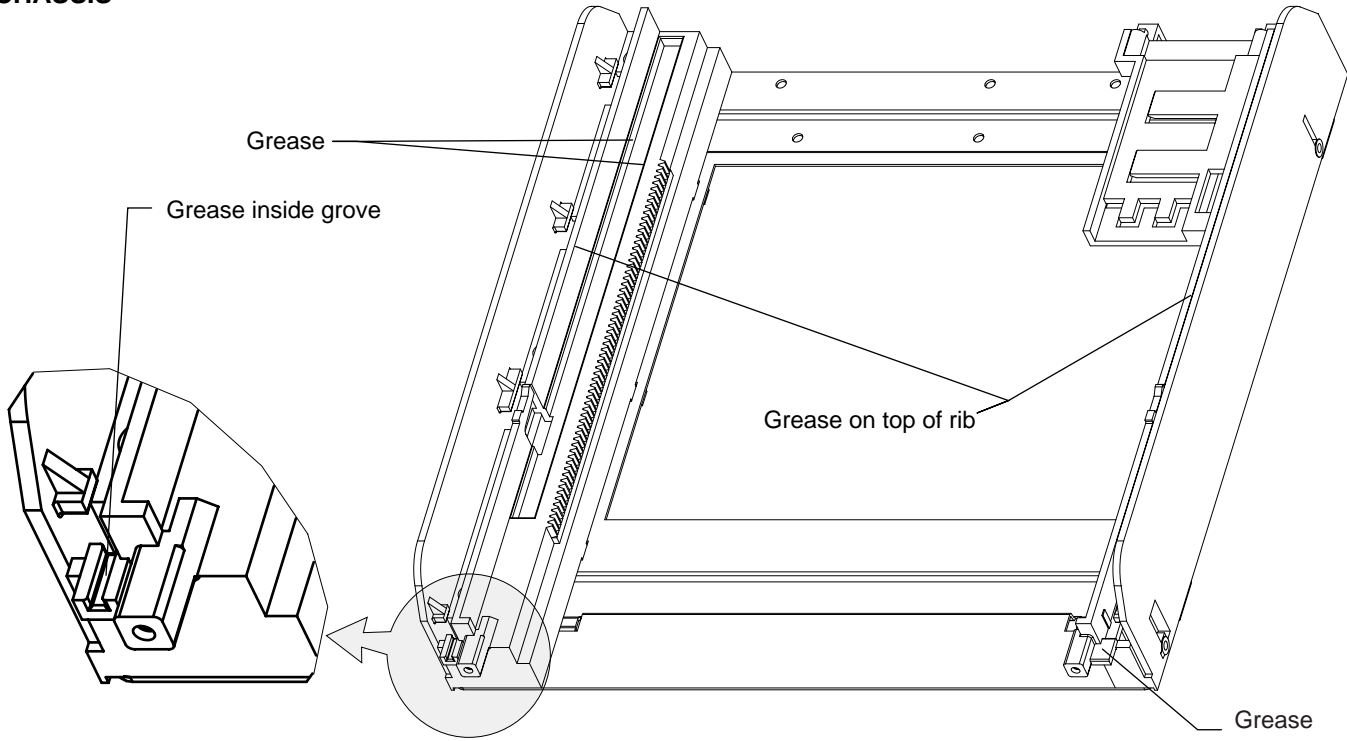


### Mounting of Carousel

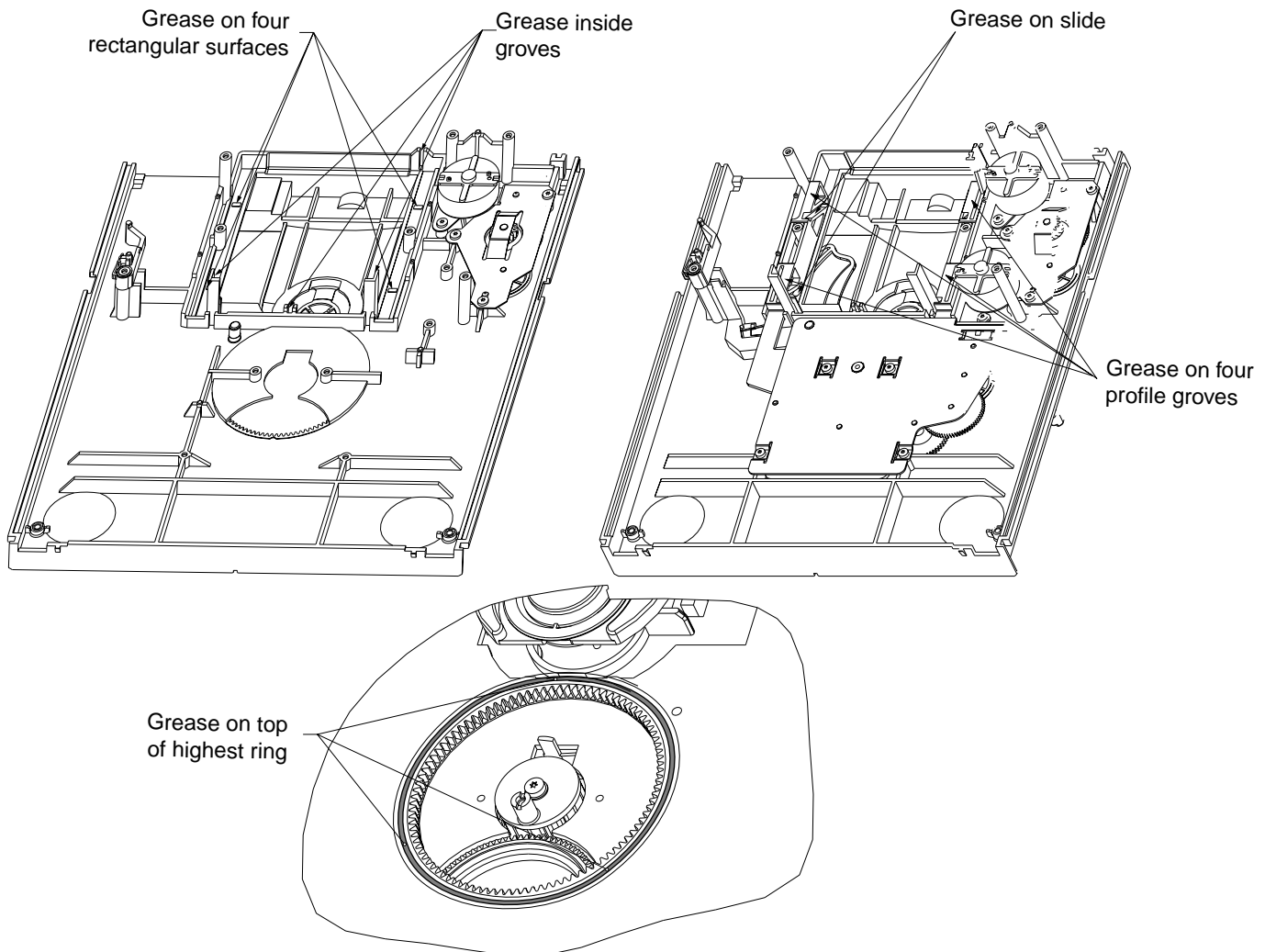
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carousel (pos 115) so that disc is positioned right on turntable. Carousel position number doesn't matter.

# Lubrication Instructions

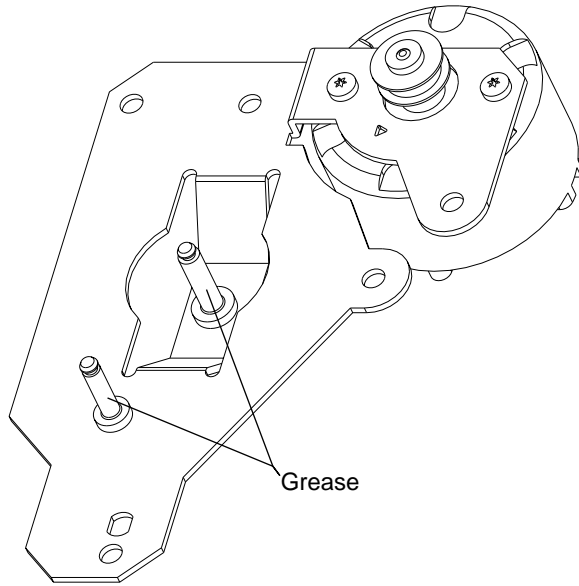
## CHASSIS



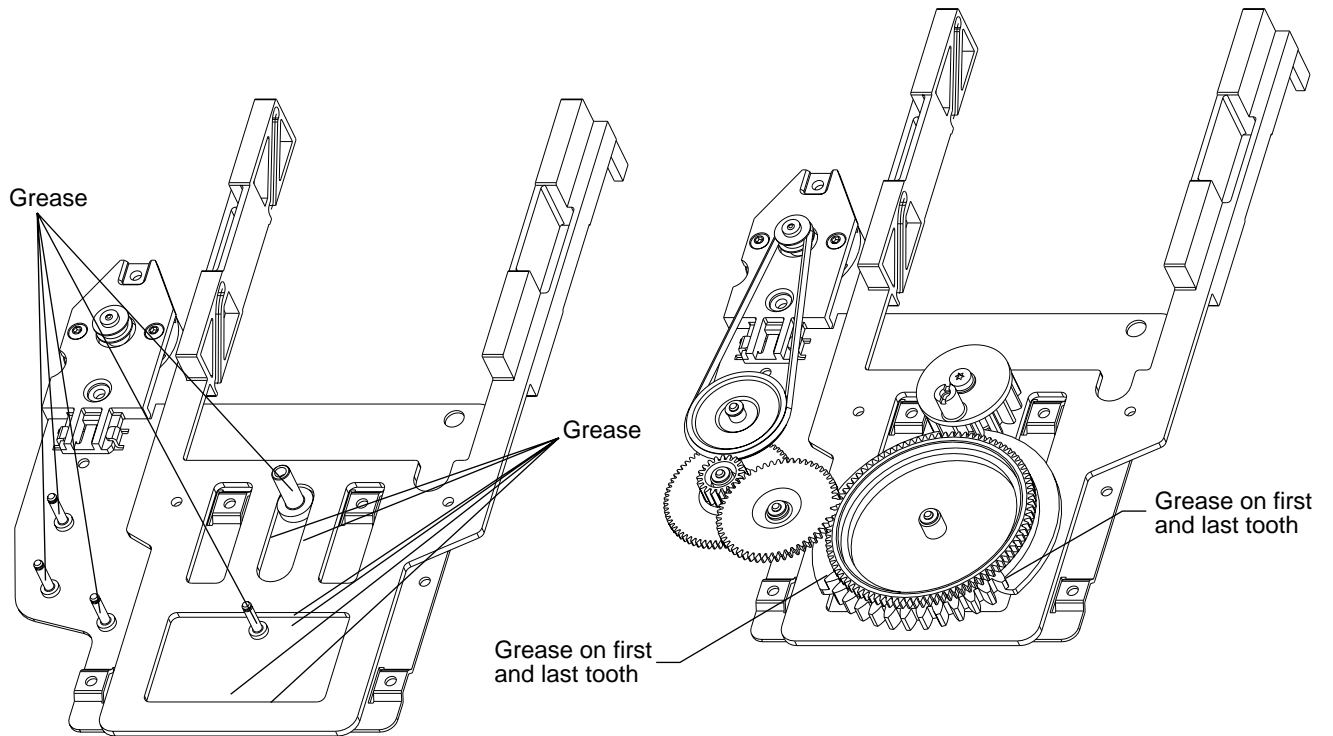
## DRAWER



### DRAWER MECHANISM



### DISC CHANGE MECHANISM



Use only grease **Polylub GLY 801** service codenumber 4822 390 10136

**WARNING**

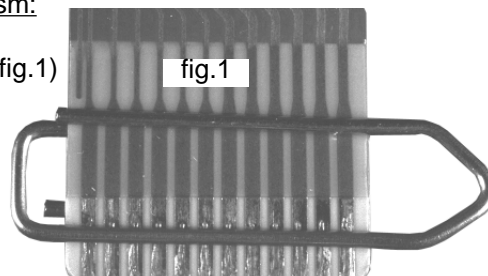
**CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT'S WHY, BESIDES THE SAFETY MEASURES LIKE**

- **SWITCH OFF POWER SUPPLY**
- **ESD PROTECTION**

**ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.**

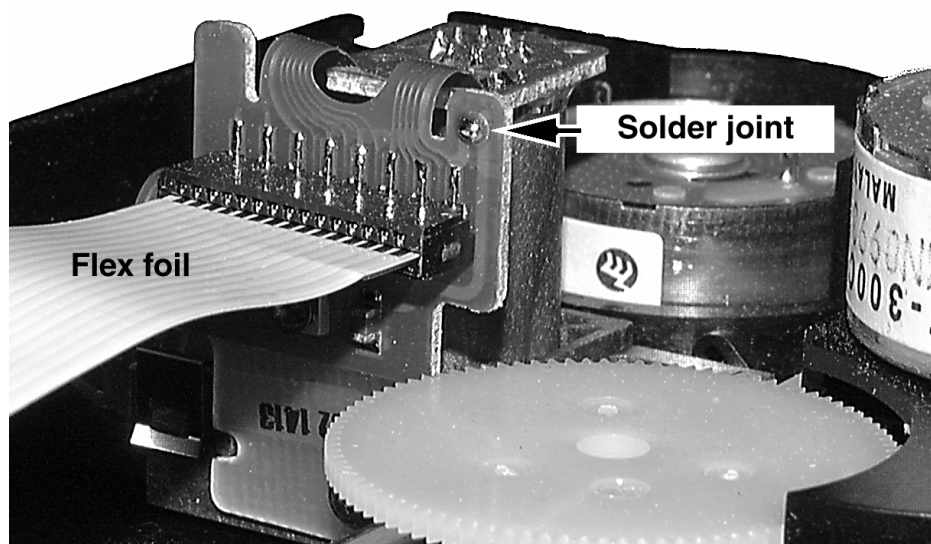
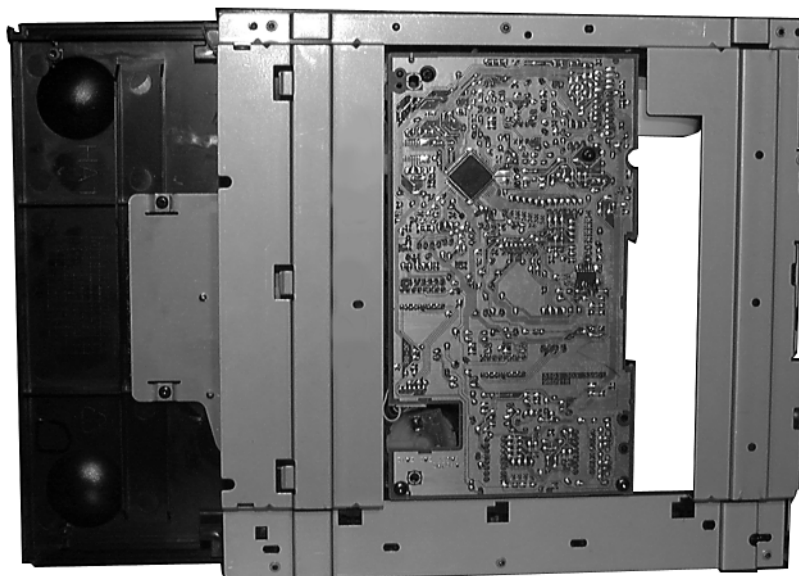
The following steps have to be done when replacing the CD mechanism:

1. Disconnect flexfoil cable from old CD drive
2. Put a paper clip onto the flexfoil cable to short-circuit connections (fig.1)
3. Remove old CD drive
4. Remove paper clip from flexfoil cable
5. Connect flexfoil cable to new CD drive
6. Position new CD drive on its studs
7. Remove soldered short-circuit from Laserunit (see below)



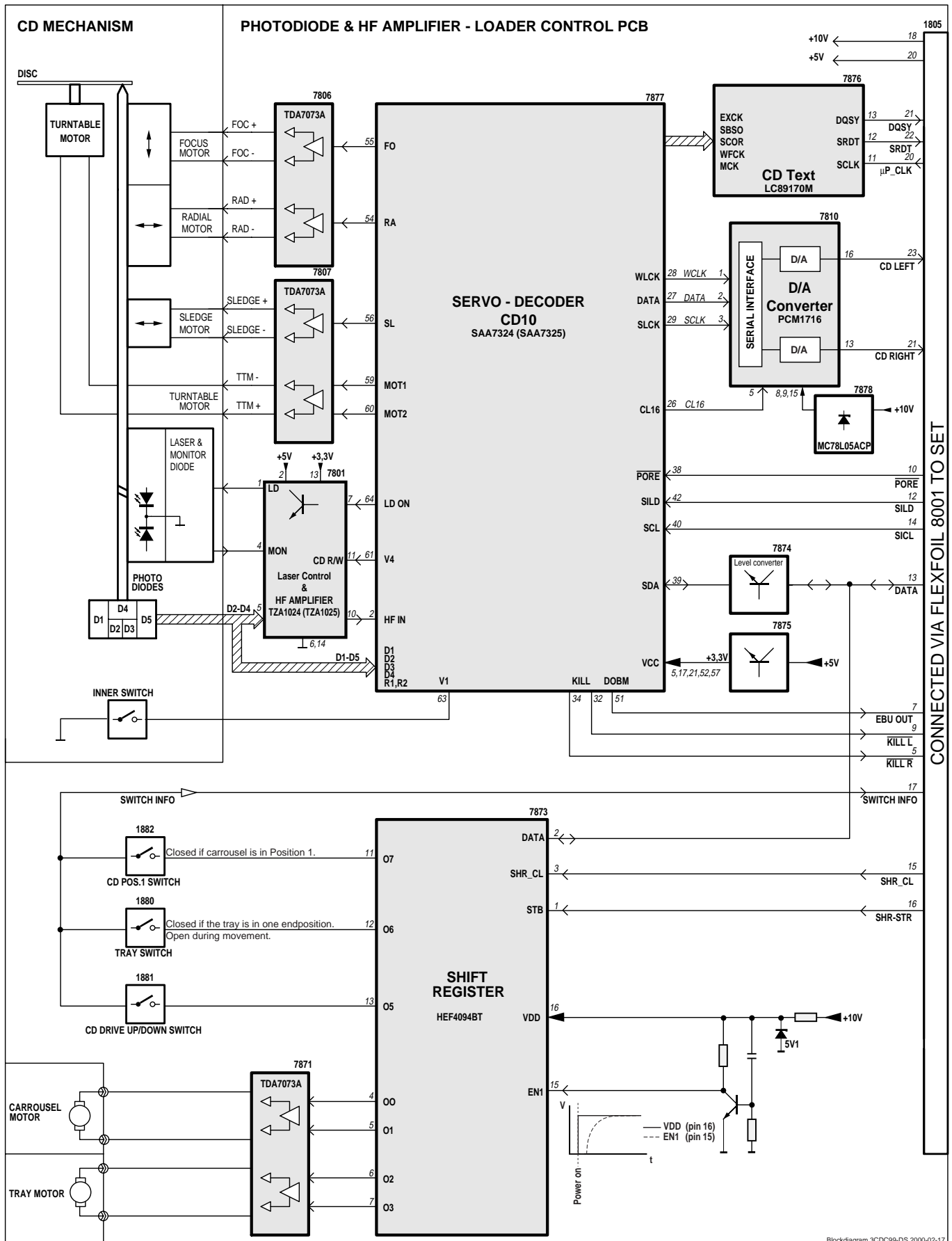
**Attention:** The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laser diode to ground.

For proper functionality of the CD drive this solder joint must be removed **after** connecting the drive to the set.

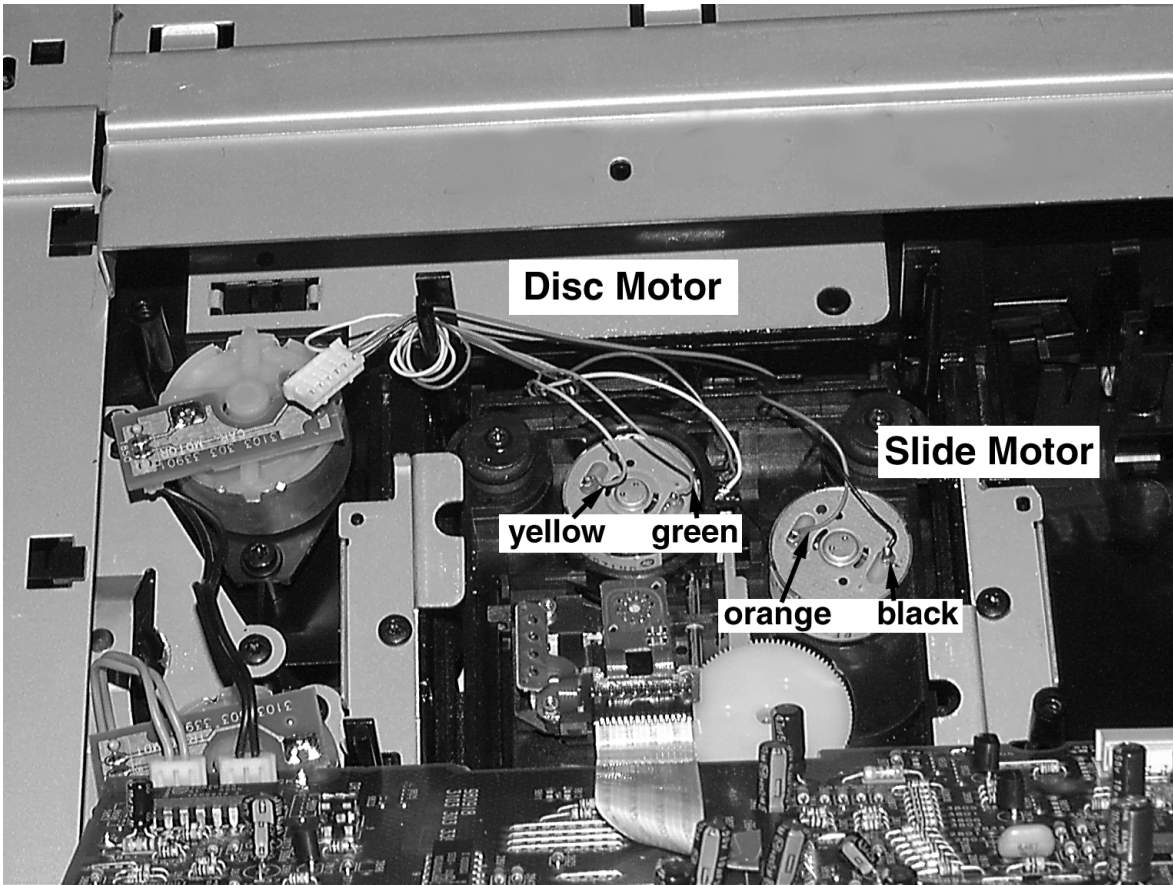
**Service Position**



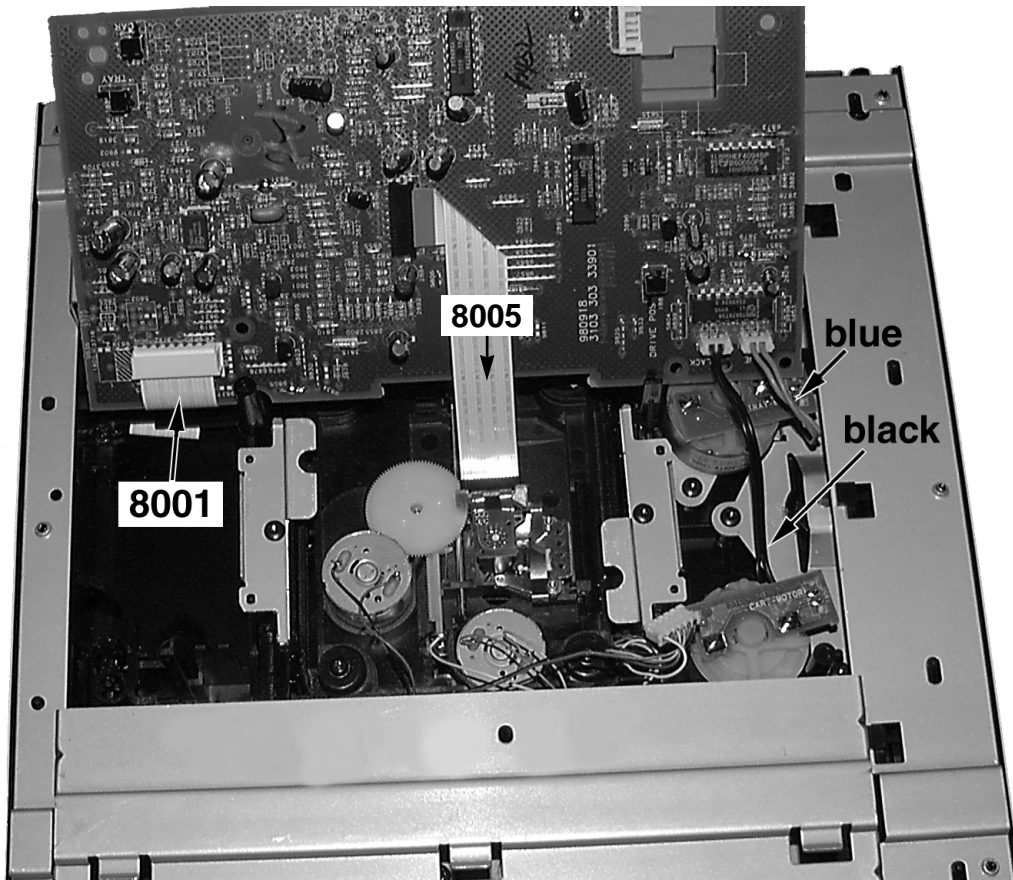
Blockdiagram



# Wiring of CD Drive



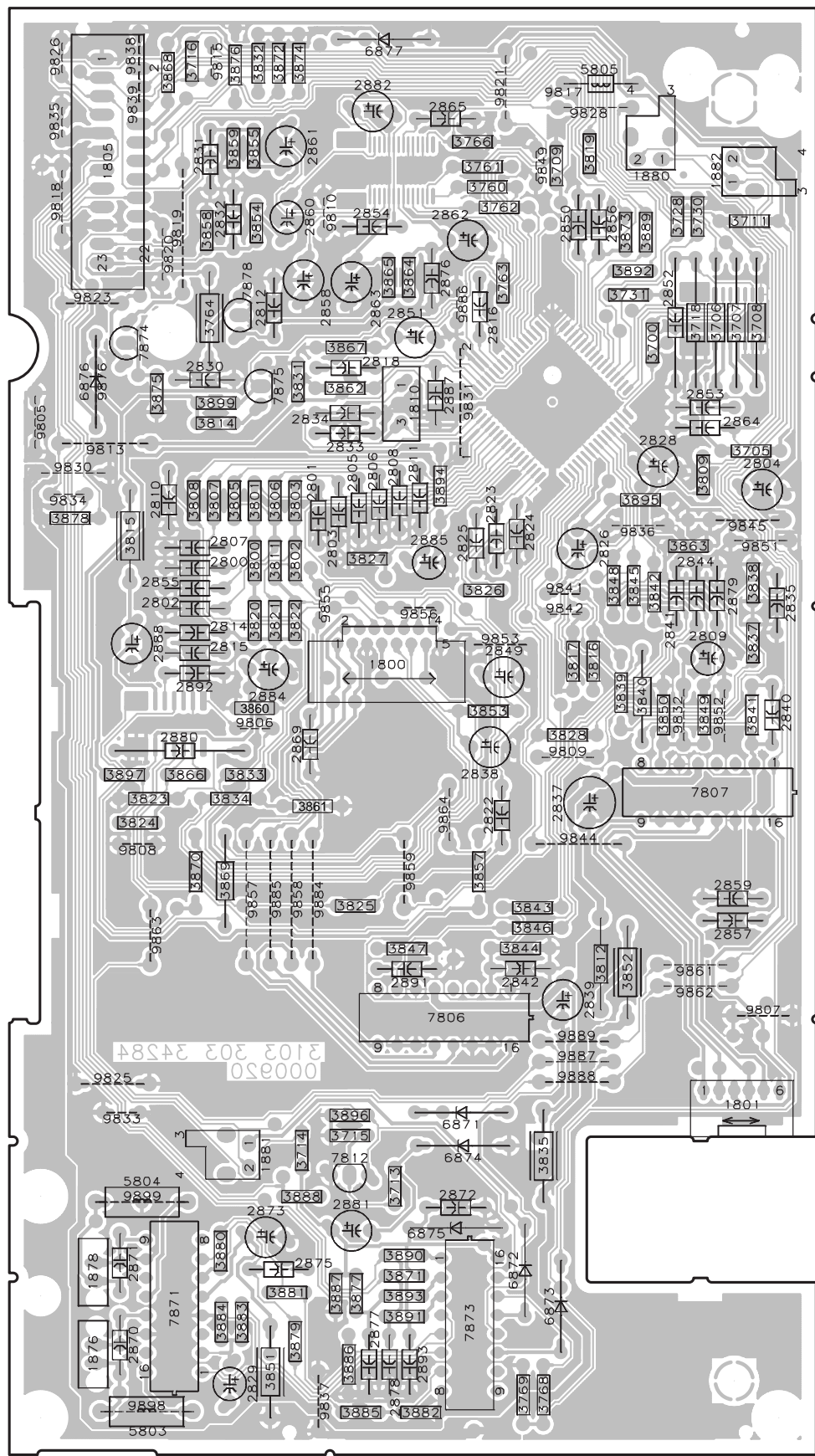
Pict. 1



Pict. 2



### 3CDC99 DS Board Componentside view



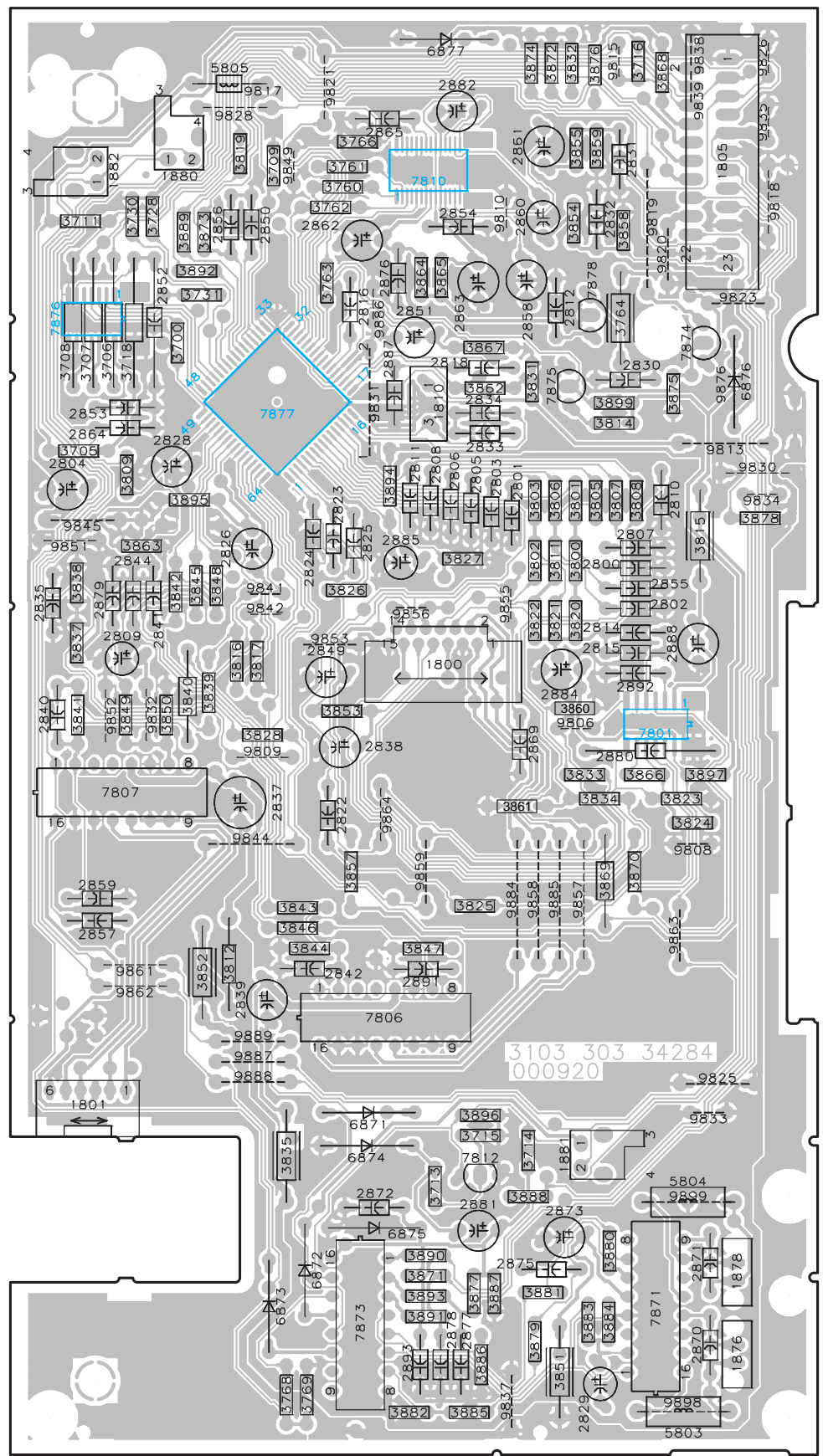
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.



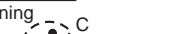
### Mapping

1800 E3	3714 H2	3884 I2
1801 H5	3715 H3	3885 J3
1805 A1	3716 A2	3886 J3
1810 D3	3718 C5	3887 I3
1876 J1	3728 B5	3888 I3
1878 I1	3730 B5	3889 B5
1880 A5	3731 C5	3890 I3
1881 I2	3760 B3	3891 I3
1882 B5	3761 B3	3892 C4
2800 D2	3762 B3	3893 I3
2801 D3	3763 C4	3894 D4
2802 E2	3764 C2	3895 D5
2803 D3	3766 B3	3896 H3
2804 D5	3768 J4	3897 F1
2805 D3	3769 J4	3899 C2
2806 D3	3800 D2	5803 J1
2807 D2	3801 D2	5804 I1
2808 D3	3802 D3	5805 A5
2809 E5	3803 D2	6871 H4
2810 D2	3805 D2	6872 I4
2811 D3	3806 D2	6873 I4
2812 C2	3807 D2	6874 H4
2814 E2	3808 D2	6875 I4
2815 E1	3809 D5	6876 C1
2816 C4	3811 D2	6877 A3
2818 C3	3812 G4	7801 F2
2822 F4	3814 D2	7806 H3
2823 D4	3815 D1	7807 F5
2824 D4	3816 E5	7810 B3
2825 D4	3817 F4	7812 H3
2826 D4	3819 B5	7811 I1
2828 D5	3820 E2	7873 J4
2829 J2	3821 E2	7874 C1
2830 C2	3822 E3	7875 C2
2831 B2	3823 F1	7876 C5
2832 B2	3824 F1	7877 C4
2833 D2	3825 G3	7878 C2
2834 C2	3826 F4	9805 C1
2835 E5	3827 E3	9806 E2
2837 F4	3828 F4	9807 G5
2838 F4	3831 C2	9808 F1
2839 H4	3832 A2	9809 F4
2840 E5	3833 F2	9810 B3
2841 E5	3834 F2	9813 D1
2842 G4	3835 H4	9815 A2
2844 E5	3837 E5	9817 A5
2849 E4	3838 D5	9818 B1
2850 B4	3839 E5	9819 B2
2851 C3	3840 E5	9820 B2
2852 C5	3841 E5	9821 A4
2853 C5	3842 E5	9823 C1
2854 B3	3843 G4	9825 H1
2855 E2	3844 G4	9826 A1
2856 C4	3845 E5	9828 A5
2857 G5	3846 G4	9830 D1
2858 C3	3847 G3	9831 C4
2859 G5	3848 E5	9832 E5
2860 B3	3849 E5	9833 H1
2861 A2	3850 E5	9834 D1
2862 B4	3851 J2	9835 A1
2863 C3	3852 G5	9836 D5
2864 D5	3853 F4	9837 J3
2865 A3	3854 B2	9838 A1
2869 F2	3855 B2	9839 A1
2870 J1	3857 G4	9841 E4
2871 I1	3858 B2	9842 E4
2872 I4	3859 A2	9844 F4
2873 I2	3860 E2	9845 D5
2875 I3	3861 F3	9849 A4
2876 B3	3862 C3	9851 D5
2877 J3	3863 D5	9852 E5
2878 J3	3864 B3	9853 E4
2879 E5	3865 C3	9855 E3
2880 F2	3866 F2	9856 E3
2881 I3	3867 C3	9857 G2
2882 A3	3868 B2	9858 G3
2884 E2	3869 G2	9859 G3
2885 E3	3870 G2	9861 G5
2887 C4	3871 I3	9862 G5
2888 E1	3872 A2	9863 G2
2891 G3	3873 B5	9864 F3
2892 E2	3874 A3	9876 C1
2893 J3	3875 C1	9884 G3
3700 C5	3876 A2	9885 G2
3705 D5	3877 I3	9886 C3
3706 C5	3878 D1	9887 H4
3707 C5	3879 J3	9888 H4
3708 C5	3880 I2	9889 H4
3709 B4	3881 I2	9899 J1
3711 B5	3882 J3	9899 I1
3713 I3	3883 J2	

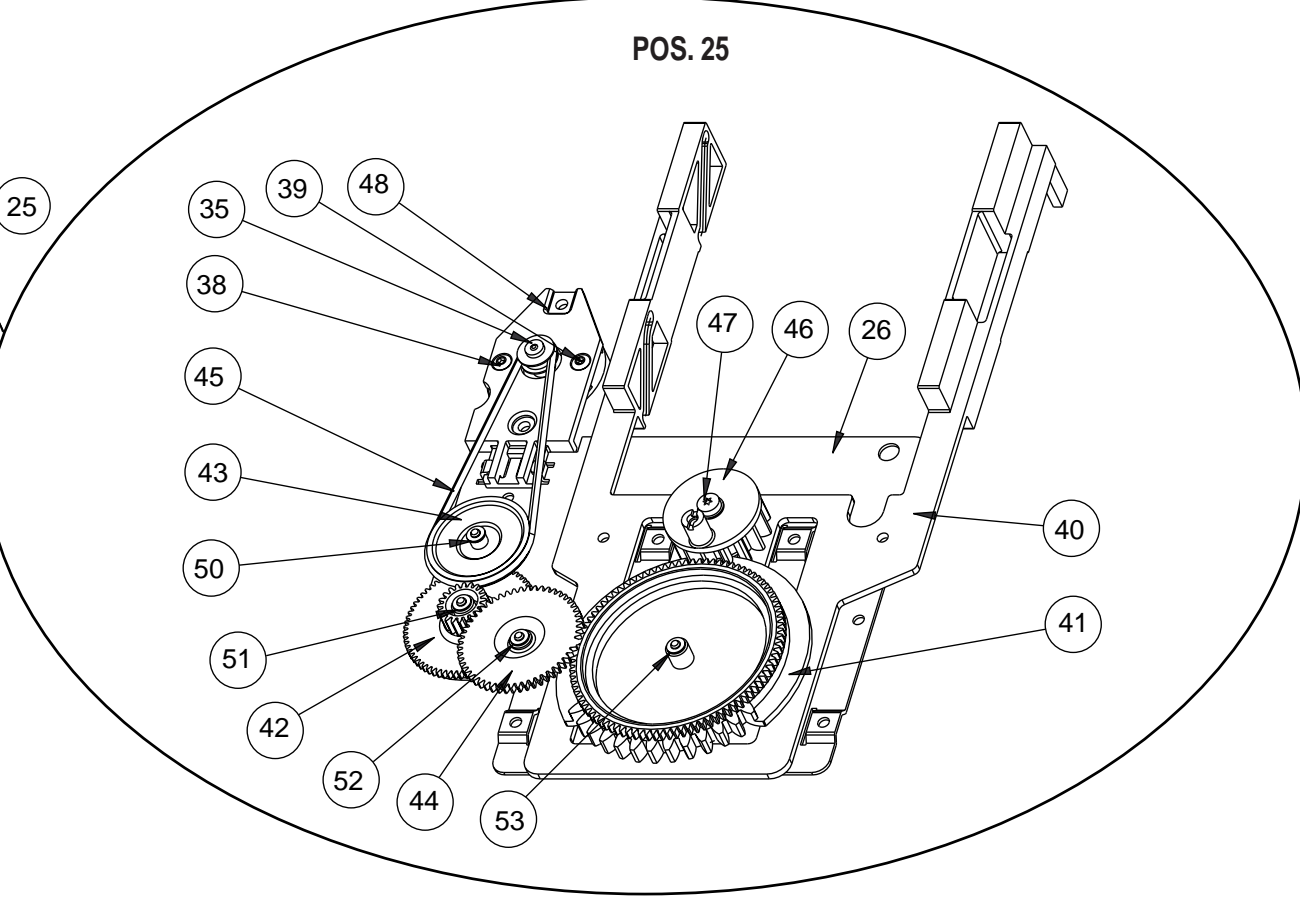
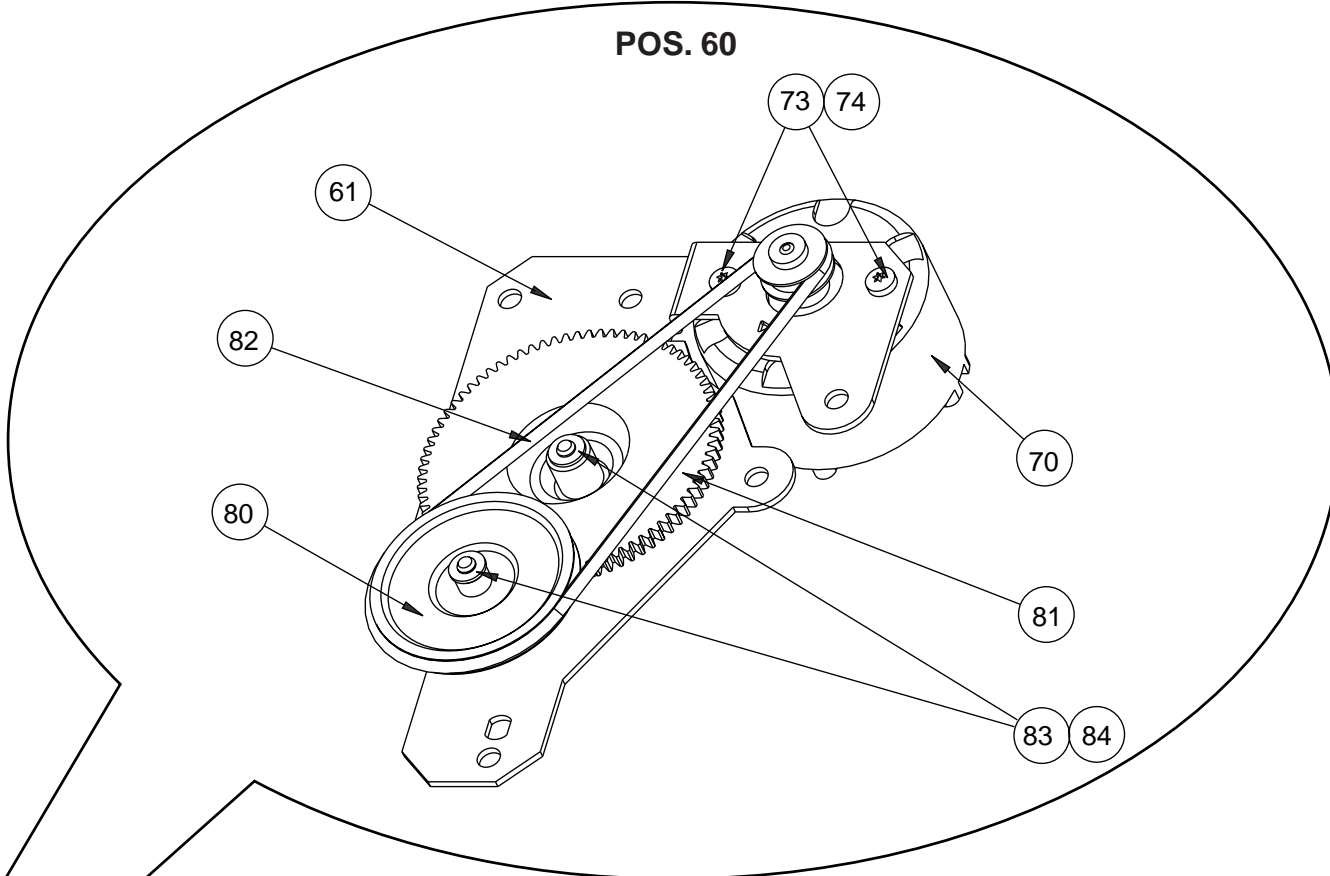
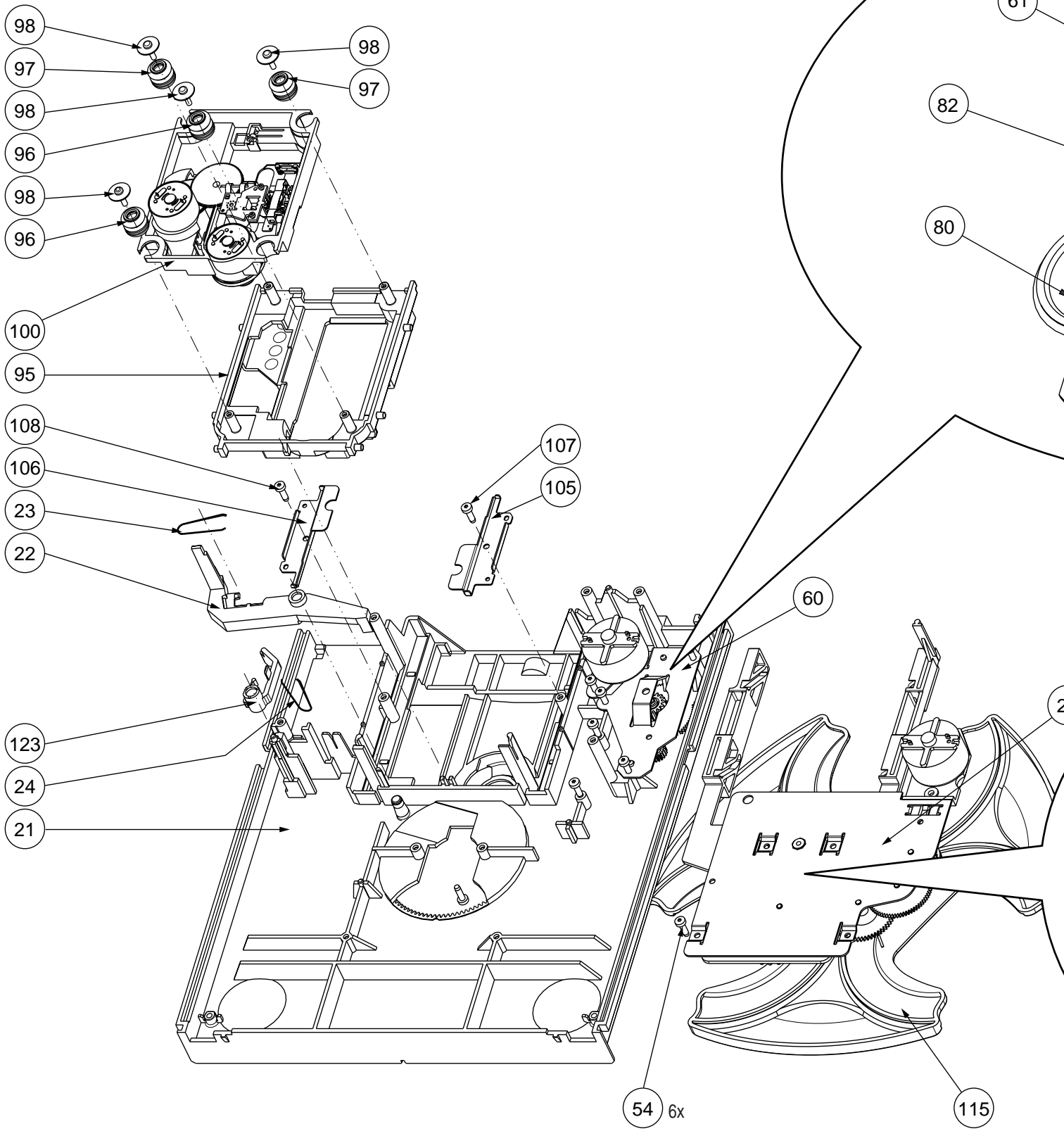
### 3CDC99 DS Board Copperside view

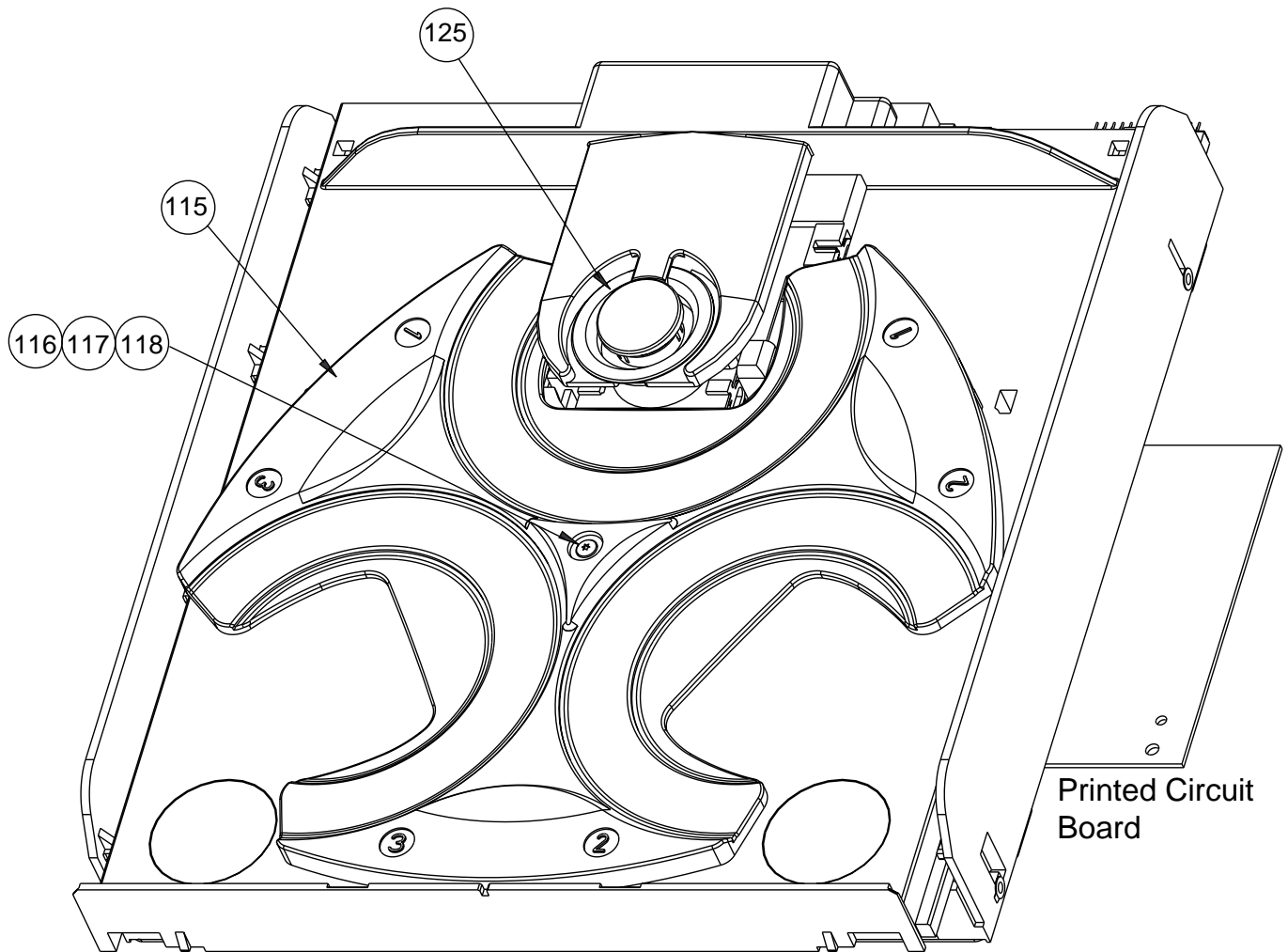


This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram respectively partslist.



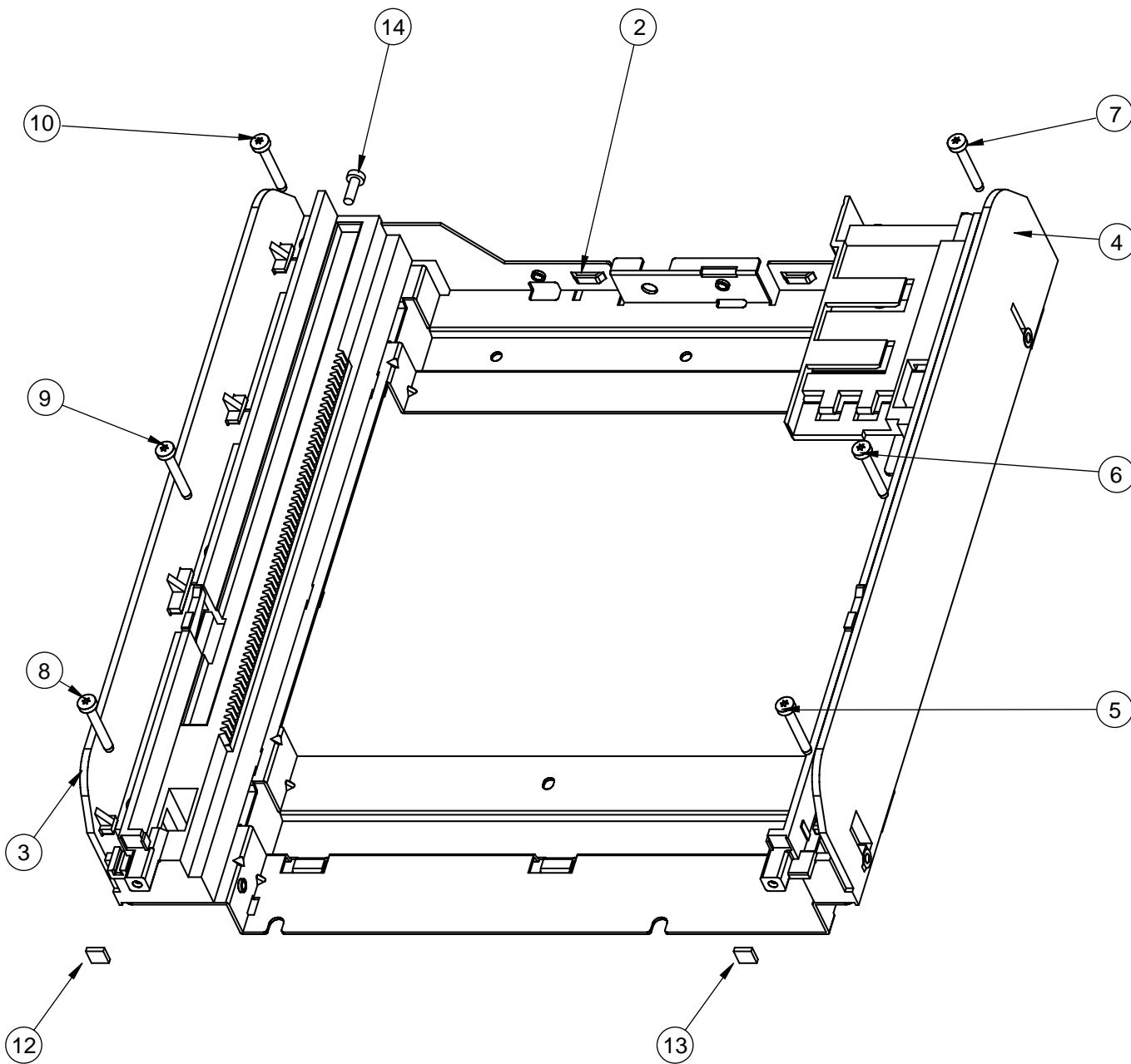





**MECHANICAL PARTSLIST 3CDC-99 MODULE**

0003	4822 463 11235	GUIDING LEFT	0040	4822 463 11237	SLIDE
0004	4822 463 11236	GUIDING RIGHT	0041	4822 522 10509	CONTROL DISC
0012	4822 466 12146	RUBBER	0042	4822 522 10492	GEAR WHEEL
0013	4822 466 12146	RUBBER	0043	4822 528 10937	PULLEY
0021	4822 418 10403	DRAWER	0044	4822 522 10493	IDLER WHEEL
0022	4822 402 11236	BRACKET TUMBLER	0045	4822 358 10115	BELT
0023	4822 492 11721	SPRING	0046	4822 466 10735	ECCENTRIC GEAR WHEEL
0024	4822 492 11721	SPRING	0050	4822 532 12364	WASHER
0038	4822 502 12548	SCREW M2,6x3,5	0051	4822 532 12364	WASHER
0039	4822 502 12548	SCREW M2,6x3,5	0052	4822 532 12364	WASHER

continued on next page



**MECHANICAL PARTSLIST 3CDC-99 MODULE**

0053	4822 532 12364	WASHER	0097	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT
0073	4822 502 12548	SCREW M2,6X3,5	0100	9305 022 30201	VAM2202/01
0074	4822 502 12548	SCREW M2,6X3,5	0115	4822 466 10736	CAROUSEL
0080	4822 528 10937	PULLEY	0117	4822 532 12365	BUSH DRAWER
0081	4822 522 10494	GEAR DRAWER	0123	4822 402 11237	SWITCH-BRACKET
0082	4822 358 10115	BELT	0125	4822 401 11708	DISC CLAMP VAM DRIVE 3CDC
0083	4822 532 12364	WASHER			
0084	4822 532 12364	WASHER			
0095	4822 404 10985	SUPPORT-VAM			
0096	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT			



**ELECTRICAL PARTSLIST 3CDC-99 MODULE****MISCELLANEOUS**

0035	4822 361 10753	CAROUSEL MOTOR
0070	4822 361 10753	TRAY MOTOR
1800	4822 265 10925	FFC SOCKET, 15P
1805	4822 265 11533	FFC SOCKET, 23P
1880	4822 276 13503	SWITCH
1881	4822 276 13503	SWITCH
1882	4822 276 13503	SWITCH
8001	3103 308 92020	FLEX FOIL CABLE 23P, 420mm
8005	3103 308 91820	FLEX FOIL CABLE 15P, 95mm

**CAPACITORS**

2800	4822 126 10053	180pF	10%	50V
2801	4822 122 10466	220pF	10%	50V
2802	4822 126 10053	180pF	10%	50V
2803	4822 122 10466	220pF	10%	50V
2804	4822 124 40769	4,7μF	20%	100V
2805	4822 122 10466	220pF	10%	50V
2806	4822 122 10466	220pF	10%	50V
2807	4822 126 12787	330pF	10%	50V
2808	4822 122 10466	220pF	10%	50V
2809	5322 124 41948	0,47μF	20%	50V
2810	4822 126 10053	180pF	10%	50V
2811	4822 122 10466	220pF	10%	50V
2812	4822 126 12785	47nF	20%	50V
2815	4822 126 13174	33nF	20%	16V
2816	4822 126 12878	1,5nF	10%	16V
2818	4822 126 12878	1,5nF	10%	16V
2822	4822 126 12878	1,5nF	10%	16V
2823	4822 122 33848	47pF	5%	50V
2824	4822 126 12785	47nF	20%	50V
2825	4822 121 51387	10nF	20%	16V
2826	4822 124 80231	47μF	20%	16V
2828	4822 124 40433	47μF	20%	25V
2829	4822 124 21732	10μF	20%	25V
2830	4822 121 51387	10nF	20%	16V
2831	4822 122 10577	3,3nF	10%	16V
2832	4822 122 10577	3,3nF	10%	16V
2833	4822 122 33069	33pF	5%	50V
2834	4822 122 33069	33pF	5%	50V
2835	4822 126 12785	47nF	20%	50V
2837	4822 124 40433	47μF	20%	25V
2838	4822 124 40248	10μF	20%	63V
2839	4822 124 40433	47μF	20%	25V
2840	4822 126 12882	100nF	20%	50V
2841	4822 126 12702	270pF	10%	50V
2842	4822 126 12339	2,2nF	10%	16V
2844	4822 126 12702	270pF	10%	50V
2849	4822 124 40769	4,7μF	20%	100V
2850	4822 122 33197	1nF	10%	50V
2851	4822 124 40433	47μF	20%	25V
2852	4822 126 12785	47nF	20%	50V
2853	4822 126 11585	22nF	20%	50V
2854	4822 126 12785	47nF	20%	50V
2855	4822 122 33519	470pF	10%	50V
2856	4822 122 33848	47pF	5%	50V
2857	4822 121 51387	10nF	20%	16V
2858	4822 124 81151	22μF	20%	50V
2859	4822 121 51387	10nF	20%	16V
2860	4822 124 41596	22μF	20%	50V
2861	4822 124 41596	22μF	20%	50V
2862	4822 124 11912	220μF	20%	6,3V

**CAPACITORS**

2863	4822 124 11912	220μF	20%	6,3V
2865	4822 126 12882	100nF	20%	50V
2869	4822 126 12785	47nF	20%	50V
2872	4822 126 12785	47nF	20%	50V
2873	4822 124 12233	47μF	20%	25V
2875	4822 126 11585	22nF	20%	50V
2876	4822 126 12785	47nF	20%	50V
2877	4822 122 33848	47pF	5%	50V
2878	4822 122 10466	220pF	10%	50V
2879	4822 126 12785	47nF	20%	50V
2880	4822 126 12882	100nF	20%	50V
2881	4822 124 40769	4,7μF	20%	100V
2882	4822 124 81151	22μF	20%	50V
2884	4822 124 40769	4,7μF	20%	100V
2885	4822 124 40769	4,7μF	20%	100V
2887	4822 126 12882	100nF	20%	50V
2888	4822 124 40769	4,7μF	20%	100V
2891	4822 122 10576	1,8nF	10%	16V
2892	4822 126 11714	4,7nF	20%	16V
2893	4822 122 10466	220pF	10%	50V

**RESISTORS**

3700	4822 116 83883	470Ω	5%	0,16W
3705	4822 116 83872	220Ω	5%	0,5W
3706	4822 116 83883	470Ω	5%	0,16W
3707	4822 116 83883	470Ω	5%	0,16W
3708	4822 116 83883	470Ω	5%	0,16W
3709	4822 116 52257	22kΩ	5%	0,5W
3711	4822 050 21003	10kΩ	2%	0,25W
3713	4822 116 52257	22kΩ	5%	0,5W
3714	4822 050 21003	10kΩ	2%	0,25W
3715	4822 116 52234	100kΩ	5%	0,5W
3716	4822 116 52175	100Ω	5%	0,5W
3718	4822 116 52283	4,7kΩ	5%	0,5W
3728	4822 116 52283	4,7kΩ	5%	0,5W
3730	4822 050 23303	33kΩ	1%	0,6W
3731	4822 050 21003	10kΩ	2%	0,25W
3760	4822 050 11002	1kΩ	5%	0,2W
3761	4822 050 11002	1kΩ	5%	0,2W
3762	4822 050 11002	1kΩ	5%	0,2W
3763	4822 116 52231	820Ω	5%	0,5W
3764	4822 052 10338	3,3Ω		NFR25
3766	4822 050 21003	10kΩ	2%	0,25W
3768	4822 116 52283	4,7kΩ	5%	0,5W
3769	4822 050 21003	10kΩ	2%	0,25W
3800	4822 116 52291	56kΩ	5%	0,5W
3801	4822 050 21003	10kΩ	2%	0,25W
3802	4822 116 52291	56kΩ	5%	0,5W
3803	4822 050 21003	10kΩ	2%	0,25W
3805	4822 050 21003	10kΩ	2%	0,25W
3806	4822 050 21003	10kΩ	2%	0,25W
3807	4822 050 21003	10kΩ	2%	0,25W
3808	4822 050 21003	10kΩ	2%	0,25W
3809	4822 116 83883	470Ω	5%	0,16W
3811	4822 116 52251	18kΩ	5%	0,5W
3812	4822 053 10228	2,2Ω	5%	1W
3814	4822 116 52191	33Ω	5%	0,5W
3815	4822 052 10478	4,7Ω	5%	NFR
3816	4822 116 83884	47kΩ	5%	0,16W
3817	4822 116 52298	680kΩ	5%	0,5W
3819	4822 116 83883	470Ω	5%	0,16W
3820	4822 116 52289	5,6kΩ	5%	0,16W

**ELECTRICAL PARTSLIST 3CDC-99 MODULE****RESISTORS**

3821	4822 116 52289	5,6kΩ	5%	0,16W
3822	4822 116 52263	2,7kΩ	5%	0,5W
3823	4822 050 11002	1kΩ	5%	0,2W
3824	4822 050 11002	1kΩ	5%	0,2W
3825	4822 050 11002	1kΩ	5%	0,2W
3826	4822 116 52257	22kΩ	5%	0,5W
3827	4822 050 23303	33kΩ	1%	0,6W
3828	4822 116 52257	22kΩ	5%	0,5W
3831	4822 116 52257	22kΩ	5%	0,5W
3832	4822 050 21003	10kΩ	2%	0,25W
3833	4822 116 52257	22kΩ	5%	0,5W
3834	4822 116 52257	22kΩ	5%	0,5W
3835	4822 052 10338	3,3Ω		NFR25
3837	4822 050 11002	1kΩ	5%	0,2W
3838	4822 050 11002	1kΩ	5%	0,2W
3839	4822 116 52234	100kΩ	5%	0,5W
3840	4822 116 52234	100kΩ	5%	0,5W
3841	4822 116 52283	4,7kΩ	5%	0,5W
3842	4822 116 83884	47kΩ	5%	0,16W
3843	4822 050 23303	33kΩ	1%	0,6W
3844	4822 116 52283	4,7kΩ	5%	0,5W
3845	4822 116 83884	47kΩ	5%	0,16W
3846	4822 050 23303	33kΩ	1%	0,6W
3847	4822 116 83961	6,8kΩ	5%	0,16W
3848	4822 116 52234	100kΩ	5%	0,5W
3849	4822 116 52234	100kΩ	5%	0,5W
3850	4822 116 52276	3,9kΩ	5%	0,5W
3851	4822 052 10338	3,3Ω		NFR25
3852	4822 052 10228	2,2Ω	5%	0,33W
3853	4822 116 83883	470Ω	5%	0,16W
3854	4822 116 52175	100Ω	5%	0,5W
3855	4822 116 52175	100Ω	5%	0,5W
3857	4822 116 52191	33Ω	5%	0,5W
3858	4822 116 52257	22kΩ	5%	0,5W
3859	4822 116 52257	22kΩ	5%	0,5W
3862	4822 116 52175	100Ω	5%	0,5W
3863	4822 116 52191	33Ω	5%	0,5W
3864	4822 116 52176	10Ω	5%	0,5W
3865	4822 116 52176	10Ω	5%	0,5W
3866	4822 050 21003	10kΩ	2%	0,25W
3867	4822 116 52206	120Ω	5%	0,5W
3869	4822 050 24708	4,7Ω	1%	0,6W
3870	4822 116 52175	100Ω	5%	0,5W
3871	4822 050 21003	10kΩ	2%	0,25W
3872	4822 050 21003	10kΩ	2%	0,25W
3873	4822 116 83883	470Ω	5%	0,16W
3874	4822 050 21003	10kΩ	2%	0,25W
3875	4822 050 21003	10kΩ	2%	0,25W
3876	4822 116 52234	100kΩ	5%	0,5W
3877	4822 050 21003	10kΩ	2%	0,25W
3878	4822 050 21003	10kΩ	2%	0,25W
3879	4822 050 21003	10kΩ	2%	0,25W
3880	4822 116 52219	330Ω	5%	0,5W
3881	4822 050 21003	10kΩ	2%	0,25W
3882	4822 116 83884	47kΩ	5%	0,16W
3883	4822 116 52234	100kΩ	5%	0,5W
3884	4822 116 52276	3,9kΩ	5%	0,5W
3885	4822 116 52234	100kΩ	5%	0,5W
3886	4822 116 83884	47kΩ	5%	0,16W
3887	4822 116 83883	470Ω	5%	0,16W

**RESISTORS**

3888	4822 050 21003	10kΩ	2%	0,25W
3889	4822 116 83883	470Ω	5%	0,16W
3890	4822 050 11002	1kΩ	5%	0,2W
3891	4822 050 11002	1kΩ	5%	0,2W
3892	4822 116 83883	470Ω	5%	0,16W
3893	4822 116 83883	470Ω	5%	0,16W
3894	4822 116 52191	33Ω	5%	0,5W
3895	4822 116 52176	10Ω	5%	0,5W
3897	4822 116 52175	100Ω	5%	0,5W
3899	4822 116 52175	100Ω	5%	0,5W

**COILS**

1810	4822 242 10849	CRYSTAL 8,46MHZ
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**DIODES**

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	3198 010 55180	DIO REG BZX79-B5V1

6877	3198 010 53980	DIO REG BZX79-B3V9
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**TRANSISTORS**

7812	4822 130 40959	BC547B
7874	4822 130 40959	BC547B
7875	4822 130 40959	BC547B

**INTEGRATED CIRCUITS**

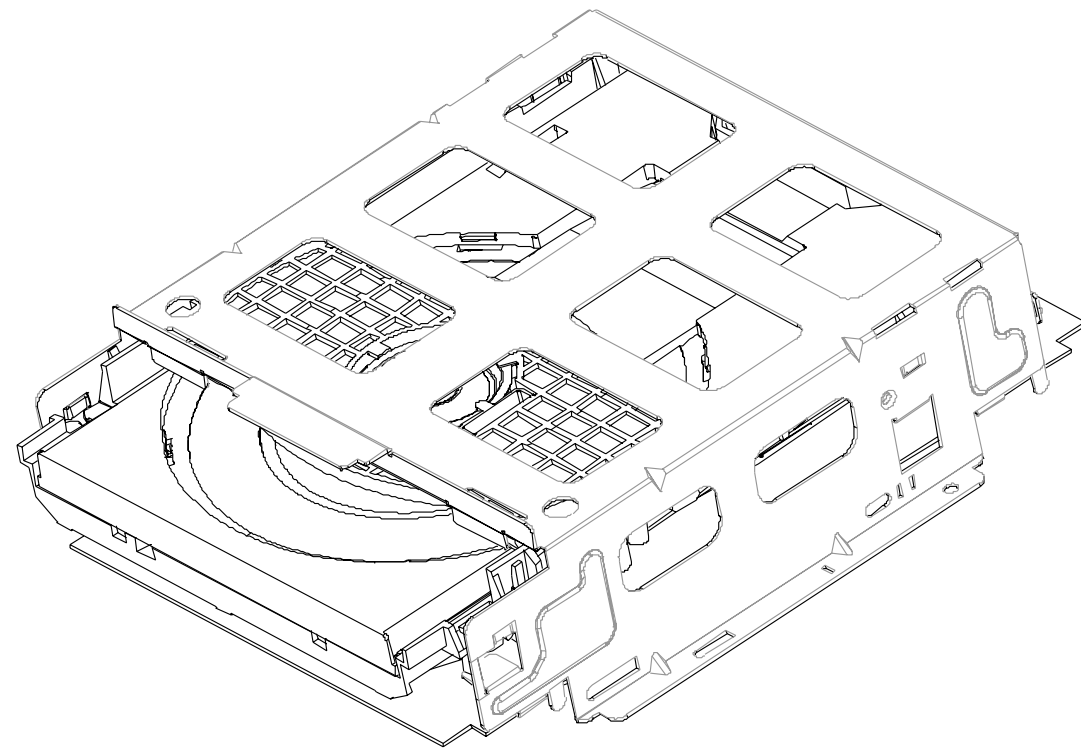
7801 ©	4822 209 17286	TZA1024T/N1 HF-AMPLIFIER
7806	9352 628 49112	IC TDA7073A/N4
7807	9352 628 49112	IC TDA7073A/N4
7810 ©	8203 303 11278	D/A CONVERTER PCM1716
7871	9352 628 49112	IC TDA7073A/N4
7873	5322 209 10421	HEF4094BP
7876 ©	4822 209 16143	LC89170M
7877 ©	9352 641 80557	SAA7324H/M2B CD10/M2B
7878	4822 209 72042	MC78L05ACP

### SERVICING HINT

The **CD-R/W module** will be **exchanged completely** in case of a failure. For checking the CD R/W module use the Service Testprogram (chapter 3-4).

The defective CD-R/W module has to be returned for central repair. Service Code for new Module = **3104129 52590**

Available circuit descriptions: *The Basics of Compact Disc Recordable/Rewritable* **4822 725 25242**  
*3rd generation Compact Disc Recording* **3104 125 40100**



## ***CDR99 Module***

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Blockdiagram .....11-2

# BLOCK DIAGRAM CDR-MODULE

CDL 4009  
LOADER ASSY

CDM3800

TURN TABLE

LASER &  
FORWARD SENSE

PHOTO DIODES

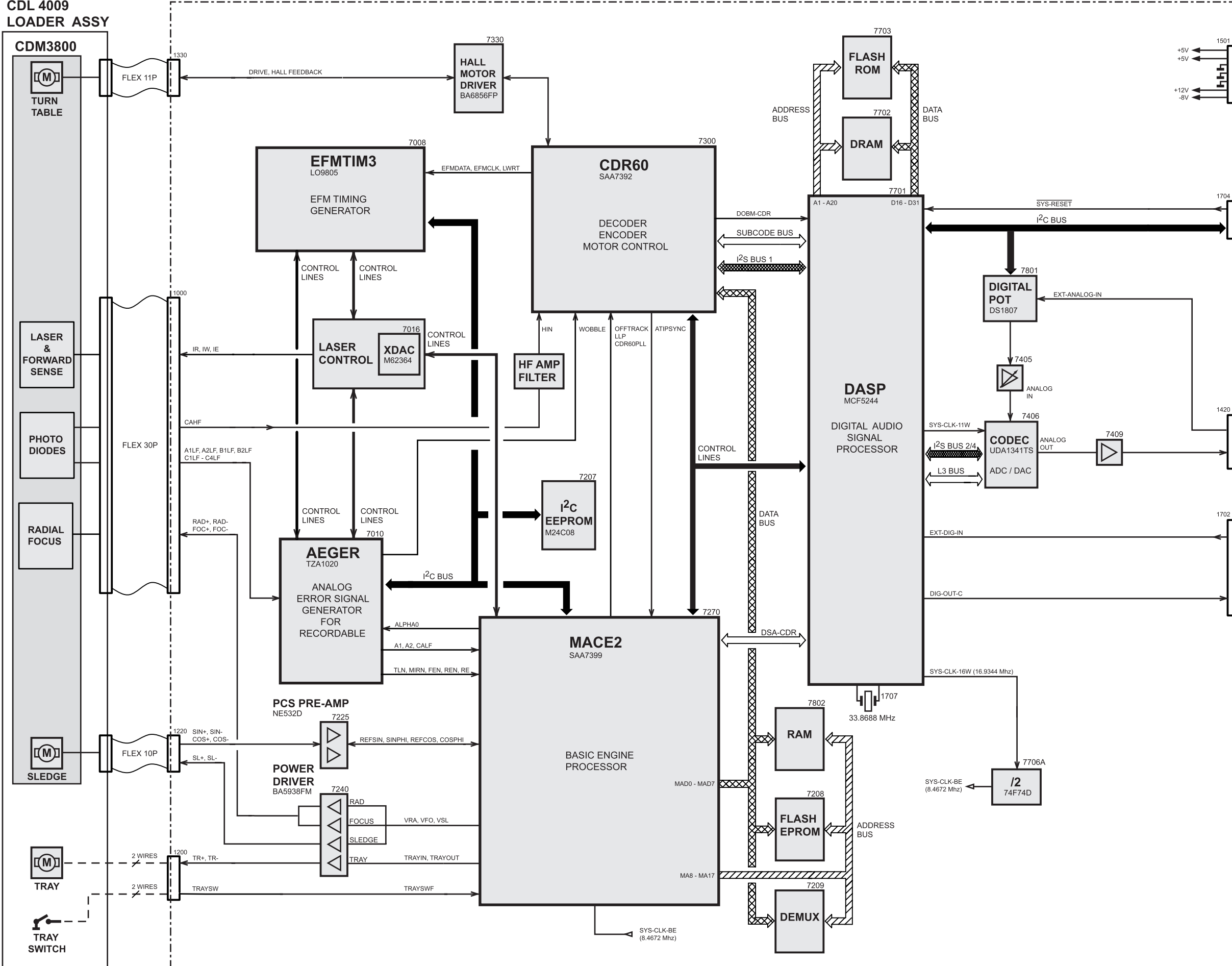
RADIAL FOCUS

SLEDGE

TRAY

TRAY SWITCH

## CDR MAIN BOARD







## MECHANICAL PARTS

201	3103 308 10600	CABINET FRONT not for /37
201	3103 308 10610	CABINET FRONT for /37 only
202	3103 308 10590	COVER 3CDC TRAY
203	3103 307 99850	CABINET INSERT
204	4822 454 13408	WORDMARK PHILIPS
205	3103 308 10740	FRAME ORNAMENTAL
206	3103 304 67260	DOOR CDR
207	3103 301 06490	SPRING DOOR CDR
208	3103 308 10620	WINDOW DISPLAY
209	3103 308 10880	WINDOW CDR
212	3103 304 68130	LENS IR
213	3103 304 68990	CUTSHEET-FTD
214	3103 304 67810	LIGHT GUIDE CDR
215	3103 304 68120	HOLDER LIGHT GUIDE
216	3103 307 98560	KNOB MIC-LEVEL
222	4822 462 40683	FOOT RUBBER
225	3103 307 98390	BUTTON SET POWER
226	3103 301 45270	BRACKET CDR RIGHT
227	3103 307 98570	BUTTON SET AUX/TUNER
228	3103 307 98400	BUTTON SET 3CDC
229	3103 307 98410	BUTTON SELECT CDR
230	3103 307 98420	BUTTON CDR-OPEN
231	3103 307 98460	BUTTON SET STOP
232	3103 307 98470	BUTTON SET PLAY
233	3103 307 98490	BUTTON SET REC-MODE
234	3103 307 98500	BUTTON SET TRACK/TEXT
235	3103 308 10670	BUTTON INCREDIBLE STEREO
236	3103 308 10640	BUTTON SET DISC-REC
237	3103 308 10690	BUTTON SET WOOX
238	3103 304 69800	LIGHTGUIDE WOOX
239	3103 308 10630	BUTTON SET JOG
240	3103 304 67470	LIGHT GUIDE STOP
241	3103 304 67480	LIGHT GUIDE PLAY
242	3103 304 67490	LIGHT GUIDE PREV/NEXT
243	3103 304 67550	LIGHT GUIDE YES
244	3103 304 68370	LIGHT GUIDE NO
245	3103 304 67560	LIGHTGUIDE DISC REC
246	3103 304 68210	LIGHT GUIDE REC-MODE
249	3103 304 07030	JOG ROTARY
250	3103 307 98330	VOLUME ROTARY
254	3103 308 10680	COVER JOG PLAY
255	3103 308 10650	COVER JOG YES/NO
256	3103 308 10660	COVER JOG STOP
257	3103 307 99690	COVER VOLUME WOOX
260	3103 304 67360	LIGHT GUIDE POWER
261	3103 304 67370	LIGHT GUIDE CD1
262	3103 304 67380	LIGHT GUIDE CD2
263	3103 304 67390	LIGHT GUIDE CD3
264	3103 304 67870	LIGHT GUIDE AUX
265	3103 304 67880	LIGHT GUIDE TUNER
266	3103 304 67930	LIGHT GUIDE CDR
267	3103 304 67540	LIGHT GUIDE JOG ROTARY
271	4822 462 40683	FOOT RUBBER
385	3104 128 92560	MAINS CORD, UL
385	4622 004 50290	CORDSET

## SPEAKER BOX

9965 000 07850	SPEAKER BOX LEFT not for /37
9965 000 07929	SPEAKER BOX RIGHT not for /37
9965 000 07930	SPEAKER BOX LEFT only for /37
9965 000 07931	SPEAKER BOX RIGHT only for /37

## MISCELLANEOUS

351	4822 303 50063	FM AERIAL
351	4822 320 11094	FM ANTENNA WIRE /37
356	3139 228 86341	REMOTE CONTROL RC2578/01
384	4822 303 50082	AM FRAME AERIAL
5001	3103 308 30520	MAINS TRANSFORMER /21
5001	3103 308 30510	MAINS TRANSFORMER /22
5001	3103 308 30810	MAINS TRANSFORMER /37
8002	4822 320 12335	FLEX FOIL CABLE, 17p, 125mm
8004	3103 308 92450	FLEX FOIL CABLE, 6p, 140mm
8006	3103 308 92320	FLEXFOIL CABLE, 7p, 280mm
8009	3103 308 92330	FLEX FOIL CABLE, 5p, 280mm
8013	3103 308 92340	FLEX FOIL CABLE, 5p, 280mm
8014	3103 308 92470	FLEX FOIL CABLE, 19p, 400mm
8015	3103 308 92360	FLEX FOIL CABLE, 4p, 280mm

## REPLACEMENTS

3104129 52590	CD-R/W MODULE
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