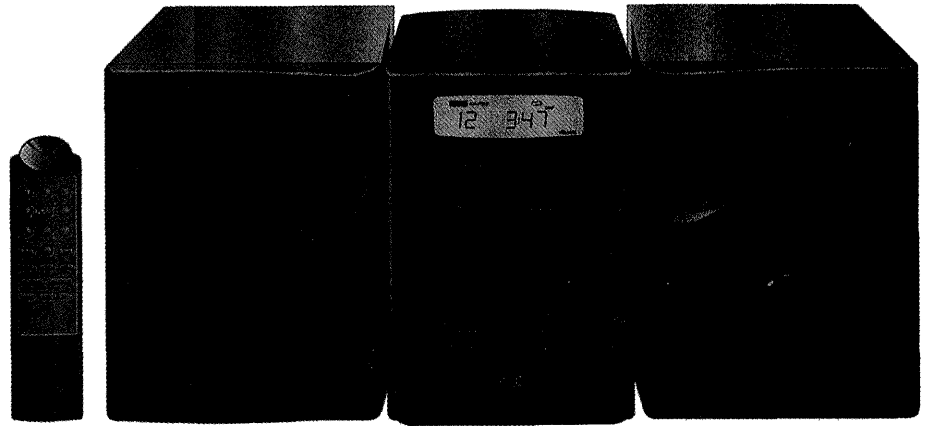


Service
Service
Service

←
Volta ao Menu



Service Manual

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ESPECIFICAÇÕES

GERAL

Tensão de rede	:	110 / 220 V
Frequência de rede	:	60 Hz
Consumo	:	90 W max.
Dimensões	:	160 x 228 x 285 mm

TUNER : FM

Faixa útil	:	87.5 MHz ~ 108 MHz
Frequência de FI	:	10.7 MHz
Impedância de entrada	:	75 Ω
Sensibilidade (S/N = 26 dB)	:	< 7 μ V
Seletividade (Bw = 600kHz)	:	> 20 dB
Rejeição de FI	:	> 50 dB
Rejeição de Imagem	:	> 20 dB

TUNER : AM

Faixa útil	:	522 KHz ~ 1611 KHz
Frequência de FI	:	450 KHz
Sensibilidade (S/N = 26 dB)	:	< 4.0mV/M
Seletividade (Bw = 18KHz)	:	> 16 dB
Rejeição de FI	:	> 24 dB
Rejeição de Imagem	:	> 28 dB

AMPLIFICADOR

Potência de saída (D = 10%)	:	2 x 45W
Impedância de saída	:	2 x 6 Ω L/R
Resposta em frequência (-3dB)	:	63 Hz ~ 15 KHz
Controle de DBB	:	10dB \pm 2dB à 70Hz ~ 90 Hz
Saída p/ Headphone (32 Ω)	:	25 mW
Sensibilidade de entrada	AUX / TV	: 400 mV à 47 Ω

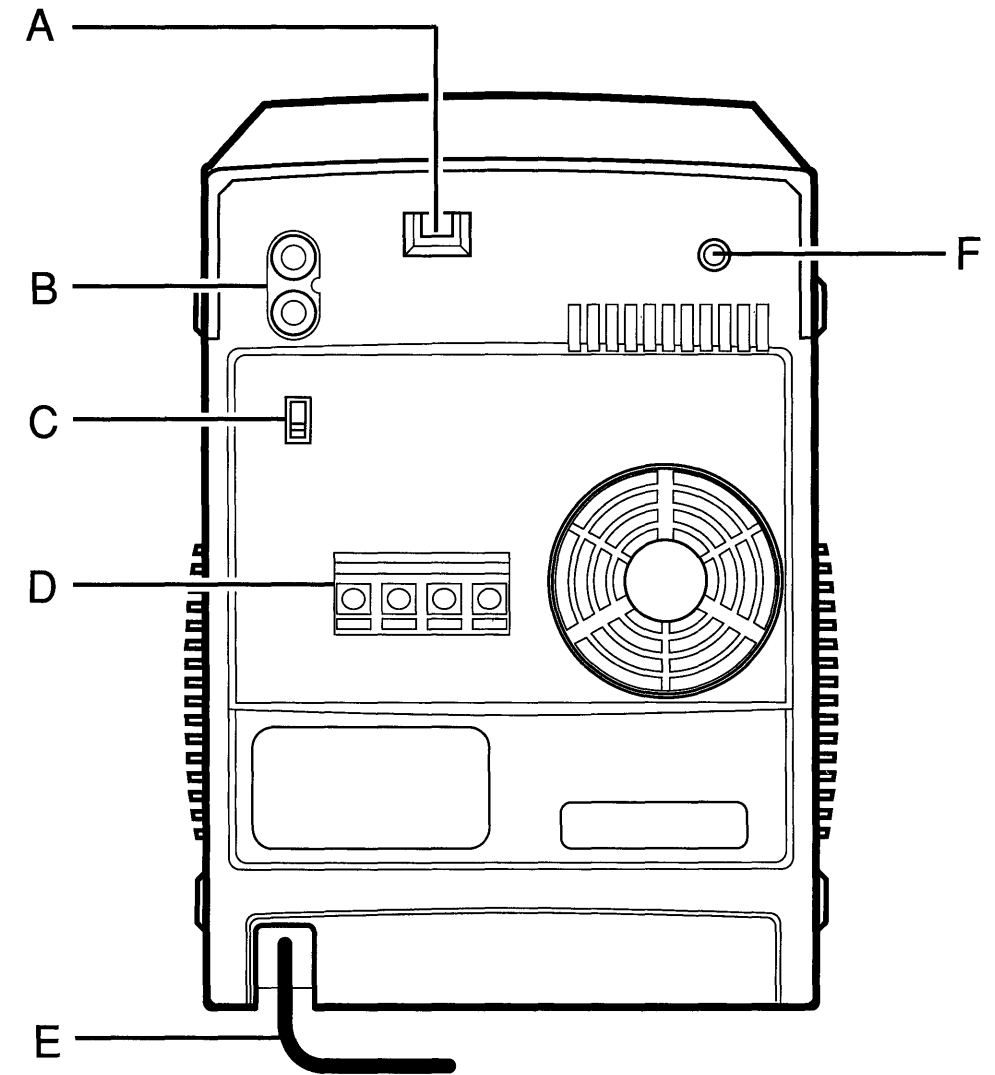
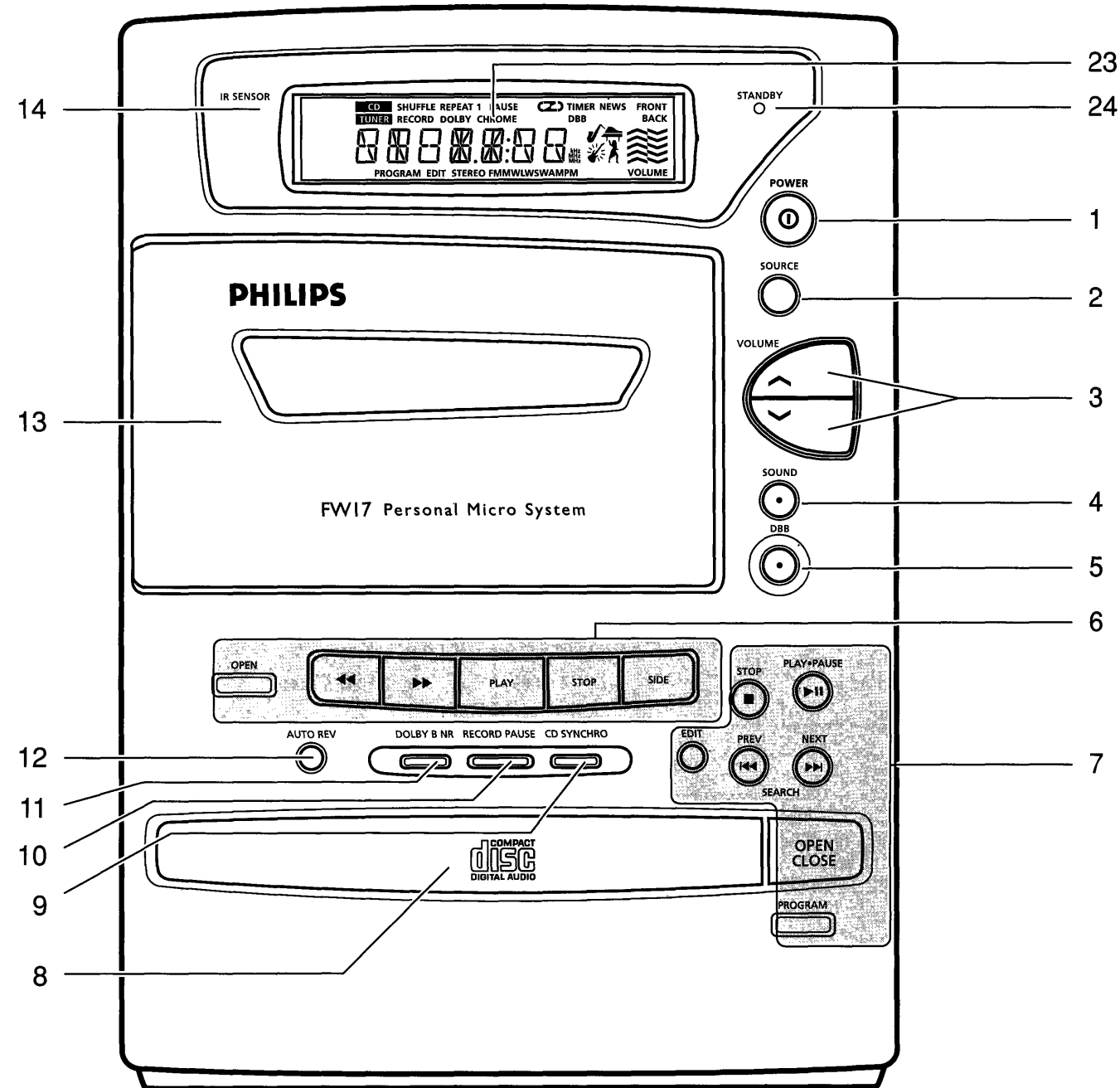
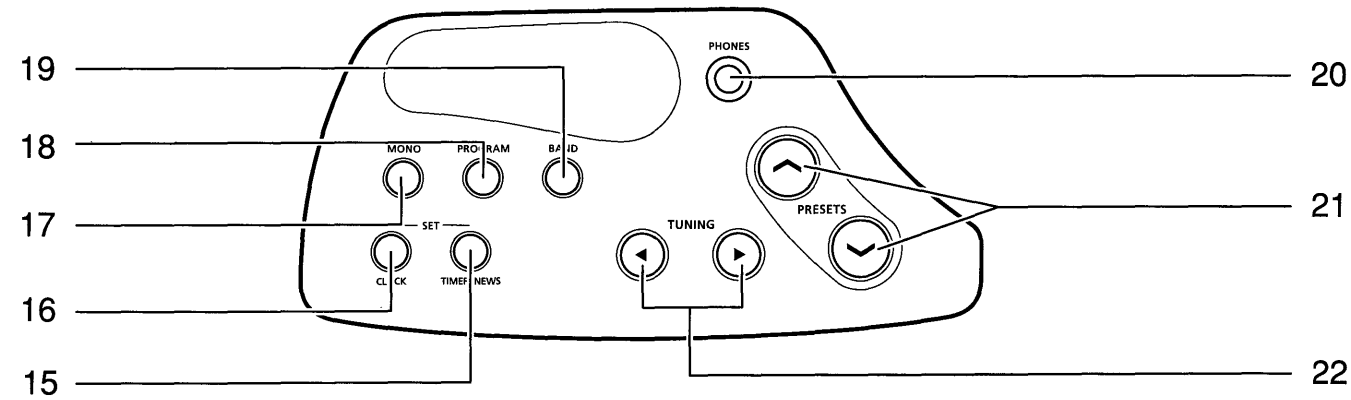
TAPE

Wow & fluter	:	< 0.38%
Bias	:	90 KHz \pm 5 KHz
Resposta em frequência na gravação (-8 dB)	:	250 Hz ~ 6300 Hz
S / N	:	> 42 dB

C D

Resposta em frequência (\pm 3dB)	:	20 Hz ~ 20 KHz
Signal / Hiss	:	> 90 dB
Distorção à 1 KHz	:	< 1.0 %
Diferença entre canais (1 KHz)	:	< 2.0 dB
Separação de canais (1 KHz)	:	50 dB max.

CONEXÕES & CONTROLES



CONEXÕES & CONTROLES

1	Power	1475	11	Dolby B NR	1483
2	Source select	1472	12	Auto REV	1488
3	Volume up/down	1470, 1471	13	Cassette compartment	
4	Digital Sound Control	1474	14	IR sensor	6411
5	Dynamic bass boost	1473	15	Set Timer/News	1467
6	Rec/Pb Deck controls		16	Set Clock	1468
			17	Mono	1463
			18	Program	1462
			19	Band	1461
			20	Headphone socket	1560
			21	Preset Up/Down	1460, 1464
			22	Tuning Up/Down	1465, 1466
			23	LED Display	1400
			24	Standby LED	6401
			A	AM antenna socket	1104
			B	Aux/TV/DCC Input	1552
			C	Voltage selector	1211
			D	Loudspeaker sockets	1305
			E	Mains cord	
			F	FM antenna socket	1101 or 1110
8	CD tray				
9	CD Syncro	1481			
10	Record pause	1482			

SERVICE TEST PROGRAM 1

Operating sequence	Display shows	Remarks	In case of problems check
Hold "Program" and "Preset Up" button down while Power on to enter Service test program.	XX YY-S # This is the main menu.	where: XX - Type no. numeric YY - Master μP version S - Service mode	
Press "Program"	PASS Main menu reappears after 2 seconds.	Eeprom test	Check IC if Display shows ERR
Press "Band"	NEW Main menu reappears after 2 seconds.	Eeprom is now reset to default data.	
Press "Set Clock"	32K	The Alarm buzzer is turned on. An output signal of 4096Hz is available at pin 37 of the main μProcessor.	Check X'tal
Press "Set Clock"	8M	The output signal at pin 37 is now 3906.25Hz.	Check 8MHz oscillator
Press "Set Clock"	Main menu reappear.		
Press "Set Timer/News"	FAST NOM Main menu reappears after 2 seconds.	Pressing "Set Timer/News" key will alternate between Fast and Normal speed. In the Fast mode the clock increases at 1 minute per second. Leaving the test program now will allow quick customer checks on the clock/timer/alarm function.	Ensure the clock is in normal speed before returning to customer.
Press "Mono" and followed by any key on the set or Remote control. Press "Mono" to return to Main menu	See key test Table 1 and 2.		
Press "Tuning Up"	See Table 3 and Main menu.	Pressing the "Tuning Up" key will scroll through the 4 different displays and the Main menu.	
Press "Tuning down"	AUX TAPE CD TUNER Main menu reappears after 2 seconds.	During source switching the set is not muted.	
Disrupt the mains supply to exit the Service test program.			Ending the Service test by pressing the "Power" key from the Main menu will render : * CD error codes to be displayed. * Tuner "Program" and "Autoprogram" keys are deactivated.

Note: XX - Model model (eg 17 for FW17, etc.)
YY - Software version, counting down from 99

TABLE 1. SERVICE KEY TEST TABLE

Timer/News/Tuner	Display	Function keys	Display	Tape Keys	Display	CD Keys	Display
Mono	01	Power	13	Dolby B NR	22	Next	19
Program	02	Source	09	REC Pause	23	Prev	20
Band	03	Volume Up	11	CD Syncro	24	Edit	21
Set Clock	12	Volume Down	10	REV Mode	25	Program	17
Set Timer/News	05	Sound	14	<<	26	Stop	30
Preset Up	04	DBB	15	>>	27	Play/Pause	29
Preset Down	08			Play	28	Open/Close	18
Tuning Up	07			Stop	32		
Tuning Down	06			Side	31		

TABLE 2. SERVICE REMOTE CONTROL KEY TEST TABLE

Function/Tuner keys	Display	Tape keys	Display	CD keys	Display
Standby	47 RC	Tape	35 RC	CD	33 RC
Sleep	16 RC	Play	28 RC	Repeat	38 RC
Timer	36 RC	Stop	32 RC	Previous	39 RC
News	37 RC	Pause	31 RC	Shuffle	40 RC
Sound	14 RC	>>	26 RC	Next	41 RC
Volume up (+)	11 RC	<<	27 RC	Pause	43 RC
DBB	15 RC			Stop	45 RC
Volume down (-)	10 RC			Play	46 RC
Tuner	34 RC			Search <<	42 RC
Preset down	08 RC			PSearch >>	44 RC
Preset up	04 RC				

Note: "RC" disappears when the key is released.

TABLE 3. DISPLAY SEQUENCE

Step	LCD display	Step	LCD display
1		3	
2		4	

SERVICE TEST PROGRAM 2

Operating sequence	Display shows	Remarks	In case of problems check
<p>To perform CD test press "CD Play/Pause" at the Main menu screen. Service level 1 is now achieved.</p> <p>Press "Stop"</p> <p>Press "Prev" will exit CD test and return to Main menu.</p>	<p><i>CDC AA</i></p> <p><i>SLED</i></p>	<p>The CD servo version is display. AA = version number</p> <p>The sledge will move outward then inward.</p>	<p>Pressing "Power" key at the Main menu screen will to exit Service test and enter into Service Play mode. The set will perform as normal except in the CD mode error codes will be displayed.</p> <p>A list of error codes are found in Table 4.</p>
<p>Press "Next" - Service level 2</p> <p>Press "Prev"</p>	<p><i>FOC</i></p>	<p>Laser is turned on and focus is achieved.</p> <p>Return to Service level 1.</p>	
<p>Press "Next" for 2 times - Service level 3</p> <p>Press "Prev" for 2 times</p>	<p><i>DISC</i></p>	<p>Disc motor start to turn.</p> <p>Return to Service level 1.</p>	
<p>Press "Next" for 3 times</p> <p>Press "Prev" for 3 times</p>	<p><i>RDL</i></p>	<p>The Radial servo turns on and music can be heard at the Loudspeakers.</p> <p>Return to Service level 1.</p>	
<p>To perform Tuner test press "Preset Up" at the Main menu screen.</p> <p>Use the "Preset Up" and "Preset down" to display the loaded frequencies.</p>	<p><i>ZZZ</i></p> <p>See Table 5.</p>	<p>Tuner version is display. ZZZ = Tuner version</p> <p>Service frequencies are now loaded into the EEROM of the μProcessor.</p>	
<p>To end the Service test program disrupt the mains supply.</p>			<p>Ending the Service test by pressing the "Power" key from the Main menu will render:</p> <ul style="list-style-type: none"> * CD error codes to be displayed. * Tuner "Program" and "Autoprogram" keys are deactivated.

TABLE 4. CD ERROR CODES TABLE

CD Error number	CD Error
E 1002	Focus error
E 1007	Subcode error, no valid subcode
E 1008	TOC error, out of lead-in while reading TOC
E 1009	CD6 + decoder error
E 1010	Radial error
E 1012	Fatal Sledge error
E 1013	Turntable motor error
E 1030	Too many grooves to jump
E 1031	Search error
E 1032	Search binary error
E 1033	Search index error
E 1034	Search time error
E 1037	Selector error
E 1050	Edit calculation error
E 1051	Edit track count error
E 1052	Edit Optimal error

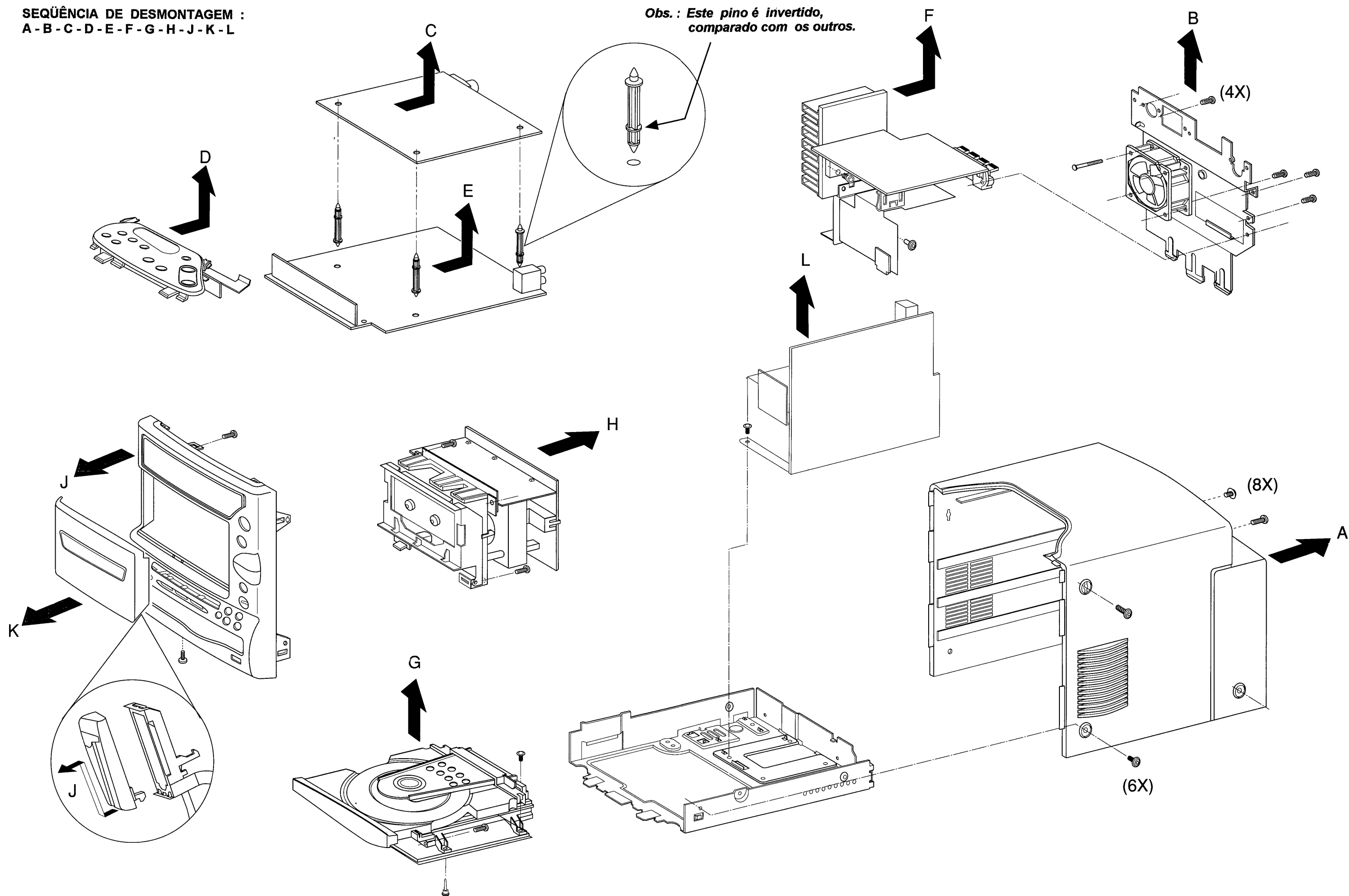
TABLE 5. TUNER SERVICE TEST FREQUENCIES

PRESET	Europe "EUR"	East Eur. "EAS"	USA "USA"	Oversea "OSE"	Japan "JAP"	Oversea "OSS"	Eueope "EUS"
1	108.00 MHz	108.00 MHz	108.00 MHz	108.00 MHz	90.00 MHz	108 MHz	108 MHz
2	87.50 MHz	65.81 MHz	87.50 MHz	87.50 MHz	76.00 MHz	87.5 MHz	87.5 MHz
3	1611 kHz	1611 kHz	1710 kHz	1710 kHz	1629 kHz	1710 kHz	1611 kHz
4	522 kHz	522 kHz	530 kHz	530 kHz	522 kHz	530 kHz	522 kHz
5	279 kHz	279 kHz	98 MHz	98 MHz	80 MHz	12.1 MHz	279 kHz
6	153 kHz	153 kHz	560 kHz	560 kHz	558 kHz	3900 kHz	153 kHz
7	98.00 MHz	98.00 MHz	98.00 MHz	98.00 MHz	80.00 MHz	98.00 MHz	98.00 MHz
8	558 kHz	558 kHz	560 kHz	560 kHz	558 kHz	560 kHz	558 kHz
9	1494kHz	1494kHz	1500kHz	1500kHz	1494kHz	1500 kHz	1494 kHz
10	549kHz	549kHz	550kHz	550kHz	549kHz	550 kHz	549 kHz
11						4250 kHz	18.1 MHz
12						8000 kHz	5900 kHz
13						11.9 MHz	6200 kHz
14							17 MHz
15							12 MHz

DESMONTAGEM DO APARELHO

SEQÜÊNCIA DE DESMONTAGEM :
A-B-C-D-E-F-G-H-J-K-L

Obs.: Este pino é invertido,
comparado com os outros.



DISMANTLING OF CD UNIT

Dismantling the tray

- a) Press open/close button to open the tray. If the tray doesn't work, use a small screw driver as shown in Fig.1 point 1 to move the tray outside. After the first centimeter it is possible to pull the tray out by hand.
- b) Release two snaps and remove tray.

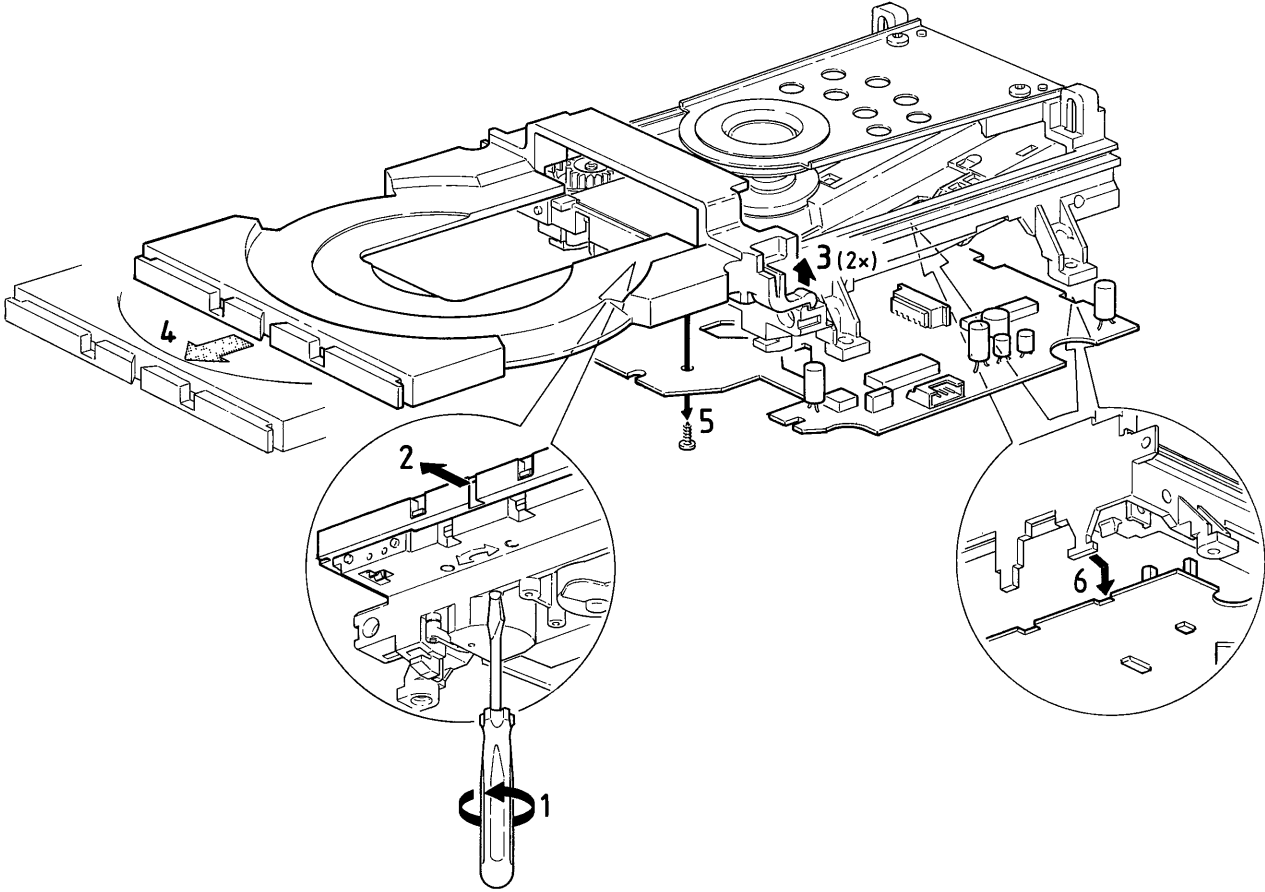
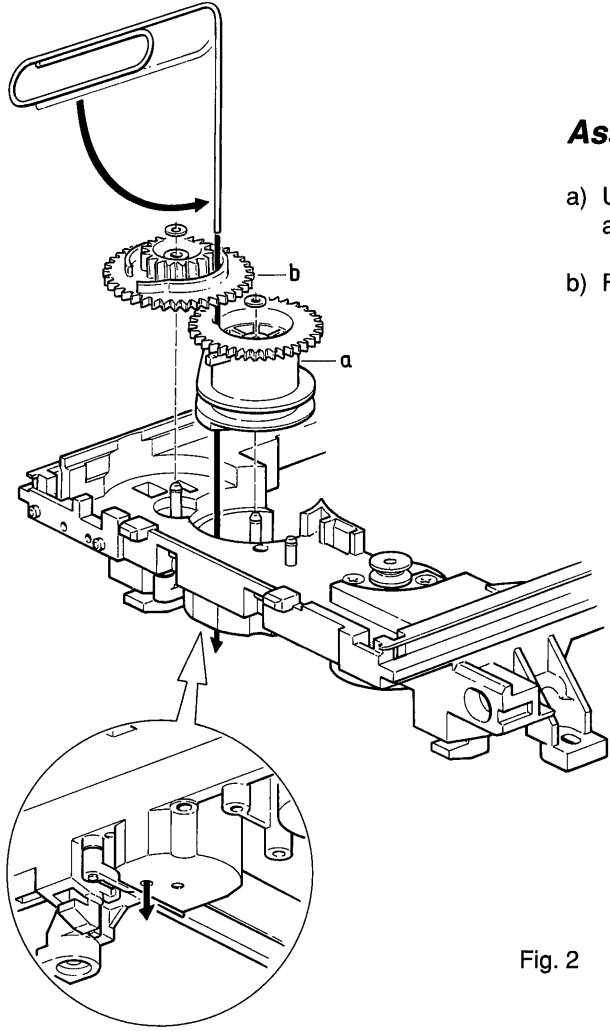


Fig. 1



Assembly of gear

- a) Use a pin (e.g. a paperclip) to align the cam wheel (a) and the gear wheel (b) together. See Fig. 2.
- b) Fix the wheels with the small plastic washers.

Fig. 2

DESMONTAGEM DA UNIDADE CD

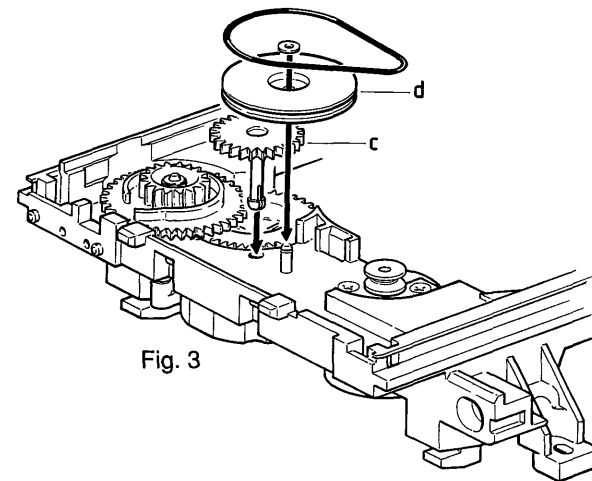


Fig. 3

- c) Mount idle wheel2 (c) and idle wheel1 (d) in any position. See Fig. 3.
- d) Fix the idle wheel1 with the small plastic washer.
- e) Mount the driving belt.

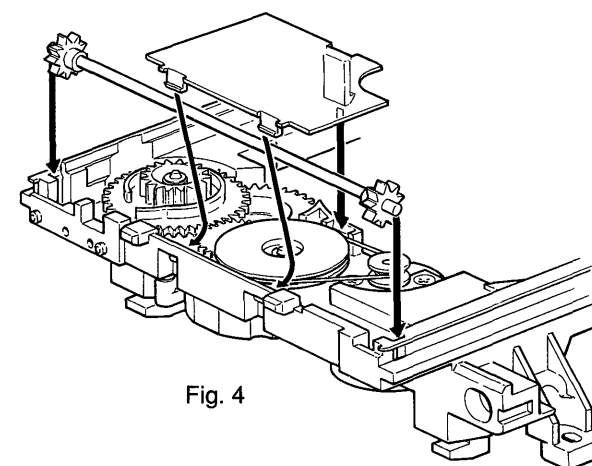


Fig. 4

- f) Mount the pinion guiding assy and the cover as shown in Fig. 4.
- g) Turn the gear wheel (b) counter clockwise to endposition.

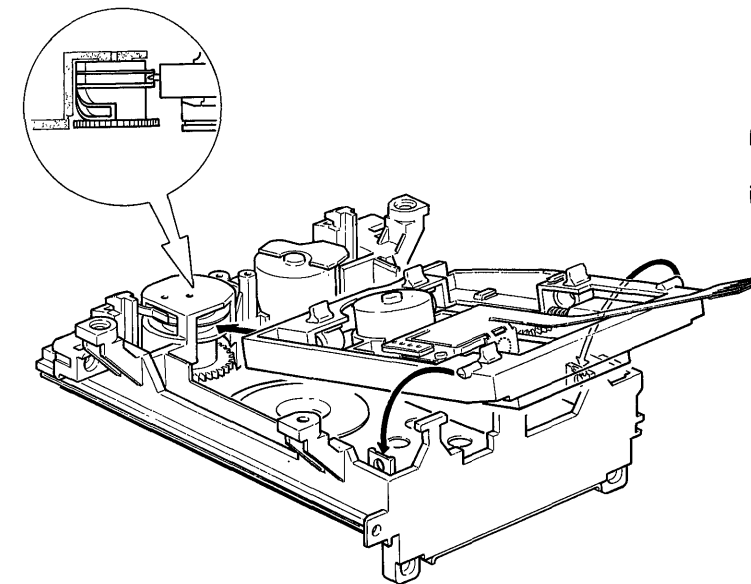


Fig. 5

- h) Mount the CD Mechanism as shown in Fig. 5.
- i) Mount the tray. (Align the tray to the chassis and push it inside)

Check if tray mechanism works correct!

- 1) Turn the gear wheel (b) clockwise to its endposition. (Use a small screwdriver as shown in Fig. 1 point 1)

The tray has to move to inner position first and than the CD Mechanism has to move to its upper position.

- 2) Turn the gear wheel (b) counter clockwise to its endposition.

The CD Mechanism has to move to its lower position first and than the tray has to move to outside.

DIAGRAMA DE BLOCO

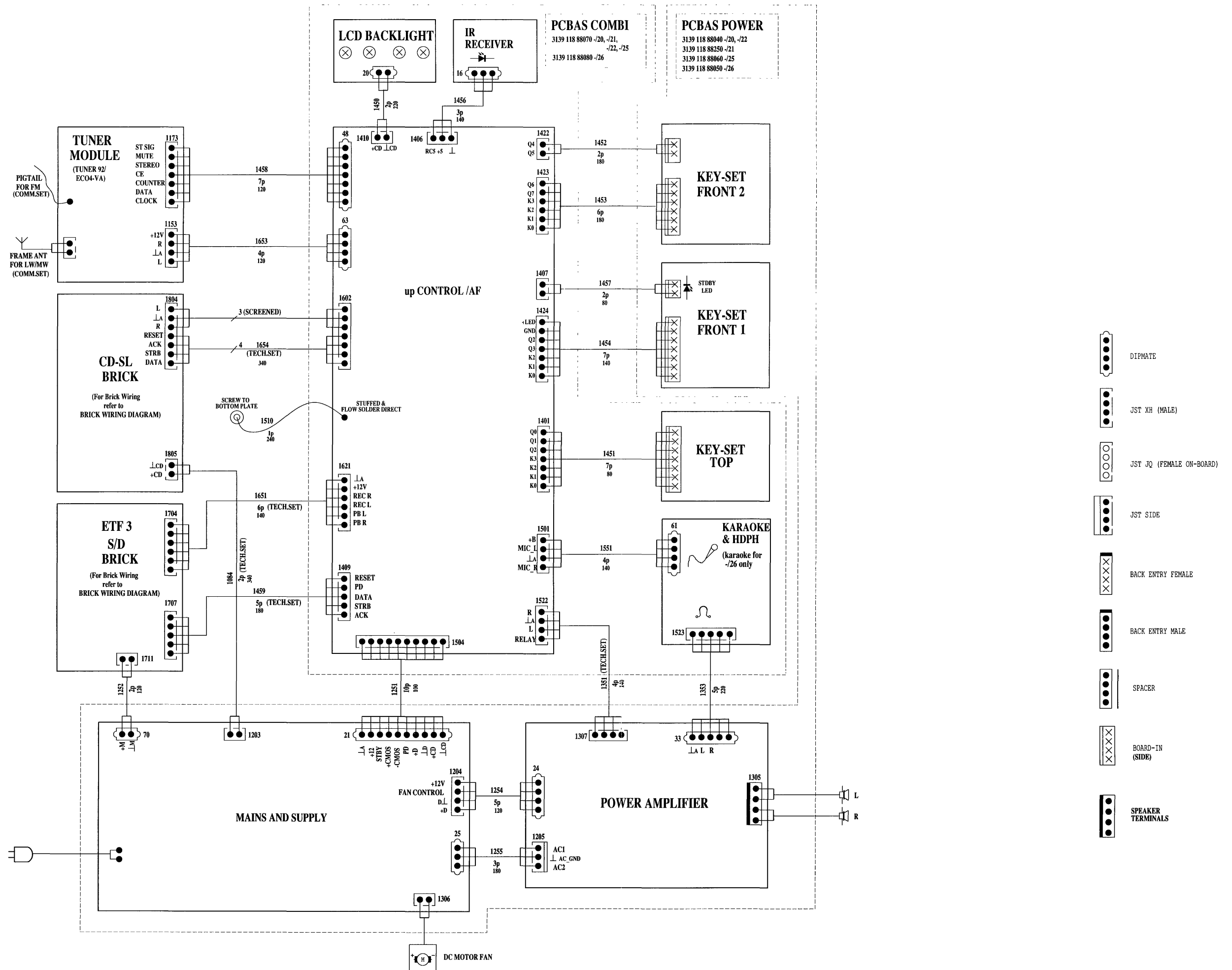
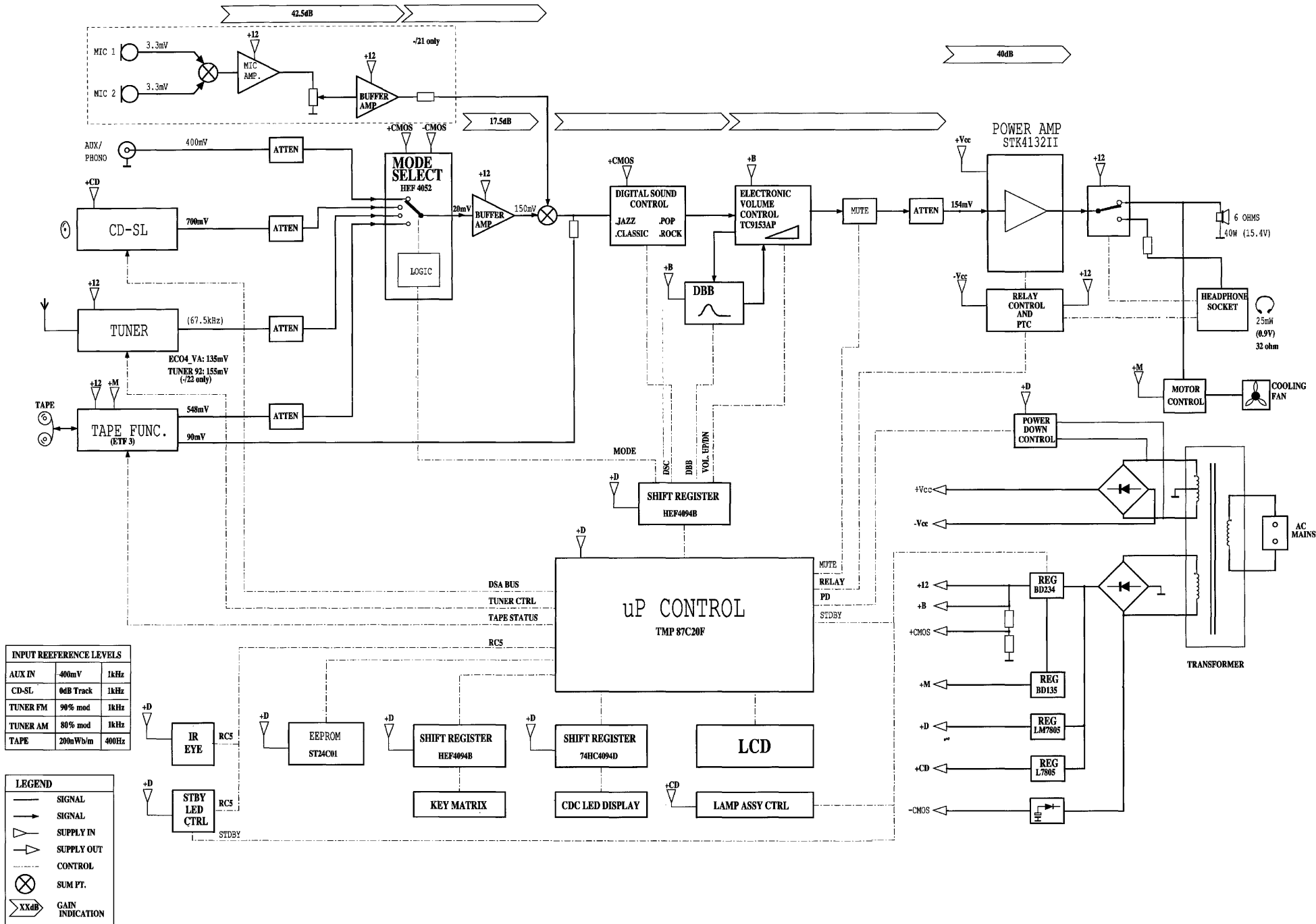


DIAGRAMA DE FIAÇÃO



INPUT REFERENCE LEVELS		
AUX IN	400mV	1kHz
CD-SL	0dB Track	1kHz
TUNER FM	90% mod	1kHz
TUNER AM	80% mod	1kHz
TAPE	200mV/m	400Hz

LEGEND	
	SIGNAL
	SIGNAL
	SUPPLY IN
	SUPPLY OUT
	CONTROL
	SUM PT.
	GAIN INDICATION



SUGESTÕES PARA REPARAÇÃO

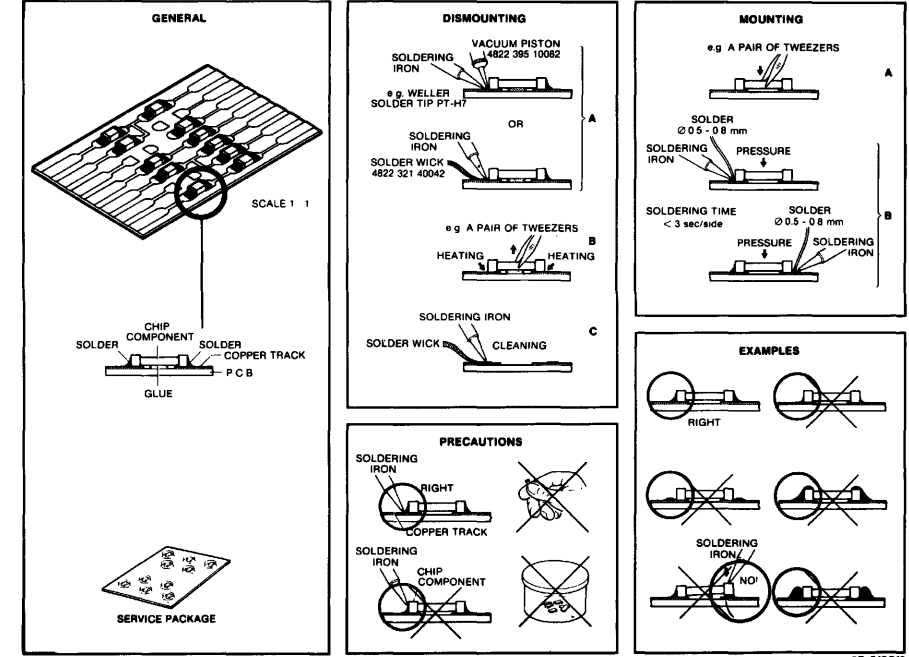
1. E.S.D. (Descargas Eletrostáticas)

Todos os C.I.'s e outros semicondutores são suscetíveis às descargas eletrostáticas (ESD). A falta de cuidado durante uma intervenção técnica, pode reduzir drasticamente a vida útil destes componentes. Durante o conserto, assegure-se bem de todos os procedimentos necessários a se evitar as E.S.D.'s.

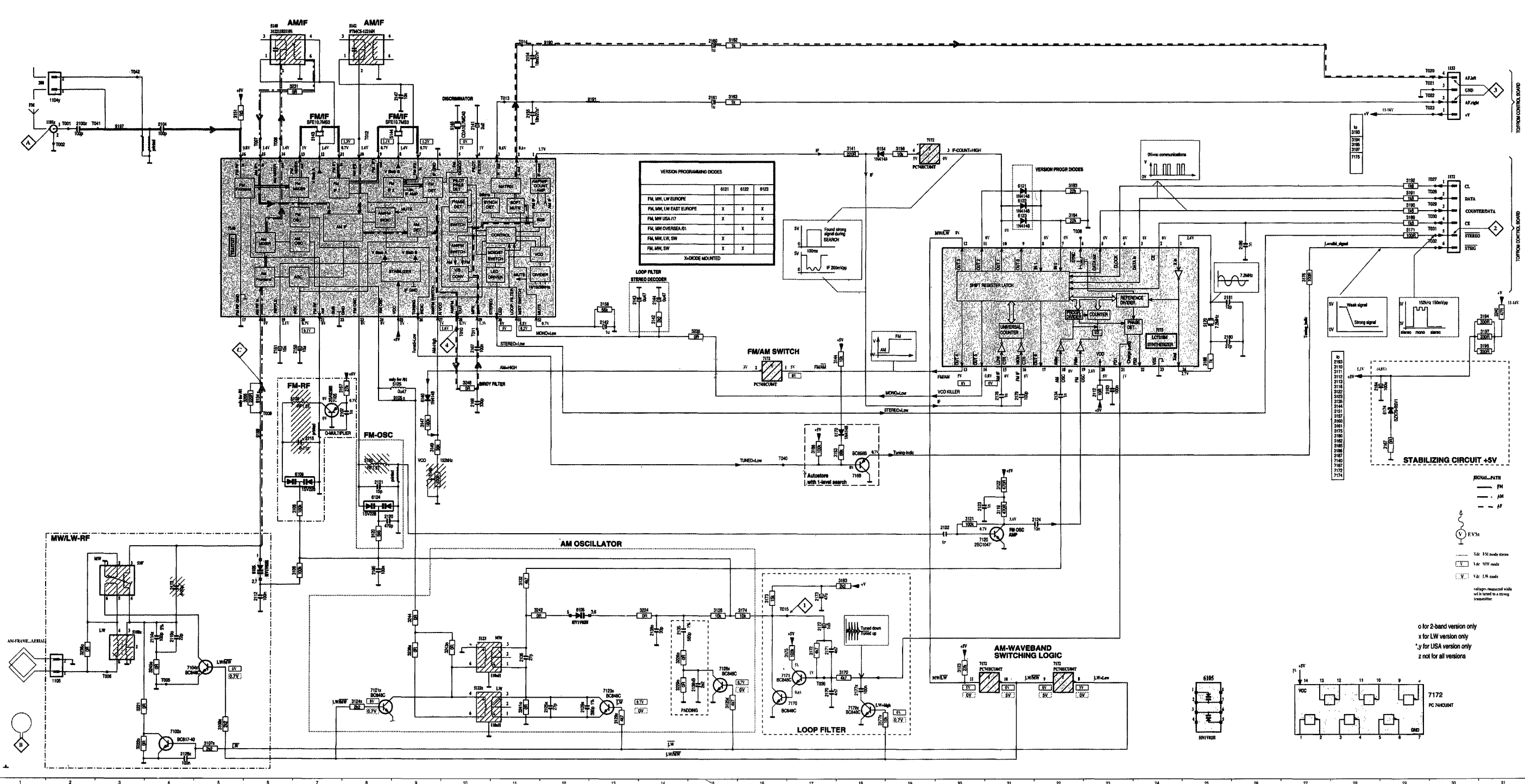
2. Circuitos Integrados

Todos os I.C.'s MOS, geralmente são muito suscetíveis a sobrecargas e alta tensões, portanto, todas as medições devem ser efetuadas com o máximo cuidado.

HANDLING CHIP COMPONENTS



TUNER UNIT ECO4-VA (MINI)



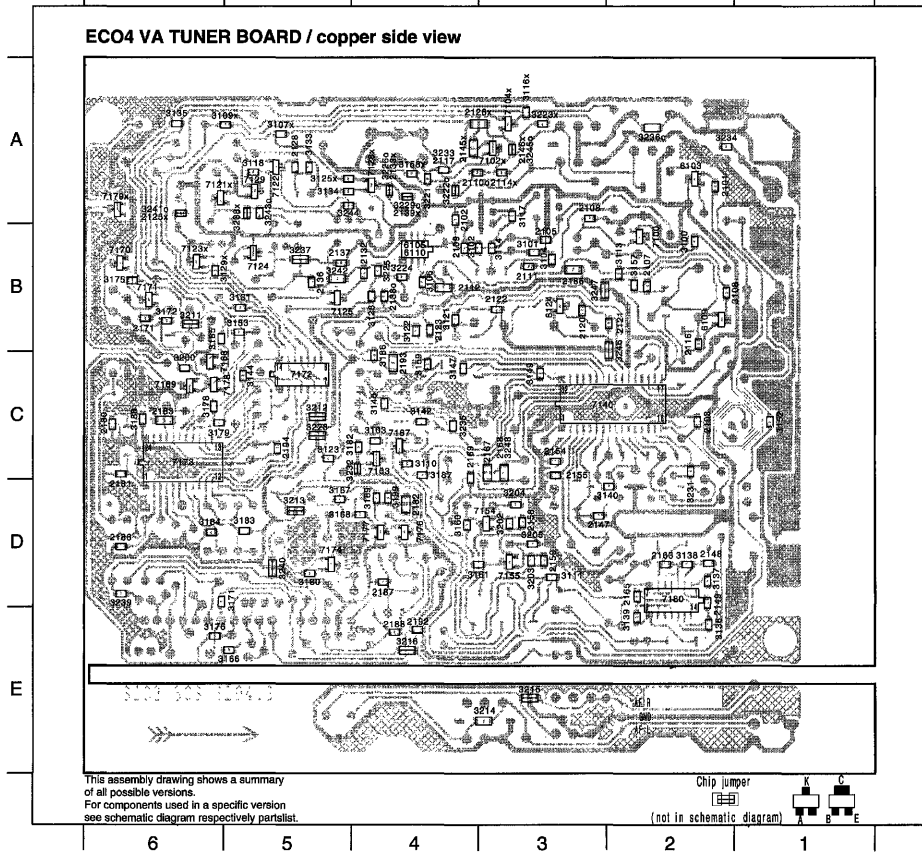
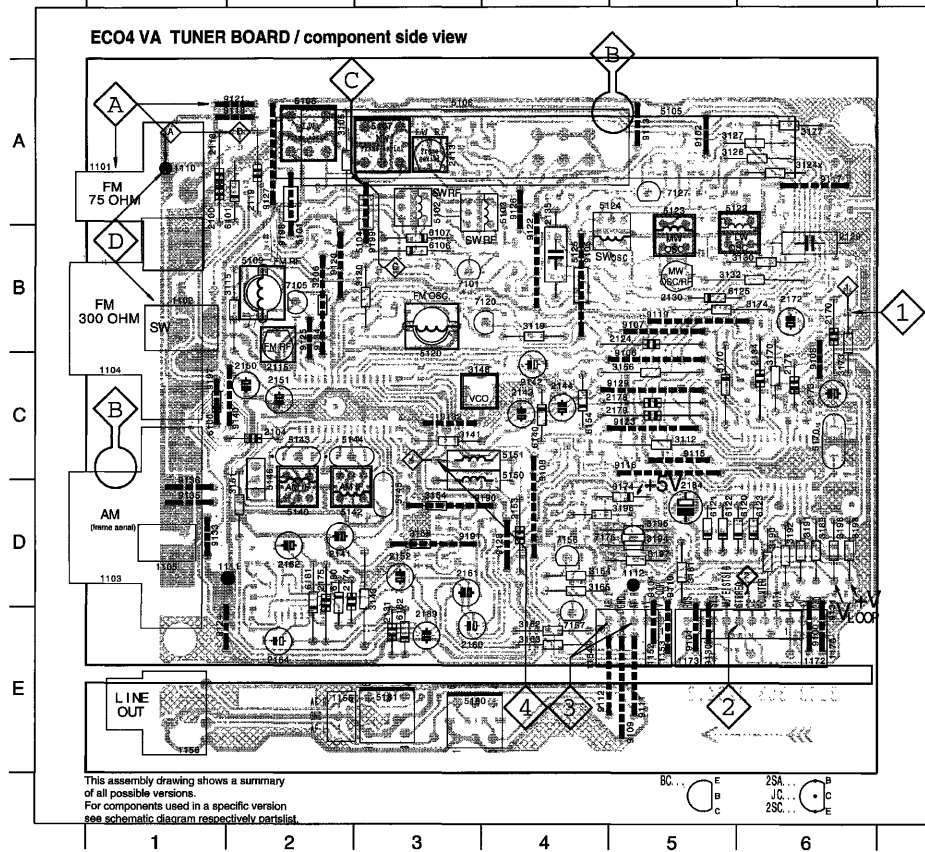
Component list for the Tuner Unit ECO4-VA (Mini):

Part Number	Part Number	Part Number	Part Number
1101z C1	1101z C2	1101z C3	1101z C4
1101z C5	1101z C6	1101z C7	1101z C8
1101z C9	1101z C10	1101z C11	1101z C12
1101z C13	1101z C14	1101z C15	1101z C16
1101z C17	1101z C18	1101z C19	1101z C20
1101z C21	1101z C22	1101z C23	1101z C24
1101z C25	1101z C26	1101z C27	1101z C28
1101z C29	1101z C30	1101z C31	1101z C32
1101z C33	1101z C34	1101z C35	1101z C36
1101z C37	1101z C38	1101z C39	1101z C40
1101z C41	1101z C42	1101z C43	1101z C44
1101z C45	1101z C46	1101z C47	1101z C48
1101z C49	1101z C50	1101z C51	1101z C52
1101z C53	1101z C54	1101z C55	1101z C56
1101z C57	1101z C58	1101z C59	1101z C60
1101z C61	1101z C62	1101z C63	1101z C64
1101z C65	1101z C66	1101z C67	1101z C68
1101z C69	1101z C70	1101z C71	1101z C72
1101z C73	1101z C74	1101z C75	1101z C76
1101z C77	1101z C78	1101z C79	1101z C80
1101z C81	1101z C82	1101z C83	1101z C84
1101z C85	1101z C86	1101z C87	1101z C88
1101z C89	1101z C90	1101z C91	1101z C92
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1101z C97	1101z C98	1101z C99	1101z C100
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1101z C109	1101z C110	1101z C111	1101z C112
1101z C113	1101z C114	1101z C115	1101z C116
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1101z C493	1101z C494	1101z C495	1101z C496
1101z C497	1101z C498	1101z C499	1101z C500

1101 A 1	1173 E 5	2142 C 4	2175 D 2	3127 A 8	3173 B 6	5101 A 2	5142 D 2	6121 D 5	7156 D 4	9112 E 4	9128 D 4
1102 B 1	2100 A 1	2143 C 4	2177 C 6	3130 B 6	3174 B 5	5102 A 3	5143 C 2	6122 D 5	7157 E 4	9113 A 5	9129 C 5
1103 D 1	2104 C 2	2144 C 4	2178 C 5	3132 B 6	3177 A 6	5103 A 3	5144 C 2	6123 D 5	7158 D 5	9114 C 5	9130 E 5
1104 B 1	2106 B 4	2150 C 2	2179 C 5	3141 C 3	3181 D 5	5104 A 3	5145 C 2	6124 D 5	7159 E 6	9115 C 5	9131 E 6
1105 D 1	2113 A 3	2151 C 2	2184 D 5	3143 D 3	3189 D 5	5105 A 4	5146 D 2	6140 C 4	9111 E 6	9117 A 6	9132 C 3
1110 A 1	2115 D 2	2152 D 3	2188 E 3	3148 C 3	3190 D 6	5106 A 4	5190 D 3	6154 C 4	9102 A 5	9118 A 2	9133 D 1
1111 D 2	2118 A 1	2153 D 4	2190 A 2	3151 D 2	3181 D 6	5107 A 3	5151 C 3	6170 C 5	9103 C 6	9119 B 5	9134 B 2
1112 D 5	2119 A 2	2160 E 3	2191 A 8	3154 D 3	3192 D 6	5108 A 2	5170 C 6	6174 D 5	9104 E 5	9120 B 2	9135 D 1
1152 E 5	2124 B 5	2161 D 3	2185 A 2	3155 D 3	3193 D 6	5109 B 2	5160 E 3	6180 D 2	9105 B 4	9121 A 2	9136 D 1
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1156 E 2	2131 E 3	2170 B 6	3116 B 4	3163 E 4	3196 D 4	5123 B 5	6101 A 2	7101 B 3	9108 D 4	9124 E 1	9191 D 3
1156 E 1	2134 C 6	2172 B 6	3120 B 3	3164 D 4	3197 D 5	5124 B 5	6106 B 3	7105 B 2	9109 E 5	9125 B 2	9197 C 1
1170 E 6	2135 C 4	2173 C 6	3124 A 6	3165 D 4	3198 D 6	5125 B 4	6107 B 3	7120 B 4	9110 E 5	9126 A 4	9198 A 2
1172 E 6	2141 D 2	2174 D 2	3126 A 6	3170 C 6	3206 B 2	5140 D 2	6120 D 6	7127 A 5	9111 E 5	9127 A 2	9199 A 3

2101 A 2	2122 B 3	2149 D 2	2185 B 3	3109x A 5	3133 A 5	3157 B 2	3180 D 5	3212 C 5	3233 A 4	3248 C 3	7128x A 4	7178 C 6
2102 A 4	2123 B 4	2154 C 3	2186 D 6	3110 C 4	3134 A 5	3158x A 4	3182 C 4	3213 D 5	3234 A 2	3249 A 2	7129 A 5	7179x A 6
2103 C 2	2125x A 6	2155 C 3	2187 D 4	3111 D 3	3135 A 6	3159 C 4	3183 D 5	3214 E 3	3235 C 4	3248 B 4	7130 C 2	7180 D 2
2105 B 3	2126x A 8	2156 D 3	2188 E 4	3113 B 2	3136 E 2	3160 D 4	3184 D 6	3216 E 3	3236x A 2	3249 B 2	7140 C 2	7184 D 3
2107 D 2	2128 A 5	2159 D 3	2192 E 4	3114 B 3	3137 D 3	3161 D 3	3185 B 6	3218 E 4	3237 B 5	3249 B 4	7145 D 3	
2108 A 3	2132 D 4	2163 D 2	2193 C 4	3116x A 3	3138 D 2	3166 E 5	3189 C 4	3221 A 4	3238x A 6	3249 B 3	7147 C 4	
2109 B 4	2133x A 4	2165 E 2	2194 C 5	3117 A 3	3139 D 2	3167 D 5	3187 C 4	3222x A 4	3239 D 6	7100 B 2	7166 C 8	
2110x A 4	2136 B 5	2167 C 3	3100 B 2	3118 A 5	3140 D 2	3168 D 4	3188 C 6	3223x A 3	3240 D 5	7102x A 3	7169 C 6	
2111 B 3	2137 B 5	2168 C 3	3101 B 3	3121 B 4	3142 C 4	3169 D 4	3189 D 4	3224 B 4	3241 A 6	7103 C 4	7170 B 6	
2112 B 4	2138x B 4	2169 C 4	3102 B 3	3122 B 4	3144 C 5	3171 D 6	3190 C 6	3225 B 4	3242 B 6	7104x A 3	7171 B 6	
2114x A 3	2139x A 4	2171 B 6	3103 C 4	3123 C 5	3145 C 4	3172 B 6	3202 D 3	3226x A 4	3243 A 5	7121x A 6	7172 C 6	
2116 B 2	2145x A 4	2180 C 6	3104 B 3	3125x A 5	3147 C 4	3175 B 6	3203 D 3	3227 C 5	3244 A 5	7122 A 5	7173 C 6	
2117 A 4	2146x A 3	2181 C 6	3106 B 4	3126 B 4	3149 C 3	3176 E 6	3204 D 3	3228x A 4	3245 A 3	7123x B 6	7174 D 5	
2120 B 3	2148 D 2	2183 C 6	3108 B 2	3131 B 6	3153 B 5	3178 C 6	3205 D 3	3231 C 2	3246 B 2	7124 B 5	7176 D 4	
2121 B 2	2148 D 2	2183 C 6	3108 B 2	3131 B 6	3153 B 5	3178 C 6	3211 B 6	3232 C 4	3247 B 3	7125 B 5	7177 D 4	

o for AM-version only
 x for LW-version only
 y for USA version only
 z not for all versions



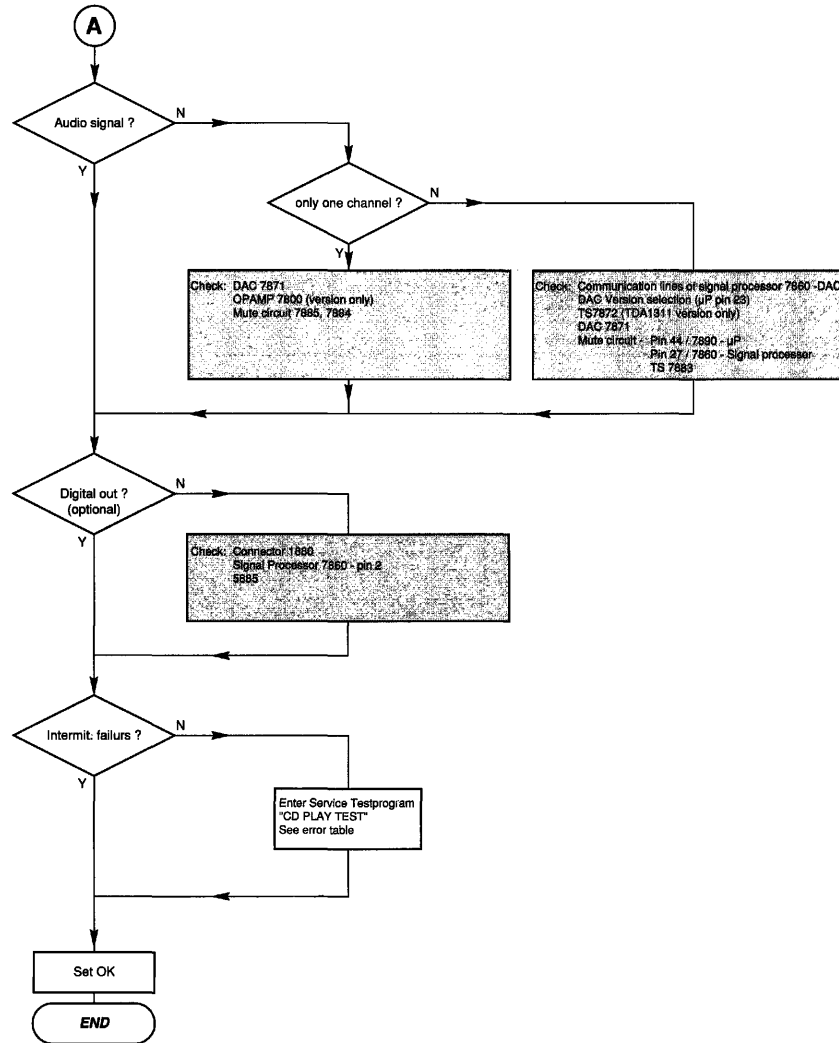
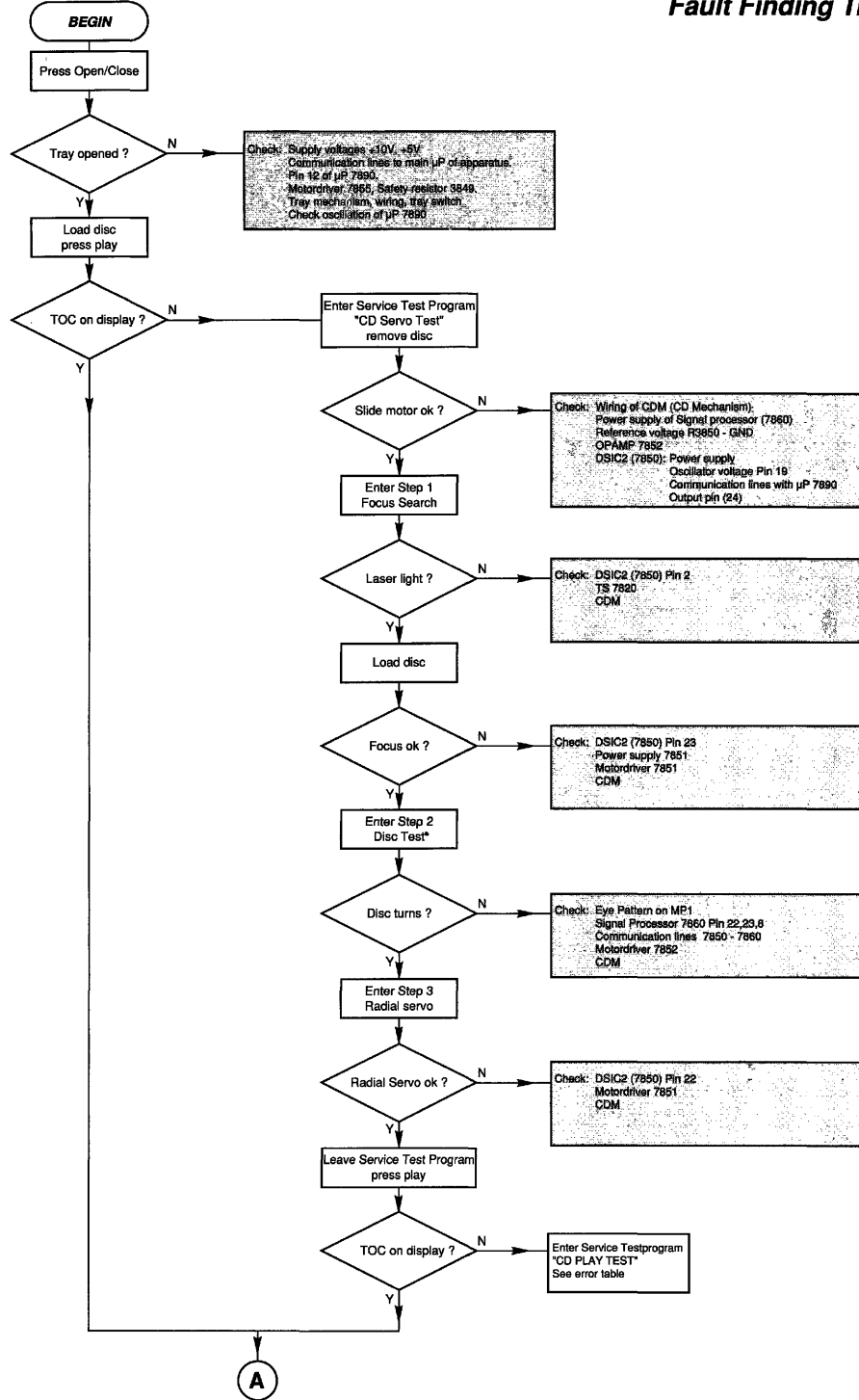
Waverange	Input frequency	Input	Set tuned to	Adjust	Output	Scope / Voltmeter
VARICAP ALIGNMENT						
FM /00/01/05/10/17	87.5 - 108MHz		108 MHz	5120		8 ± 0.2V
			87.5MHz	check		4.1 ± 0.5V
FM /14 East Europe	65.81 - 108MHz		108 MHz	5120		8V ± 0.2V
			65.81 MHz	check		0.8 ± 0.4V
MW /01/17 2-band version 530 - 1710kHz	530kHz		1710kHz	5123	1	9V ± 0.1V
			530kHz	check		1V ± 0.4V
LW /00/05/10/14	279kHz		153 - 279kHz	5122		8V ± 0.2V
			153kHz	check		1V ± 0.4V
MW /00/05/10/14	522 - 1611kHz		1611kHz	5123		8V ± 0.1V
			522kHz	check		1V ± 0.4V
FM - RF						
FM /00/01/05/10/17	108MHz	A	108MHz	2115	3	MAX
	87.5MHz		87.5MHz	5109		
FM /14 East Europe	108MHz	mod=1kHz Δf=22.5kHz	108MHz	2115		
	65.81MHz		65.81MHz	5109		
VCO						
FM	98 MHz, 1mV continuous wave	A	98MHz	3148	2	152 ± 1 kHz
AM - IF						
MW	540kHz Δf = 10kHz as low as possible	100nF 50E	540kHz	5142 5140	4	symmetrical and max height
AM - RF¹⁾						
LW	198kHz	B	198kHz	5108	4	MAX
MW 3-band version	1494kHz		1494kHz	2113		
	549kHz		549kHz	5107		
MW 2-band version	1500kHz		mod=1kHz 30% AM	1500kHz		
	550kHz		550kHz	5107		

* Use Service Test Program. By selecting the TUNER TEST test frequencies will be stored as preset frequ. automatically.
¹⁾ For AM RF-adjustments the original frame antenna 4822 158 60622 has to be used!

↑ repeat
↓

CD UNIT - FAULT FINDING TREE

Fault Finding Tree CD



Abbreviations CD

DSIC2

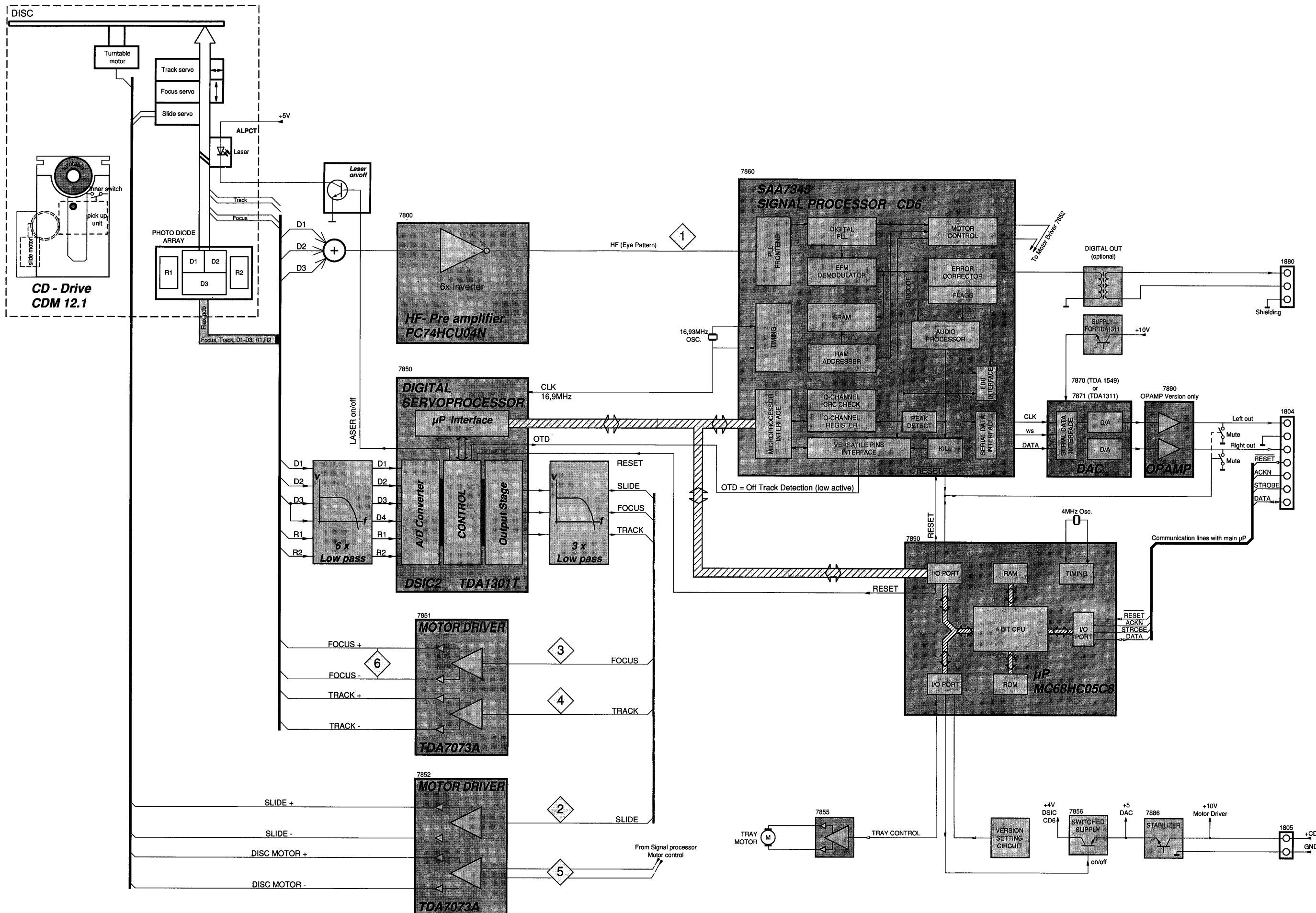
Pin	Name	Direction	Description
1	RESET	μP -> DSIC2	Reset input
2	Laser On/Of	DSIC -> Laser switch	Switches Laser on/off
3	Gnd	Gnd	Ground (Analog part)
4	VRH	not connected	Reference input for A/D converter
5	D1	Diode array -> DSIC2	Unipolar current input (Central diode signal input)
6	D2	Diode array -> DSIC2	Unipolar current input (Central diode signal input)
7	D3	Diode array -> DSIC2	Unipolar current input (Central diode signal input)
8	Vref	Gnd	Reference input for A/D converter
9	D4	Diode array -> DSIC2	Unipolar current input (Central diode signal input)
10	R1	Diode array -> DSIC2	Unipolar current input (Satellite diode signal input)
11	R2	Diode array -> DSIC2	Unipolar current input (Satellite diode signal input)
12	VDD		Supply for DSIC2 (Analog part)
13			
14	TS1	Gnd	Test input 1
15	TS2	Gnd	Test input 2
16	OTD	DSIC2 -> Signal Processor	Off Track Detection
17	CLO	not connected	Clock output
18	XTLO		Oscillator output
19	XTLI		Oscillator input
20	VDD		Supply for DSIC2 (Digital part)
21	Gnd		Ground (Digital part)
22	Track	DSIC2 -> Servo Driver	Radial actuator output
23	Focus	DSIC2 -> Servo Driver	Focus actuator output
24	Slide	DSIC2 -> Motor Driver	Sledge output
25	SILD	μP -> DSIC2	Serial Interface Load
26	SICL	μP -> DSIC2	Serial Interface Clock
27	SIDA	μP <-> DSIC2	Serial Interface Data
28	VDD		Supply for DSIC2 (Digital part)

SIGNAL PROCESSOR

Pin	Name	Direction	Description
1	CL11	not connected	11.2896MHz clock output (3-state)
2	DOMB	digital bi-phase mark output (3-state)	digital bi-phase mark output (3-state)
3	V1	DSIC2 -> signal processor	versatile input pin of signal processor
4	V2	not connected	versatile input pin of signal processor
5	Test2	GND	test input of signal processor
6	Test1	GND	test input of signal processor
7	ISLICE	signal processor ->	current feedback from internal data slicer
8	HFIN	HF Pre-amp -> signal processor	comparator signal input
9	HFREF	HF Pre-amp -> signal processor	comparator signal input
10	IREF		reference current pin (nom. VDD/2)
11	VDDA		supply (analog) of signal processor
12	VSSA		supply (analog) of signal processor
13	CRIN	X-Tal -> signal processor	crystal/resonator input of signal processor
14	CROUT	signal processor -> X-Tal	crystal/resonator output of signal processor
15	VDD1		supply for I/O-buffers of signal processor
16	VSS1		supply for I/O-buffers of signal processor
17	CL16	not connected	16.9344MHz clock output of signal processor
18	MISC	not connected	general purpose DAC output (3-state)
19	DATA	signal processor -> DAC	serial data output of signal processor (3-state)
20	WCLK	signal processor -> DAC	word clock output of signal processor (3-state)
21	SCLK	signal processor -> DAC	serial bit clock output of signal processor (3-state)
22	MOTOR1	signal processor -> Motor driver	motor output1 of signal processor; versatile (3-state)
23	MOTOR2	signal processor -> Motor driver	motor output2 of signal processor; versatile (3-state)
24	V5	not connected	versatile output pin of signal processor
25	V4	not connected	versatile output pin of signal processor
26	V3	not connected	versatile output pin of signal processor (open drain)
27	KILL	signal processor -> Mute circuit	kill output; programmable (open drain)
28	PORE	μP -> signal processor	power-on reset enable input (active low)
29	CLA	not connected	4.2336MHz microprocessor clock output
30	DA	μP <-> signal processor	interface data I/O-line
31	CL	μP -> signal processor	interface clock input line
32	RAB	μP -> signal processor	interface R/W and acknowledge input
33	CFLG	signal processor ->	correction flag output (open drain)
43	VSS2		digital supply for internal logic of signal processor
44	VDD2		digital supply for internal logic of signal processor

CD UNIT - BLOCK DIAGRAM

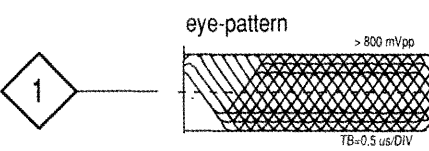
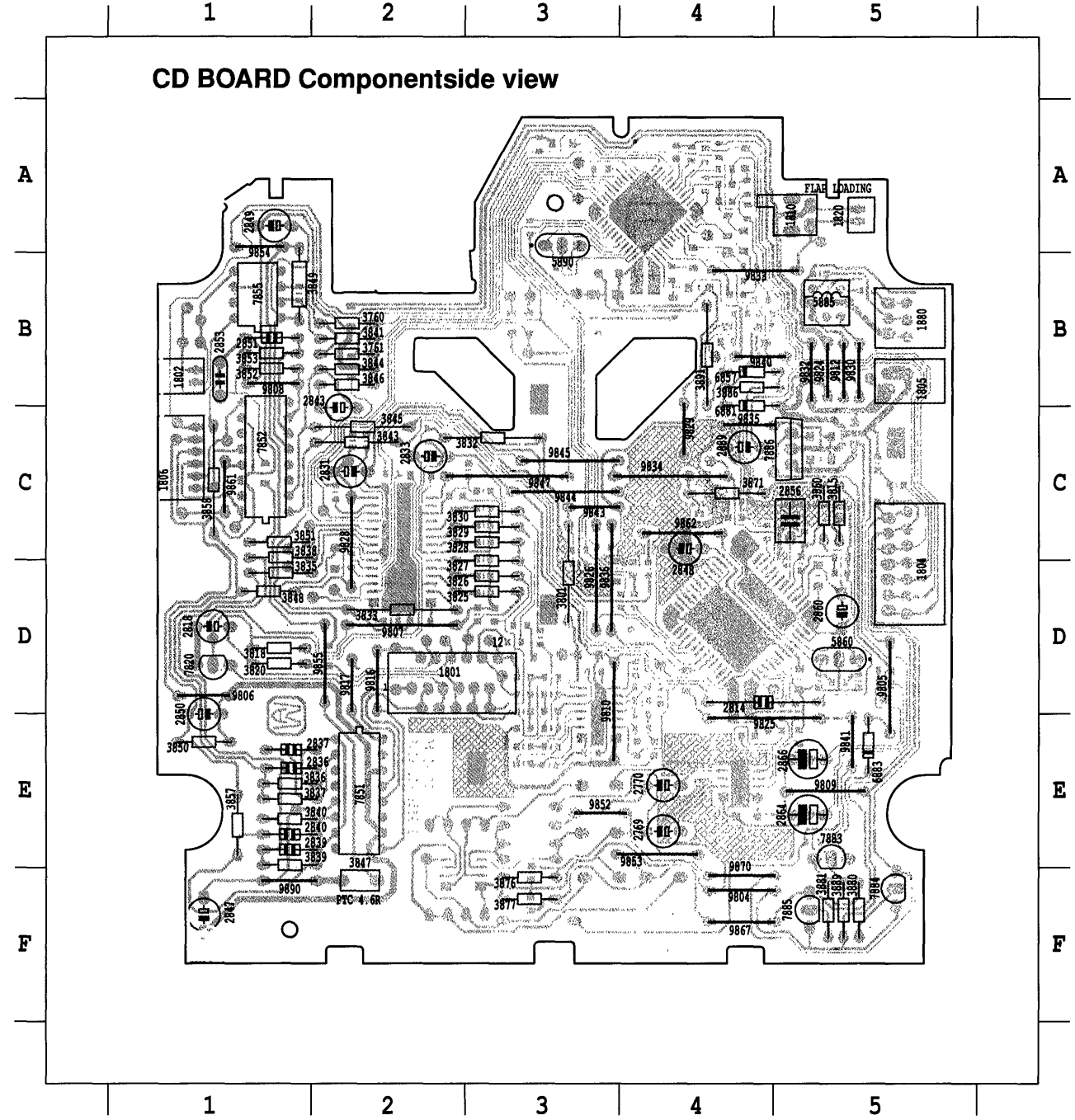
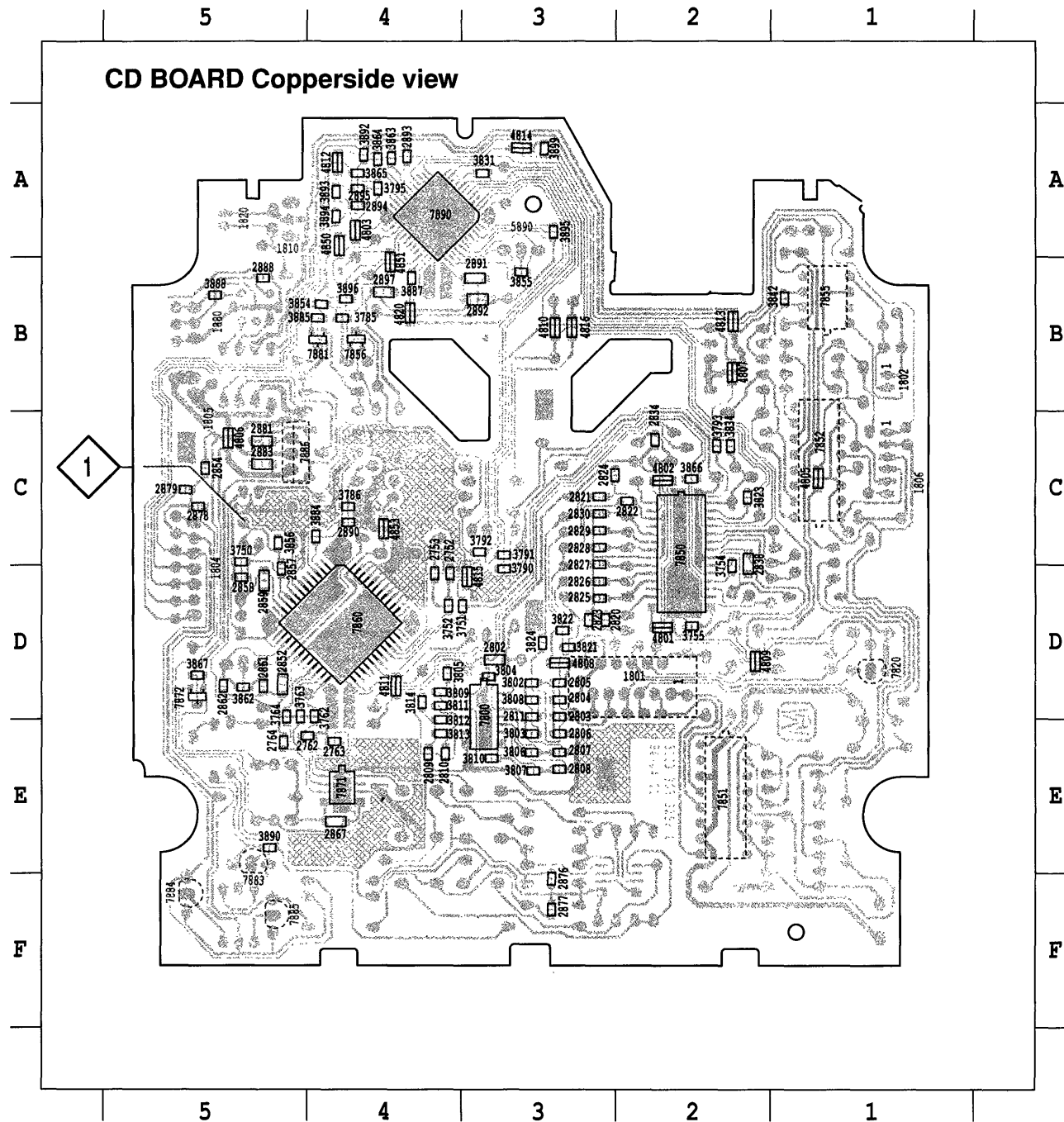
BLOCKDIAGRAM CD Module



CD LAYOUT

MP1	C 5	2806 E 3	2824 C 3	2854 C 5	2879 C 5	2897 B 4	3786 C 4	3805 D 4	3821 D 3	3862 D 5	3890 E 5	4803 A 4	4815 D 3	7872 D 5
2752	D 4	2807 E 3	2825 D 3	2857 D 5	2881 C 5	3750 C 5	3790 D 3	3806 E 3	3822 D 3	3863 A 4	3892 A 4	4805 C 1	4816 B 3	7881 B 4
2753	D 4	2808 E 3	2826 D 3	2858 D 5	2883 C 5	3751 D 4	3791 C 3	3807 E 3	3823 C 2	3864 A 4	3893 A 4	4806 C 5	4820 B 4	7890 A 4
2762	E 5	2809 E 4	2827 D 3	2859 D 5	2888 B 5	3752 D 4	3792 C 3	3808 D 3	3824 D 3	3865 A 4	3894 A 4	4808 D 3	4850 A 4	
2763	E 4	2810 E 4	2828 C 3	2861 D 5	2890 C 4	3754 D 2	3793 C 2	3809 D 4	3831 A 3	3866 C 2	3895 A 3	4809 D 2	4851 B 4	
2764	E 5	2811 D 3	2829 C 3	2862 D 5	2891 B 3	3755 D 2	3794 B 4	3810 E 3	3834 C 2	3867 D 5	3896 B 4	4810 B 3	7800 D 3	
2802	D 3	2820 D 3	2830 C 3	2867 E 4	2892 B 3	3762 D 4	3795 A 4	3811 D 4	3842 B 1	3884 C 4	3897 B 4	4811 D 4	7850 C 2	
2803	D 3	2821 C 3	2834 C 2	2876 F 3	2893 A 4	3763 D 5	3802 D 3	3812 E 4	3854 B 4	3885 B 4	3899 A 3	4812 A 4	7856 B 4	
2804	D 3	2822 C 2	2838 C 2	2877 F 3	2894 A 4	3764 D 5	3803 E 3	3813 E 4	3855 B 8	3887 B 4	4801 D 2	4813 B 2	7860 D 4	
2805	D 3	2823 D 3	2852 D 5	2878 C 5	2895 A 4	3785 B 4	3804 D 3	3814 D 4	3856 C 5	3888 B 5	4802 C 2	4814 A 3	7871 E 4	

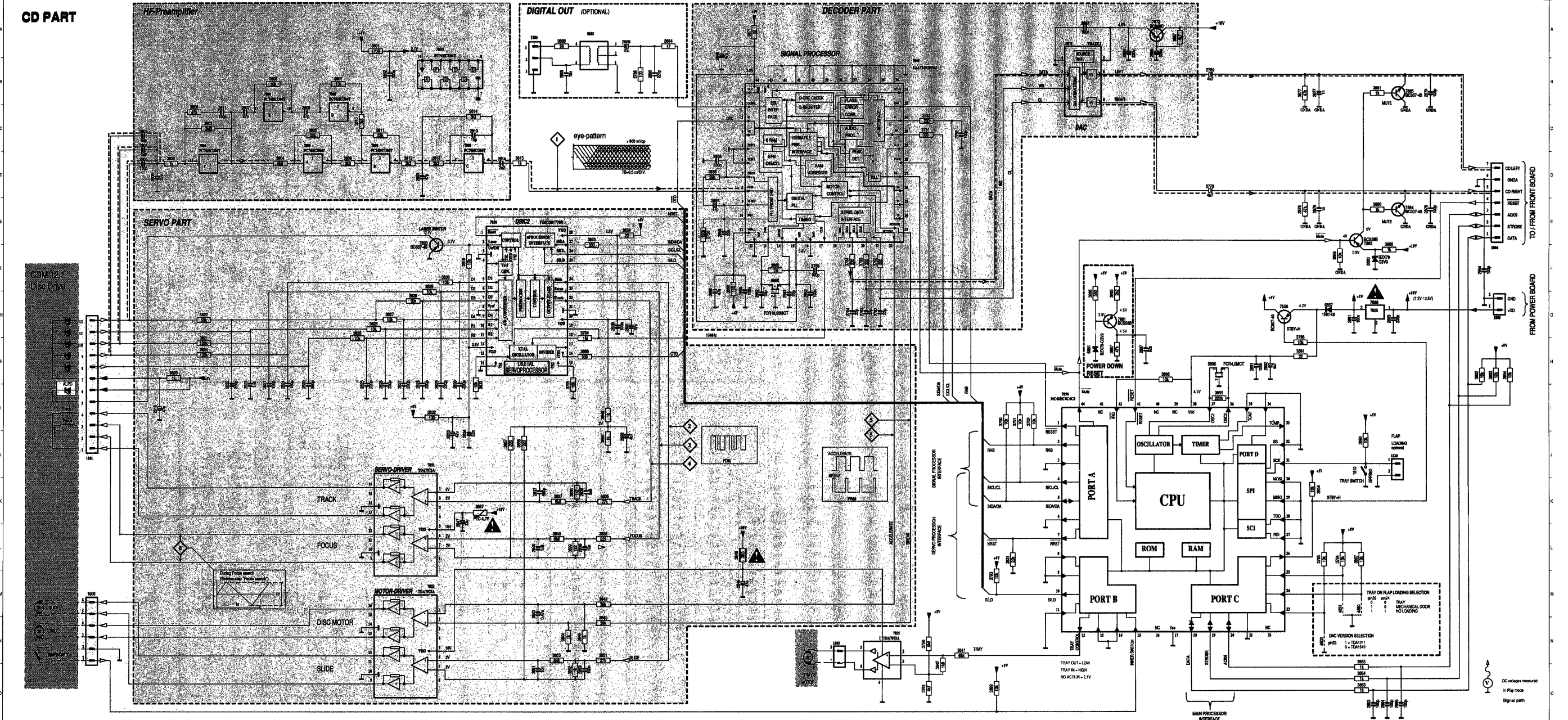
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2866	E 5	2769 E 4	2840 E 1	2860 D 5	3815 C 5	3832 C 3	3843 C 2	3852 B 1	3881 F 5	6883 E 5	9804 F 4	9817 D 2	9834 C 4	9852 E 3
1801	D 2	2770 E 4	2843 C 2	2864 E 5	3818 D 1	3833 D 2	3844 B 2	3853 B 1	3886 B 4	7820 D 1	9805 D 5	9824 B 5	9835 C 4	9853 E 4
1802	B 1	2814 D 4	2847 F 1	2866 E 5	3820 D 1	3835 D 1	3845 C 2	3857 E 1	3889 F 5	7851 E 2	9806 D 1	9825 E 4	9836 D 3	9854 A 1
1804	D 5	2818 D 1	2848 C 4	2869 C 4	3825 D 3	3836 E 1	3846 B 2	3858 C 1	3891 B 4	7852 C 1	9807 D 2	9826 D 2	9840 B 4	9855 D 2
1805	B 5	2831 C 2	2849 A 1	3760 B 2	3826 D 3	3837 E 1	3847 F 2	3860 C 5	5860 D 5	7855 B 1	9808 B 1	9828 C 3	9841 E 5	9861 C 1
1806	C 1	2833 C 2	2850 E 1	3761 B 2	3827 D 3	3838 C 1	3848 D 1	3871 C 4	5885 B 5	7883 E 5	9809 E 5	9829 C 4	9843 C 3	9862 C 4
1810	A 5	2836 E 1	2851 B 1	3767 F 4	3828 C 3	3839 E 1	3849 B 1	3876 F 3	5890 A 3	7884 F 5	9810 D 3	9830 B 5	9844 C 3	9890 F 1
1820	A 5	2837 E 1	2853 B 1	3770 F 4	3829 C 3	3840 E 1	3850 E 1	3877 F 3	6857 B 4	7885 F 5	9812 B 5	9832 B 5	9845 C 3	

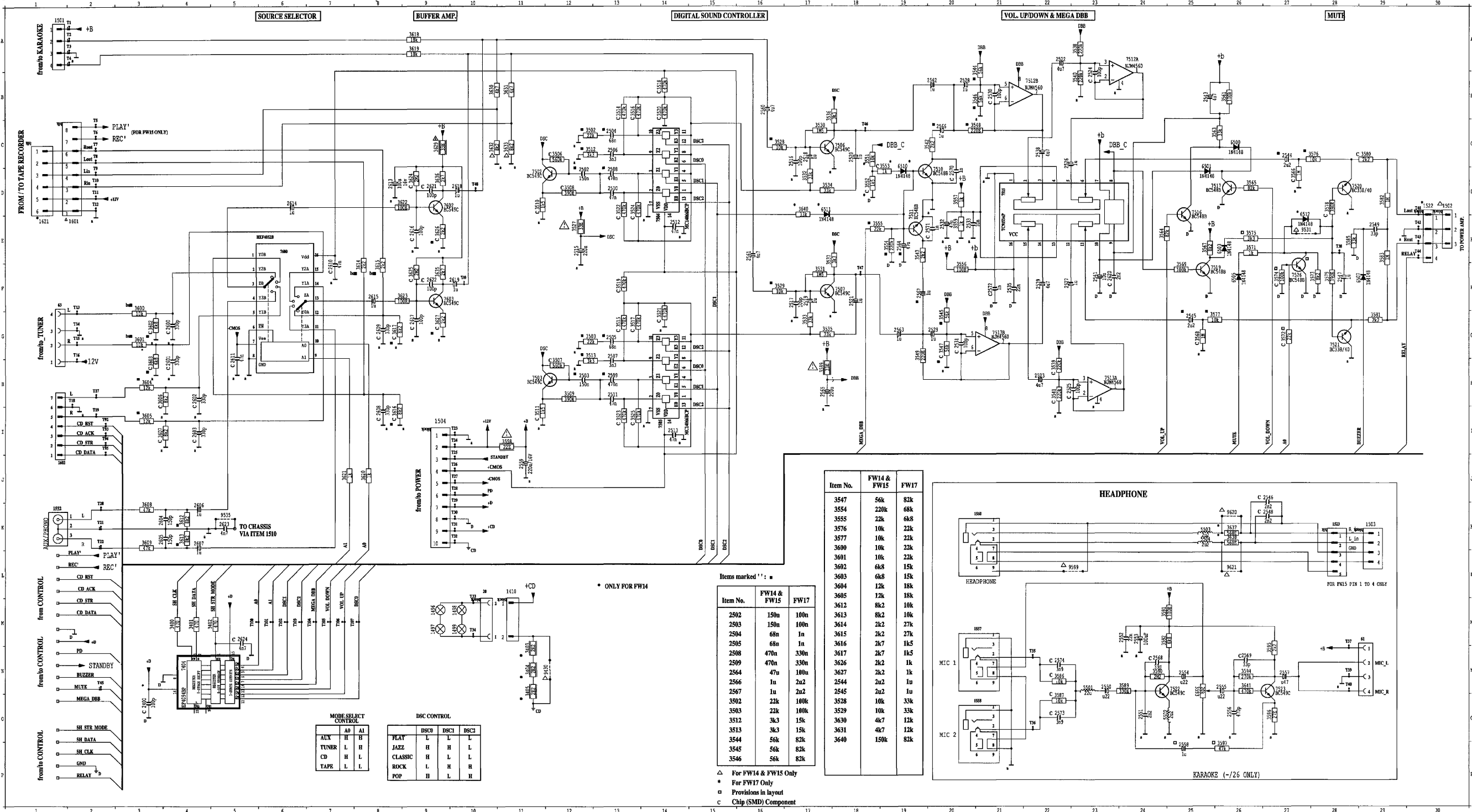


ATTENTION:
WIRE-BRIDGE 9804, 9824
AND 9829 MUST BE CONNECT
ON THE SHIELDINGGROUND!

CD CIRCUIT

1801 J2	1806 O2	2752 C21	2764 G19	2803 C3	2807 C8	2811 C5	2821 H6	2825 H8	2829 H10	2834 J10	2839 L13	2846 A16	2852 G18	2857 E16	2861 G17	2867 A24	2879 B31	2889 A14	2893 O30	3750 E16	3755 H13	3763 F19	3785 H28	3792 I22	3801 A8	3805 C7	3809 D8	3813 D10	3820 H4
1802 N18	1810 J30	2753 F18	2769 B26	2804 C3	2808 C7	2814 D11	2822 H5	2826 H9	2830 H10	2836 K13	2840 L12	2849 M16	2853 O13	2858 E18	2862 G17	2876 E29	2881 G29	2890 B14	2894 O30	3751 C20	3760 N20	3764 F19	3786 B14	3793 M22	3802 D4	3806 B6	3810 C8	3814 C11	3821 H5
1804 F32	1820 J30	2762 G19	2770 D26	2805 D3	2809 D9	2818 H	2823 H6	2827 H9	2831 H14	2837 K12	2843 M12	2850 J14	2854 F32	2859 F16	2864 A25	2877 B29	2883 C30	2891 H27	2895 O30	3752 C20	3761 O20	3767 A29	3794 I22	3803 C5	3807 B9	3811 C9	3815 D12	3822 G3	
1805 G32	1880 A12	2763 G19	2802 B9	2806 D4	2810 C11	2820 H7	2824 H6	2828 H9	2833 J10	2838 H14	2847 L10	2851 O12	2856 D16	2860 F16	2866 A25	2878 E31	2888 B12	2892 H28	2897 H25	3754 G13	3762 F19	3770 D29	3781 I22	3795 L29	3804 D6	3808 C5	3812 D8	3816 F10	3824 H5



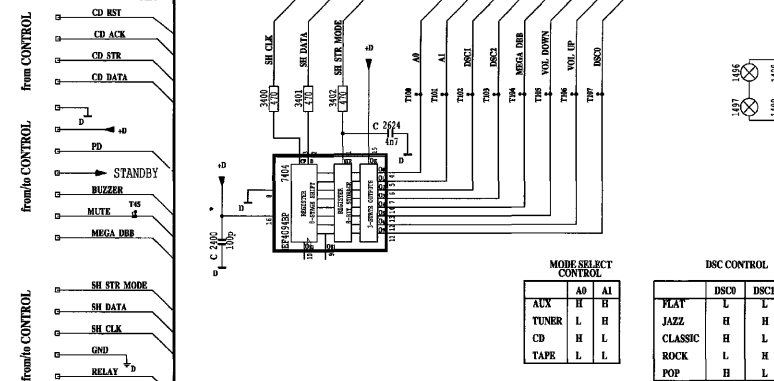
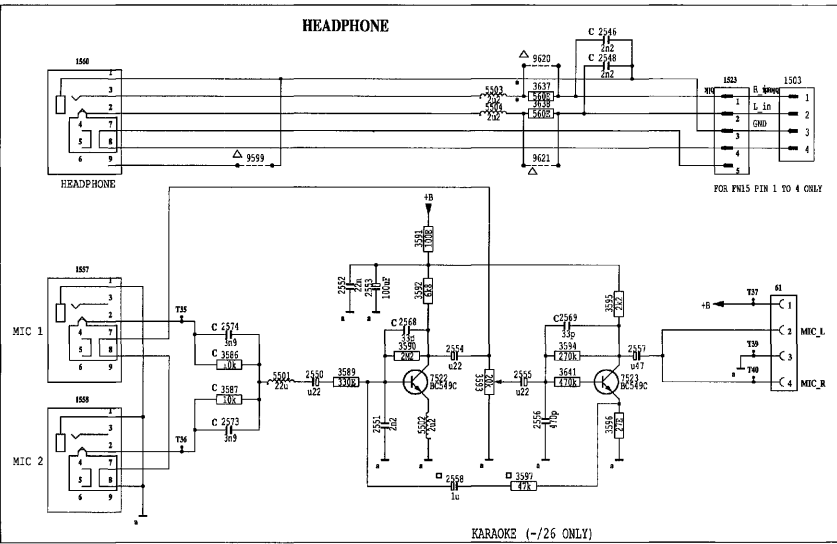


Item No.	FW14 & FW15	FW17
3547	56k	82k
3554	220k	68k
3555	22k	68k
3576	10k	22k
3577	10k	22k
3600	10k	22k
3601	10k	22k
3602	68k	15k
3603	68k	15k
3604	12k	18k
3605	12k	18k
3612	8k2	10k
3613	8k2	10k
3614	2k2	27k
3615	2k2	27k
3616	2k7	1k5
3617	2k7	1k5
3626	2k2	1k
3627	2k2	1k
3628	2k2	1k
3629	2k2	1k
3630	4k7	12k
3631	4k7	12k
3640	150k	82k

Items marked "1" :

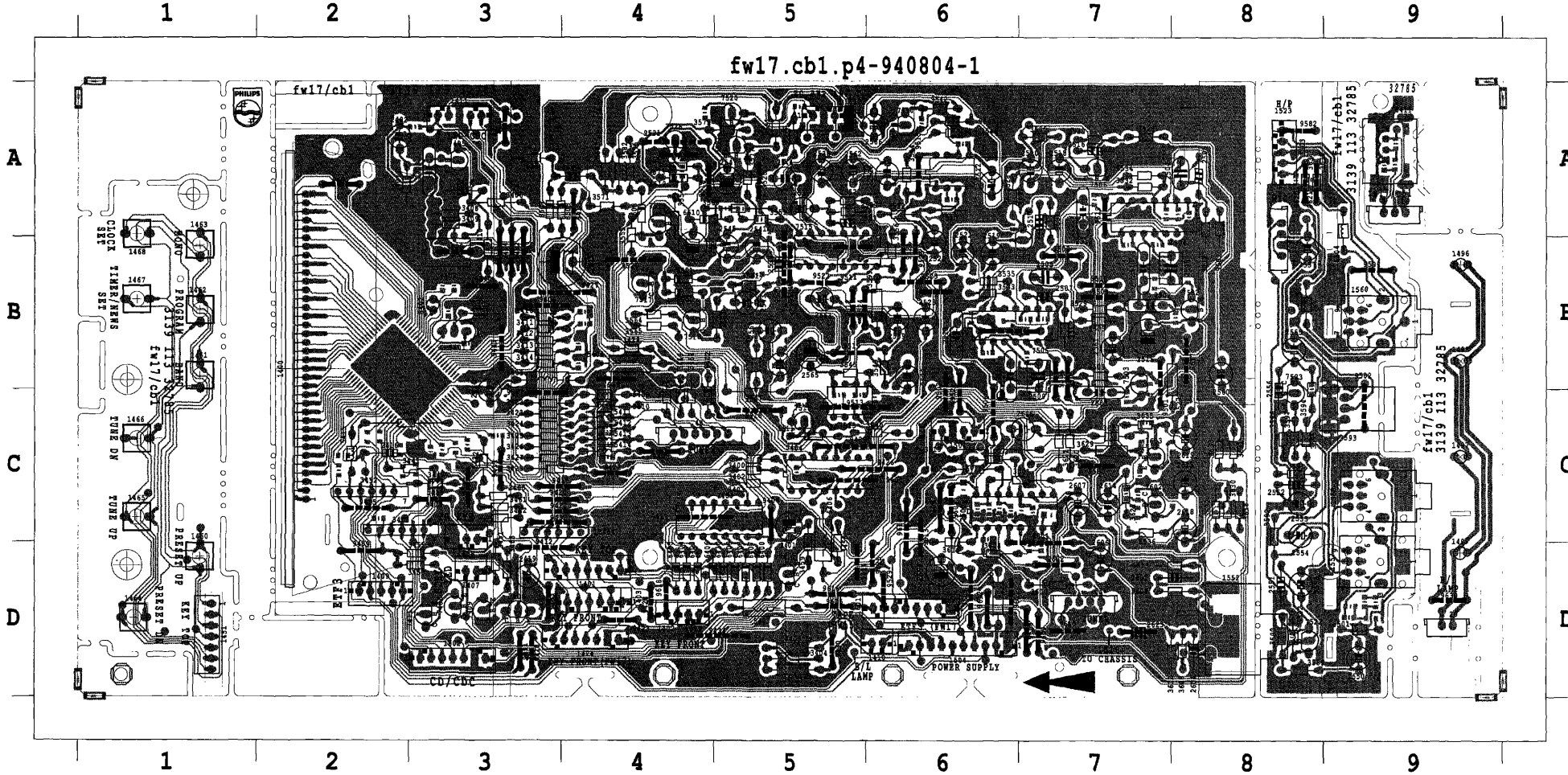
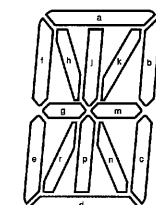
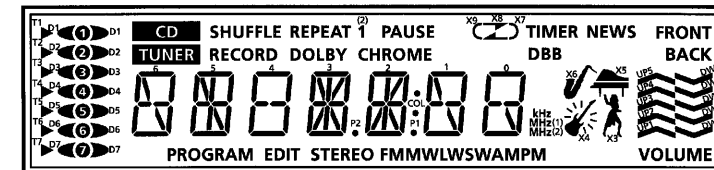
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2502	150n	100n
2503	150n	100n
2504	68n	1n
2505	68n	1n
2508	470n	330n
2509	470n	330n
2544	47u	100u
2566	1u	2u2
2567	1u	2u2
3502	22k	100k
3503	22k	100k
3512	3k3	15k
3513	3k3	15k
3544	56k	82k
3545	56k	82k
3546	56k	82k

• ONLY FOR FW14



COMBI COMPONENT LAYOUT

1407 D 3	1496 B 9	2401 C 5	2511 B 6	2533 A 5	2557 B 8	2615 C 7	3413 B 3	3450 D 3	3513 B 7	3545 B 5	3573 A 4	3597 C 8	3622 C 7	5406 C 5	6404 D 4	7404 C 5	7513 C 5	9403 B 3	9420 C 3	9502 C 9	9519 B 5	9599 B 9	9618 D 4
1409 D 2	1497 C 9	2402 A 2	2512 A 7	2535 B 5	2558 D 8	2618 C 8	3414 B 3	3451 D 3	3527 B 8	3546 A 6	3575 A 4	3598 D 6	3623 C 7	5407 D 5	6405 D 4	7405 A 3	7515 B 5	9404 B 3	9421 C 3	9503 B 7	9520 B 5	9602 D 7	9619 A 7
1410 D 6	1498 B 9	2403 A 3	2513 B 6	2538 A 5	2559 D 6	2619 C 8	3416 B 3	3452 C 2	3528 A 7	3548 A 6	3576 A 5	3599 B 6	3629 C 7	5409 C 4	6406 D 4	7406 D 3	7516 B 4	9405 B 3	9422 C 4	9504 B 7	9521 B 6	9603 C 6	9620 A 8
1411 A 3	1499 D 9	2404 A 3	2515 B 7	2539 B 6	2560 B 8	2623 D 7	3418 C 4	3453 C 2	3529 B 7	3549 B 6	3577 A 5	3600 D 7	3630 C 8	5410 C 4	6407 D 5	7407 C 5	7517 B 4	9406 C 5	9423 D 4	9505 B 7	9522 C 6	9604 C 6	9621 A 8
1422 D 4	1501 C 6	2414 C 3	2516 A 7	2541 B 5	2561 B 7	3400 C 5	3420 C 4	3454 C 3	3530 A 7	3551 A 5	3579 A 5	3601 C 7	3631 C 8	5411 C 4	6408 D 5	7408 D 3	7519 A 4	9407 D 3	9424 D 5	9506 C 6	9523 B 6	9605 D 6	9630 D 9
1423 D 4	1502 A 5	2415 B 3	2517 A 7	2543 B 5	2562 A 5	3401 C 5	3422 C 3	3455 D 3	3531 A 7	3554 A 4	3581 A 5	3604 D 6	3632 C 8	5412 C 4	6409 D 5	7409 D 3	7520 A 5	9408 C 4	9425 D 6	9507 C 6	9524 B 5	9606 B 3	
1424 D 4	1503 A 8	2416 C 2	2518 A 7	2544 A 5	2563 D 5	3402 C 5	3423 C 3	3458 D 5	3532 A 7	3555 A 4	3582 A 4	3605 C 6	3633 C 8	5413 C 4	6410 D 5	7410 D 5	7521 A 5	9409 D 2	9426 C 6	9508 B 6	9525 B 6	9607 C 3	

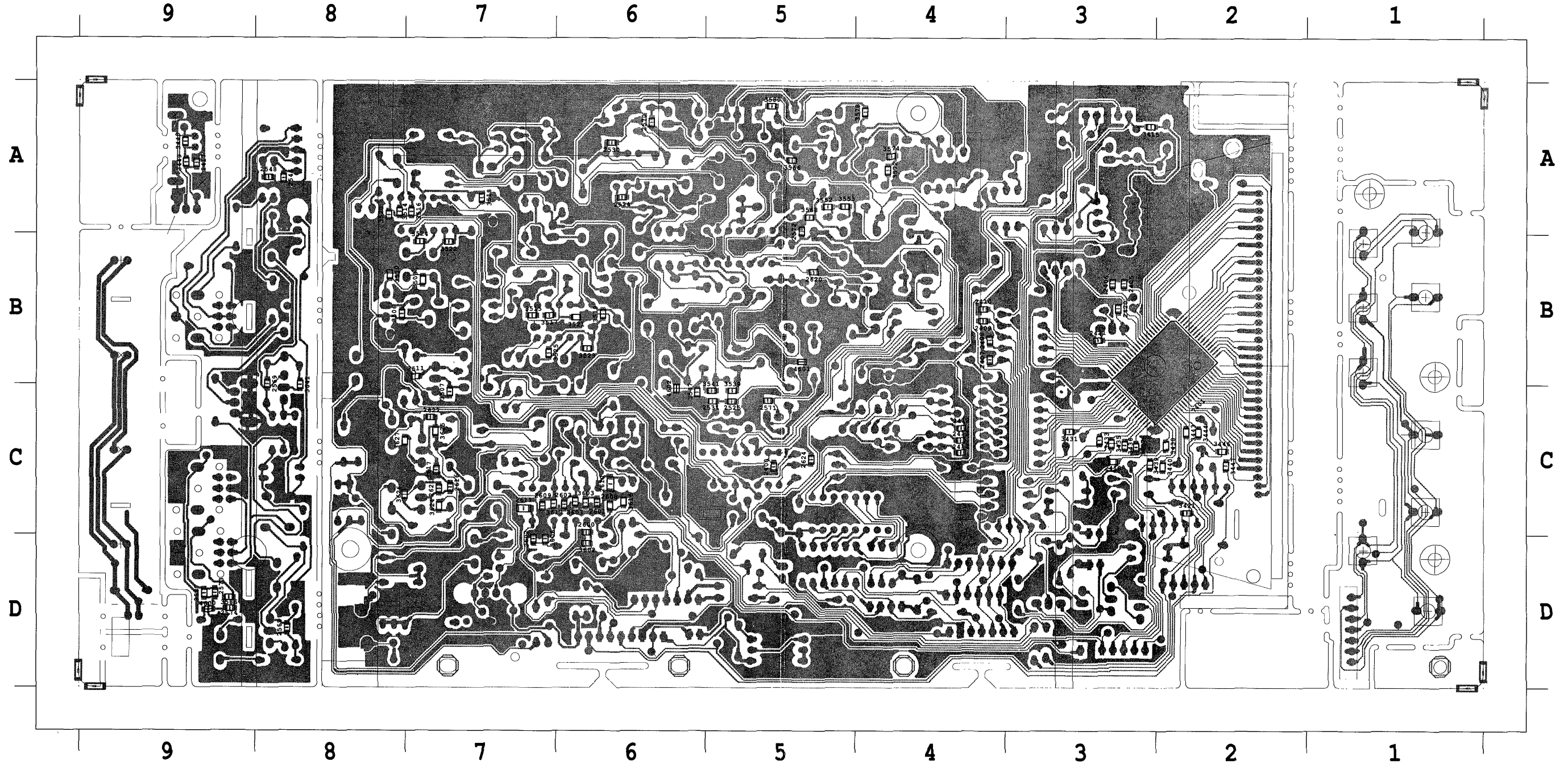


LCD DISPLAY PINS CONNECTIONS

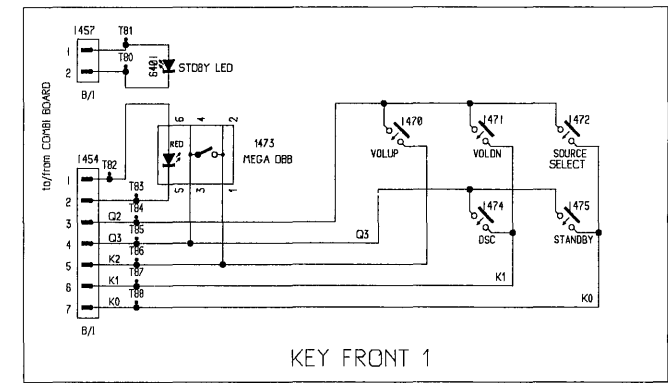
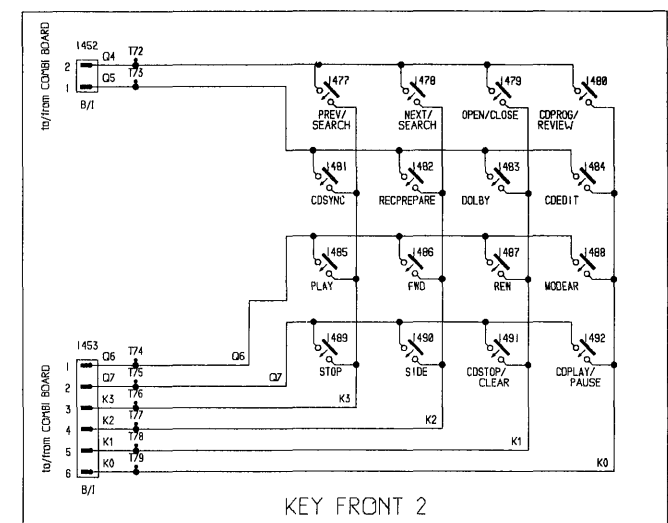
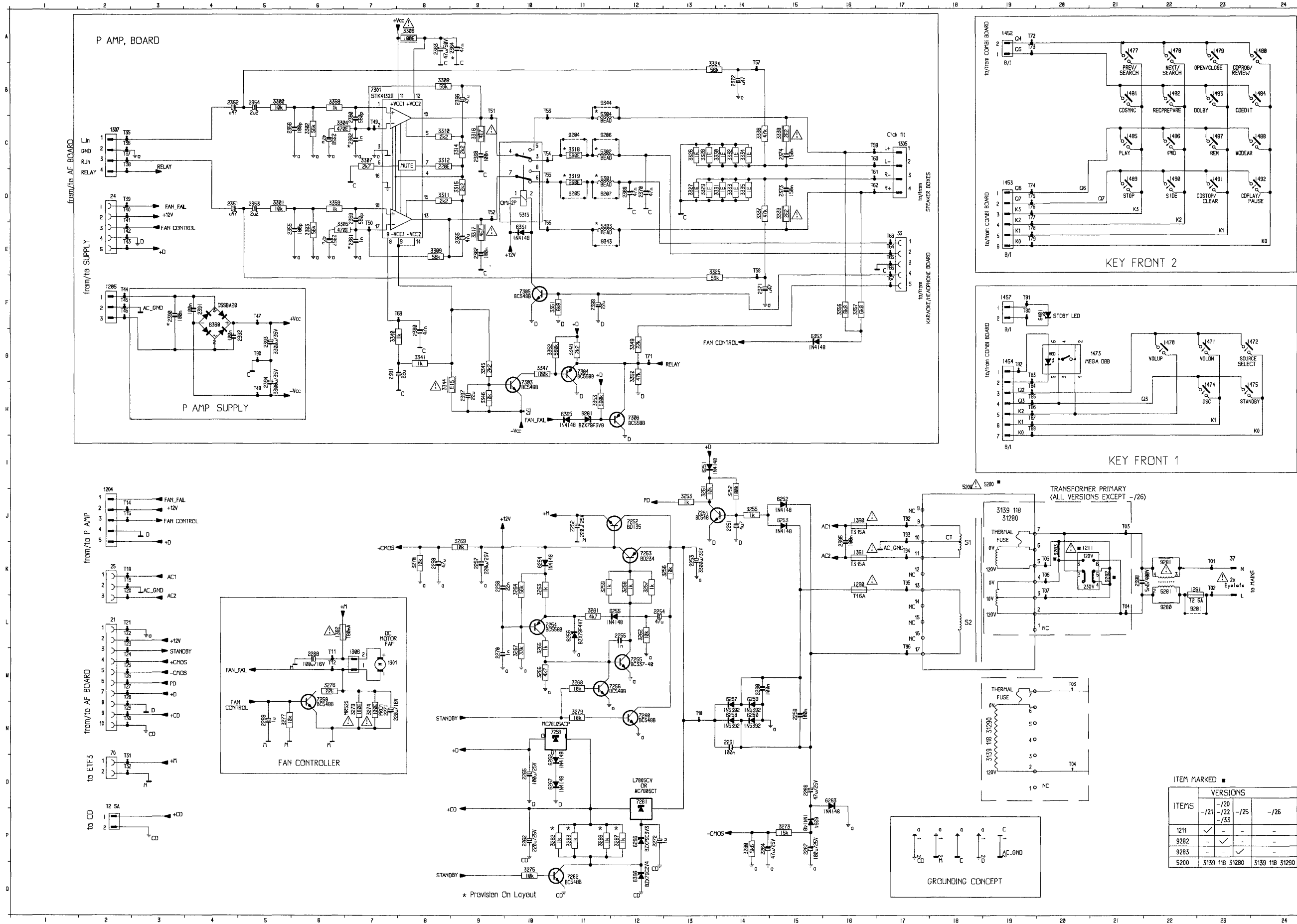
PIN NO.	COM 0	COM 1	COM 2	COM 3
1	-	-	COM 2	-
2	-	-	-	COM 3
3	6gm	6f	6e	6n
4	6b	6a	6c	6d
5	D1	6h	D3	D4
6	SHUFFLE	CD	1,2,3,4,5,6,7	T2
7	5g	5f	5e	PROGRAM
8	5b	5a	5c	5d
9	TUNER	5hn	5m	5jp
10	D5	TIMER	RECORD	REPEAT
11	4gm	4f	4e	EDIT
12	4b	4a	4c	4d
13	X7	X9	X8	1 (2)
14	FRONT	X6	BACK	D6
15	3g	3f	3e	3n
16	3b	3a	3c	3d
17	3k	3h	3m	3jp
18	3r	DBB	PAUSE	STEREO
19	2gm	2f	2e	2n
20	2b	2a	2c	2d
21	2kr	CHROME	DOLBY B	2jp
22	LW	D7	MW	T7
23	1gm	1f	1e	1n
24	1b	1a	1c	1d
25	COL	1h	FM,P1,MHz (1)	SW,P2,MHz (2)
26	X4	kHz	PM	AM
27	0gm	0f	0e	0n
28	0b	0a	0c	0d
29	X3	X5	D2	NEWS
30	UP1	DN1	T1	VOLUME
31	T3	T4	T5	T6
32	-	-	-	-
33	DN2	DN3	DN4	DN5
34	UP1	UP3	UP4	UP5
35	COM 0	-	-	-
36	-	COM 1	-	-

COMBI CHIP LAYOUT

2400 C 5	2409 B 4	2417 A 9	2525 C 5	2568 D 8	2573 D 9	2603 C 6	2616 C 7	2624 C 5	3435 C 3	3440 C 2	3448 A 9	3510 B 8	3517 B 7	3522 B 7	3541 C 5	3568 A 5	3586 D 9	3607 C 6	3626 C 8	4602 C 6
2405 B 3	2410 B 4	2418 C 3	2530 A 6	2569 C 8	2574 D 9	2608 C 6	2617 C 7	3415 A 3	3436 C 3	3443 C 2	3449 A 9	3511 B 7	3518 A 7	3523 B 6	3547 C 6	3572 A 4	3587 D 9	3616 C 6	3627 C 8	7401 B 2
2406 B 3	2411 C 4	2420 B 3	2531 C 5	2570 A 6	2600 C 6	2609 C 7	2620 B 5	3421 C 2	3437 C 3	3444 C 2	3506 B 8	3514 A 8	3519 B 6	3524 B 7	3552 A 5	3574 A 4	3602 D 6	3617 C 7	3641 C 8	
2407 B 4	2412 C 4	2421 B 3	2546 A 8	2571 C 5	2601 C 6	2610 C 6	2621 C 7	3431 C 3	3438 C 2	3446 C 2	3507 C 7	3515 B 7	3520 A 8	3525 B 7	3553 A 5	3578 A 4	3603 C 6	3624 C 7	4600 D 9	
2408 B 4	2413 C 4	2524 A 6	2548 A 8	2572 A 5	2602 D 7	2611 C 7	2622 C 7	3433 C 3	3439 C 3	3447 C 2	3508 B 7	3516 A 7	3521 B 6	3539 C 5	3566 A 5	3580 A 5	3606 D 7	3625 C 7	4601 B 5	



POWER CIRCUIT



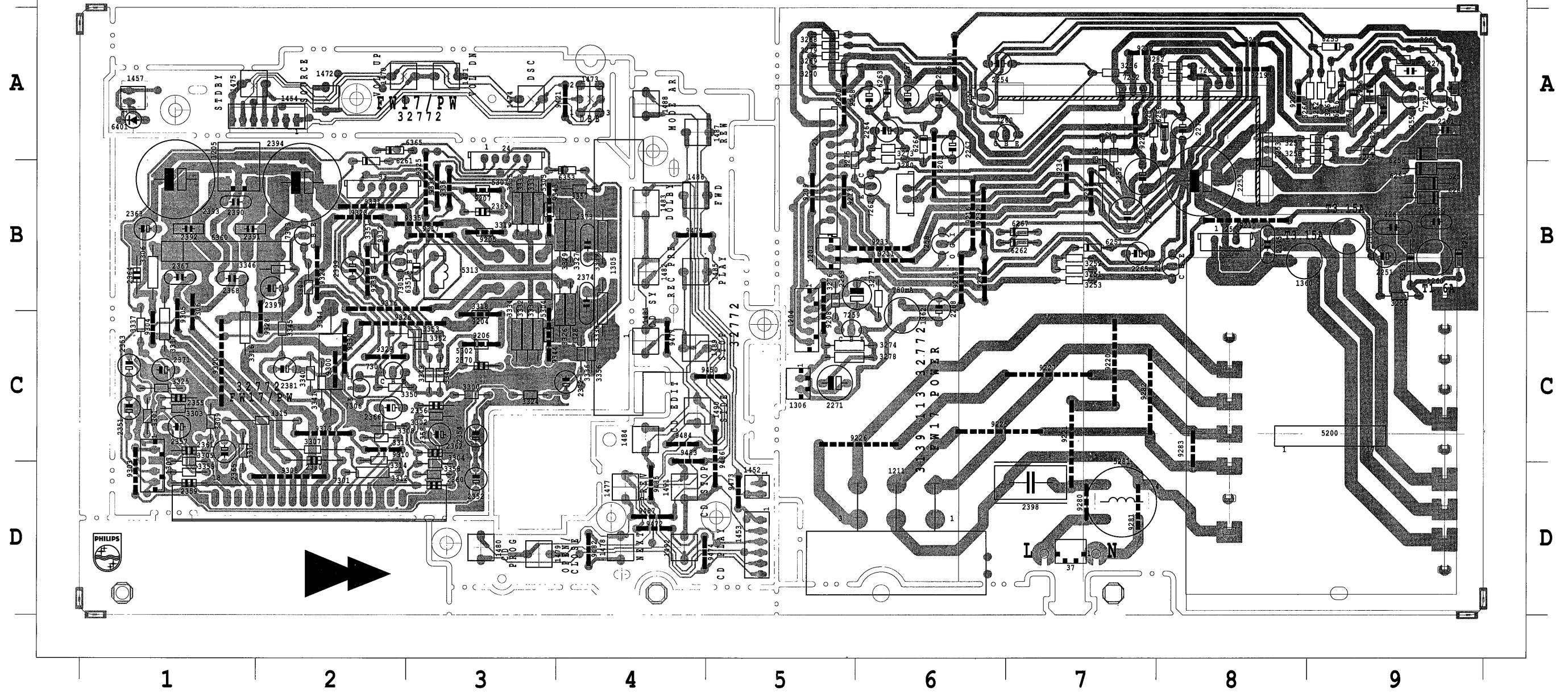
ITEM MARKED ■

ITEMS	VERSIONS			
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9282	-	✓	-	-
9283	-	-	✓	-
5200	3159	118	31280	3159 118 31290

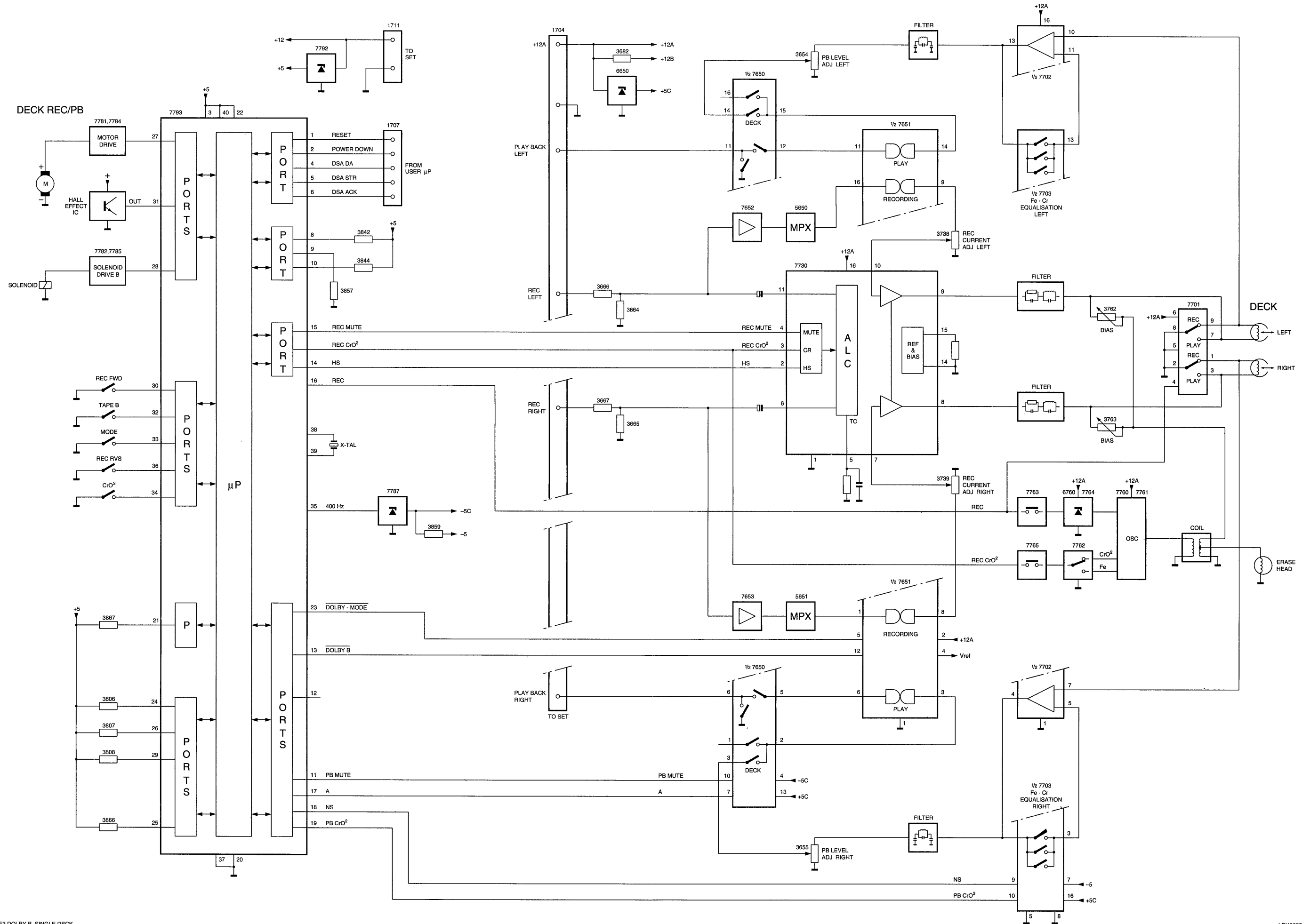
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1203 B 5	1453 D 5	1480 D 3	1492 D 4	2262 B 7	2353 C 1	2365 C 1	2390 B 1	3255 B 9	3268 A 5	3283 A 8	3309 C 1	3326 B 4	3338 B 4	3352 C 3	5313 B 3	6262 B 7	7252 A 7	7304 C 2	9211 B 6	9226 C 6	9300 C 2	9324 B 2	9343 B 3	9485 D 4
1204 C 5	1454 A 2	1481 C 4	2251 B 9	2264 A 6	2354 C 3	2366 C 2	2391 B 1	3256 A 7	3269 A 5	3286 A 7	3310 C 2	3327 B 4	3339 B 4	3353 C 3	6251 B 7	6263 A 6	7253 A 8	7305 B 2	9212 A 7	9227 C 7	9303 D 1	9325 B 3	9344 C 3	9486 C 5
1205 B 1	1457 A 1	1482 B 4	2252 B 7	2265 B 7	2355 C 1	2367 B 1	2392 B 1	3257 A 9	3270 A 5	3287 A 7	3311 C 1	3328 B 4	3340 C 2	3356 C 4	6252 B 9	6264 A 6	7254 A 9	7306 C 2	9213 B 5	9229 A 7	9304 C 1	9326 C 2	9421 A 4	9487 D 4
1211 D 6	1470 A 2	1483 B 4	2253 B 8	2266 A 6	2356 C 3	2368 B 1	2393 B 1	3258 A 9	3273 A 6	3300 C 3	3312 D 2	3329 B 4	3341 C 2	3357 B 4	6253 B 9	6266 A 8	7255 A 9	9200 A 5	9214 B 7	9230 A 6	9305 C 1	9328 C 2	9450 C 5	
1260 B 9	1471 A 3	1484 C 4	2254 A 6	2267 A 6	2357 C 1	2369 B 3	2394 B 2	3259 A 9	3274 C 5	3301 C 1	3314 C 2	3330 C 3	3344 B 2	3358 D 3	6254 A 9	6267 B 7	7256 A 6	9203 B 6	9215 B 6	9231 B 6	9306 C 1	9329 C 2	9472 D 4	
1305 B 4	1472 A 2	1485 B 4	2255 A 9	2268 B 6	2358 C 3	2370 C 3	2395 B 8	3261 A 9	3275 B 5	3302 C 3	3315 C 2	3331 B 3	3345 C 2	3359 D 1	6255 A 9	6351 B 3	7258 B 6	9204 C 3	9216 B 6	9232 B 6	9308 D 2	9330 C 2	9473 D 5	

1 2 3 4 5 6 7 8 9

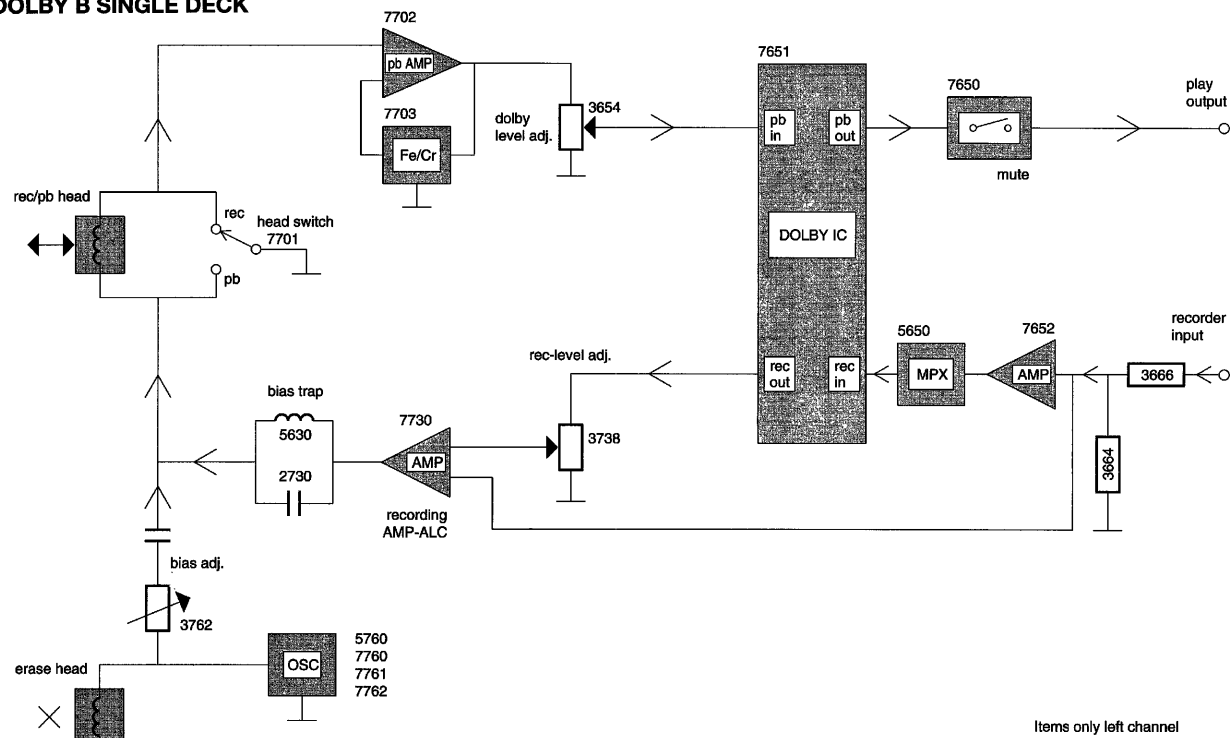
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BLOCK DIAGRAM DOLBY B SINGLE DECK

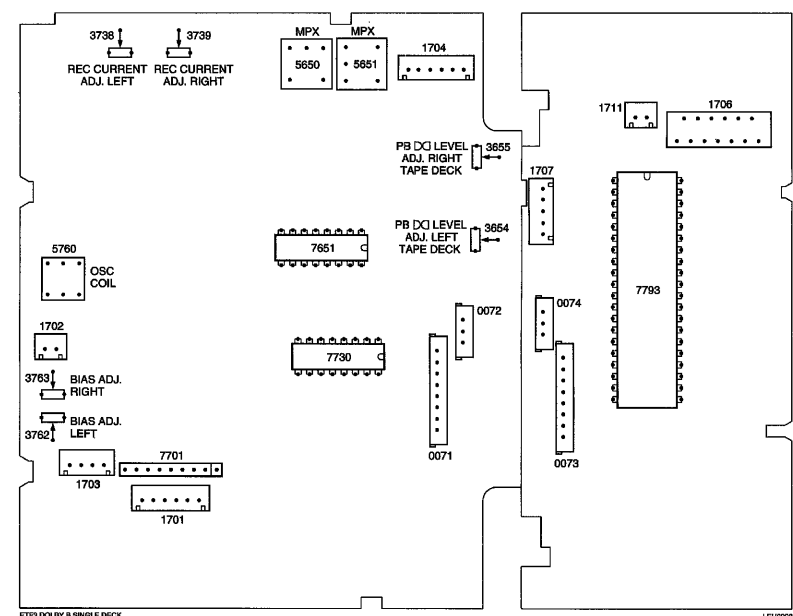


FUNCTIONAL BLOCK DIAGRAM DOLBY B SINGLE DECK



Items only left channel

PCB TEST POINTS



ET93 DOLBY B SINGLE DECK
3104 217 02660
LEU098
9483

ELECTRICAL MEASUREMENTS

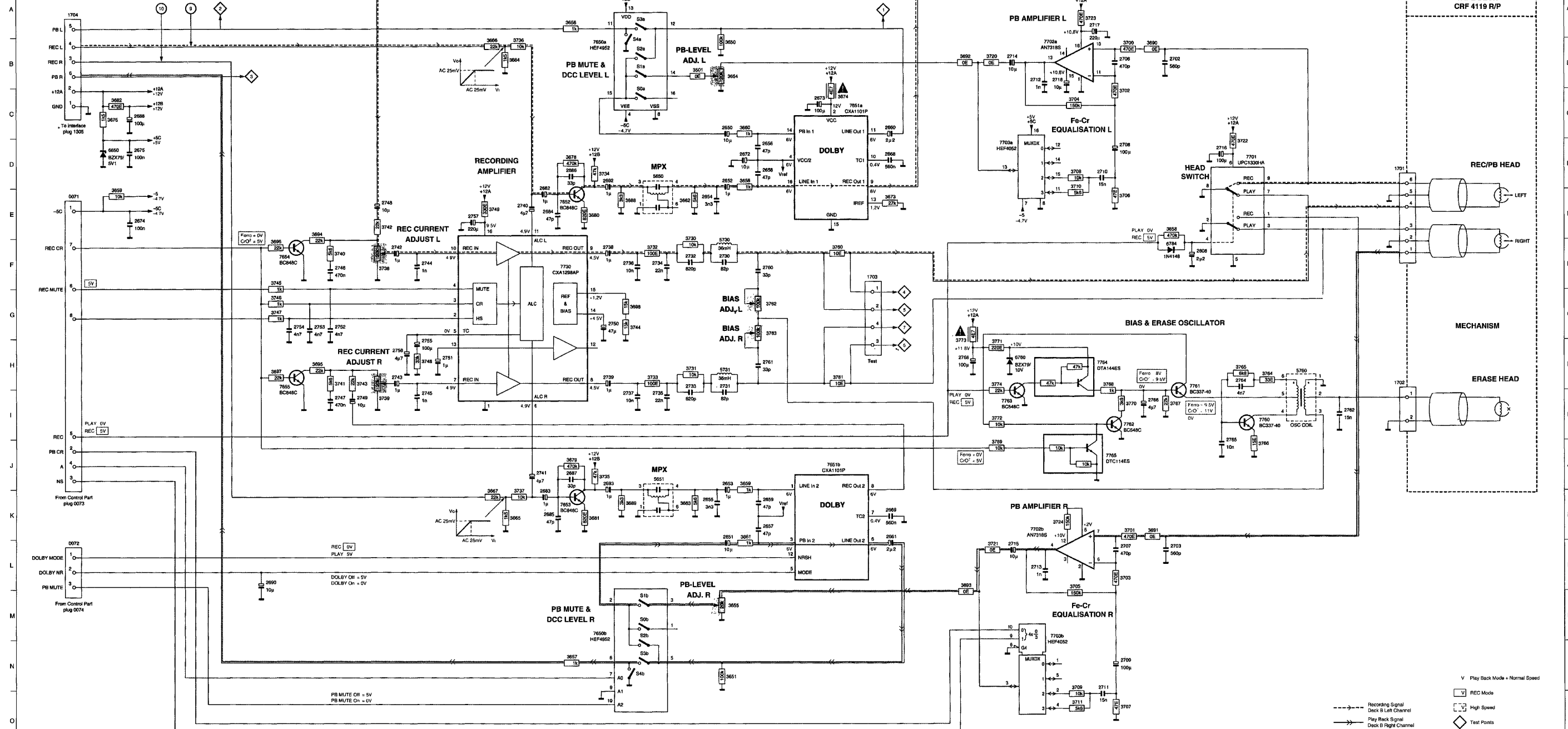
ELECTRICAL MEASUREMENTS AND ADJUSTMENTS SINGLE DECK

Adjustment	Input on or Cassette	Recorder in position	Measure on	Read on	Adjust with	Value	Remarks
Wow and Flutter	3150Hz	Play in forward direction	Test point TP 2	Wow and Flutter meter	check	< 0,3%	
Deck Playback DolbyLevel	Dolby 200 N.Wb/m	Play in forward direction	TP 2 left ch TP 3 right ch	AC mV meter	3654 3655	548mV _0,5dB	see #1
Deck Azimuth	12kHz	Play in forward direction or Play in reverse direction	TP 2 left ch or TP 3 right ch	AC mV meter	Left screw Norm.Dir.(>) Right screw Rev.Dir.(<)	max. output left=right	
Bias current Chrome	-	Record mode and Chrome mode	TP 4 5 L.ch TP 6 7 R.ch	AC mV meter	3762 3763	7 mV	see #2
Bias current Ferro	-	Record mode and Ferro mode	TP 4 5 L.ch TP 6 7 R.ch	AC mV meter	check check	4,4mV _0,5dB	
Recording current	V input on P 9(Rec L) P10(Rec R) 400Hz/90mV and Chrome.cass (deck)	Record mode and Chrome mode	TP 4 5 L.ch TP 6 7 L.ch	AC mV meter	3738 3739	0,68mV Rec/PB Level within _1 dB of 548 mV	Filter out osc with audio filter see also #3
* short circuit C2756 during Rec adjustment	V input on P 9(Rec L) P10(Rec R) 400Hz/90mV and Ferro.cass (deck)	Record mode and Ferro mode	TP 4 5 L.ch TP 6 7 R.ch		check check	0,45mV Rec/PB Level within _1 dB of 548 mV	
Multiplex Filter		Record mode Inject 19kHz at line in	TP 2 left ch. TP 3 right ch	AC mV meter	5650 5651	Min. output Typ. Attenuation >40dB Min. Attenuation >30dB	
Oscillator Frequency		Record mode	TP 4 5 L.ch	Counter	5760	88kHz _6kHz	

#1 Dolby level to be tested in reverse direction within same tolerance.
 #2 Bias current must be aligned for Chrome position
 #3 Recording current should be aligned using an iterative method. Perform Ferro tape or Chrome tape as target blank tapes. Then playback the recorded tape. The record/playback level should also be 548 mV _ 0.5 dB. If not, adjust 3738 (L) and 3739 (R) accordingly.

ETF3 DOLBY B SINGLE DECK (ANALOG PART)

DOLBY B ANALOG PART SINGLE DECK

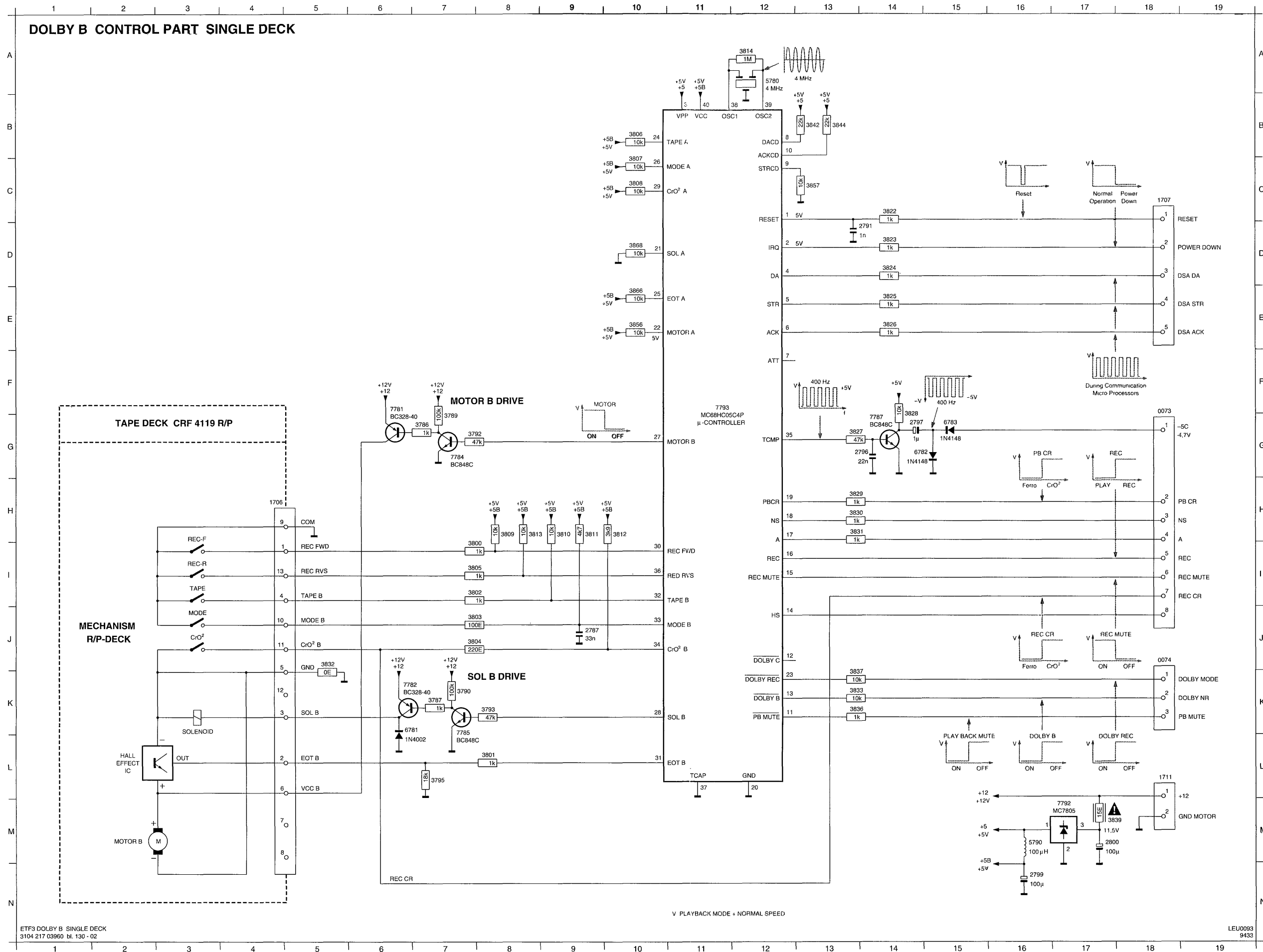


0071	E1	3702	C22
0072	L1	3703	L22
1701	D68	3704	C21
1702	H68	3705	L21
1703	F17	3706	E22
1704	A1	3707	O22
2650	C14	3708	D21
2651	K14	3709	N21
2652	D14	3710	D21
2653	J14	3711	O21
2654	E14	3712	B19
2656	K14	3721	L19
2658	D15	3724	K21
2659	K15	3725	D25
2660	C17	3727	H13
2661	K17	3732	F13
2668	D17	3733	H13
2669	K17	3734	D12
2672	D15	3735	J12
2673	C16	3736	B10
2674	E2	3737	K10
2675	D2	3738	F7
2682	E11	3742	E7
2688	D11	3743	H7
2689	J11	3744	H2
2688	C2	3745	F6
2690	L5	3746	G5
2692	D12	3747	G5
2695	J12	3748	H8
2702	G23	3749	E10
2703	L23	3750	F16
2706	R22	3751	H16
2707	L22	3752	G15
2708	D22	3753	G15
2709	N22	3754	H25
2710	D22	3755	H24
2711	N22	3756	J25
2712	B20	3757	E23
2713	L20	3758	H22
2714	B20	3759	J20
2715	L20	3770	I22
2718	D24	3771	H20
2717	A22	3772	I20
2718	B21	3773	H19
2730	F14	3774	H20
2731	H14	3858	E23
2732	F13	3859	E2
2733	H13	5650	D13
2734	F13	5651	J13
2735	H13	5730	F14
2736	F12	5731	H14
2737	I12	5760	H28
2738	F12	6550	D2
2739	H12	6750	F20
2740	E10	6784	F23
2741	J10	7850a	B12
2742	F8	7850b	M12
2743	H8	7851a	C17
2744	F8	7851b	J16
2745	F8	7855	E11
2746	F8	7853	K11
2747	I6	7854	F5
2748	E7	7855	H5
2749	I7	7701	D25
2750	G12	7702b	B21
2751	H9	7702b	K20
2752	G6	7703b	D20
2753	G6	7703b	M21
2754	G6	7730	F11
2755	H8	7760	I25
2760	F15	7763	I20
2761	H15	7764	H22
2762	I27	7765	J22
2764	H24		
2765	J24		
2766	I23		
2768	H19		
2809	F24		
3651	B14		
3650	B14		
3651	N14		
3654	S14		
3655	M14		
3659	A11		
3657	N11		
3658	D15		
3659	J15		
3660	C15		
3661	K15		
3662	E13		
3663	K13		
3664	B10		
3665	K10		
3666	B9		
3667	K9		
3673	E17		
3674	C17		
3675	G2		
3676	D11		
3679	J11		
3680	E12		
3681	K12		
3682	G2		
3688	E12		
3689	K12		
3690	B23		
3691	K23		
3690	E19		
3693	L19		
3694	E8		
3695	H8		
3696	F5		
3697	H5		
3698	G12		
3700	B22		
3701	K22		

ETF3 DOLBY B SINGLE DECK
3104 217 03990 131 01

LEL0094
9433

ETF3 DOLBY B SINGLE DECK (CONTROL PART)



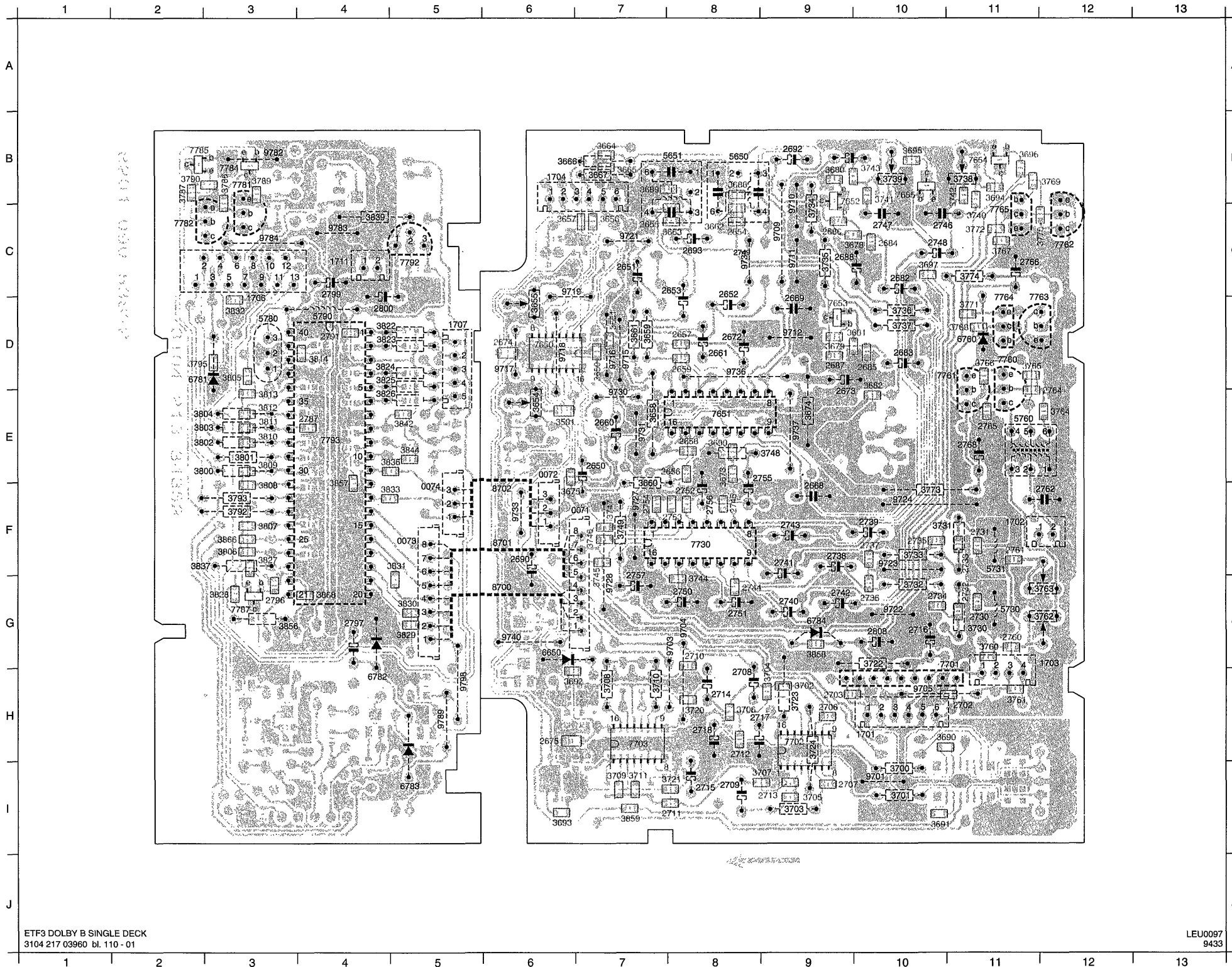
- 0073 F18
- 0074 J18
- 1706 H4
- 1707 C18
- 1711 L18
- 2787 J9
- 2781 D14
- 2796 G13
- 2797 G14
- 2799 N16
- 2800 M17
- 3786 G7
- 3787 K7
- 3789 G7
- 3790 K7
- 3792 G7
- 3783 K8
- 3785 L7
- 3800 I7
- 3801 L8
- 3802 I7
- 3803 J7
- 3804 J7
- 3805 I7
- 3806 B10
- 3807 C10
- 3808 C10
- 3809 H8
- 3810 H9
- 3811 H9
- 3812 H10
- 3813 H8
- 3814 A12
- 3822 C14
- 3823 D14
- 3824 D14
- 3825 E14
- 3826 E14
- 3827 G13
- 3828 G14
- 3829 H13
- 3830 H13
- 3831 H13
- 3832 J5
- 3833 K13
- 3836 K13
- 3837 K13
- 3839 M17
- 3842 B13
- 3844 B13
- 3856 E10
- 3857 C13
- 3866 E10
- 3868 D10
- 5780 A12
- 5790 M16
- 6781 K8
- 6782 G14
- 6783 G15
- 7781 F8
- 7782 K6
- 7784 G7
- 7785 L7
- 7787 G14
- 7792 M17
- 7793 F11

ETF3 DOLBY B SINGLE DECK
3104 217 03960 bl. 130 - 02

LEU0093
9433

ETF3 DOLBY B SINGLE DECK LAYOUT

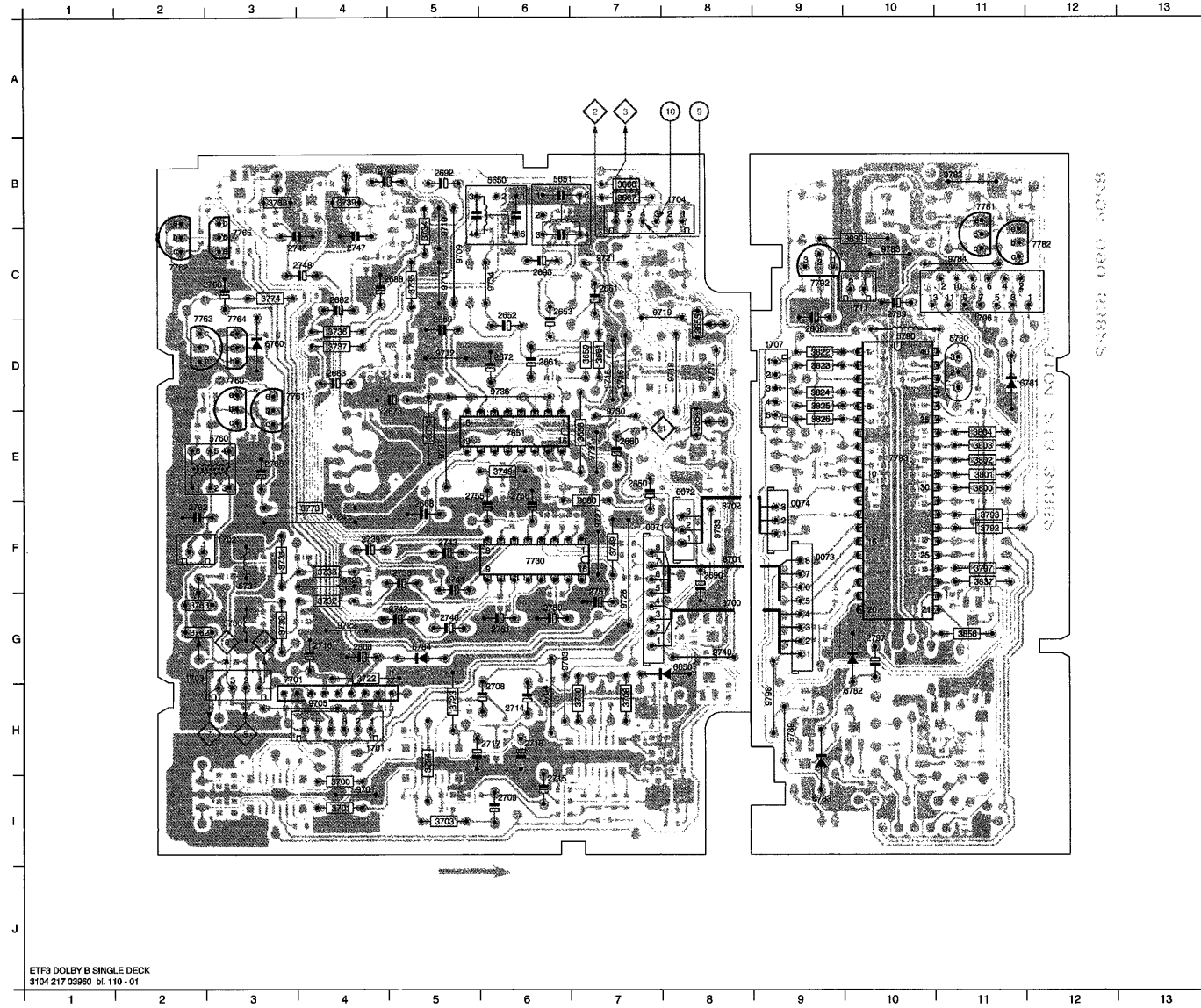
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0072	E6	2657	D8	2688	C9	2717	H8	2745	F8	2765	E11	3658	E7	3682	D10	3705	I6	3735	C9	3762	G11	3792	F3	3814	D4	3844	E5	6782	H4	7784	D11	9710	C9	9734	C8
0073	F5	2658	E8	2690	F6	2718	H8	2746	C10	2766	C11	3659	D7	3688	B8	3706	H8	3736	D10	3763	G11	3793	F3	3822	D4	3856	G3	6783	I5	7785	C11	9711	C9	9736	D8
0074	F5	2659	D8	2692	B9	2730	G11	2747	C10	2768	E11	3660	F7	3689	B7	3707	I6	3737	D10	3764	E12	3795	D2	3823	D4	3857	F4	6784	G9	7781	B3	9712	D9	9737	E9
1701	H10	2660	E7	2693	C8	2731	F11	2748	C10	2787	E4	3661	D7	3690	H10	3708	H7	3738	B11	3765	D11	3800	E2	3824	D4	3858	G9	7650	D6	7782	C2	9715	D7	9740	G6
1702	F11	2661	D8	2702	H11	2732	G11	2749	B9	2791	D4	3662	C8	3691	I10	3709	I7	3739	B10	3766	D11	3801	E3	3825	D4	3859	I7	7651	E8	7784	B3	9716	D7	9782	B3
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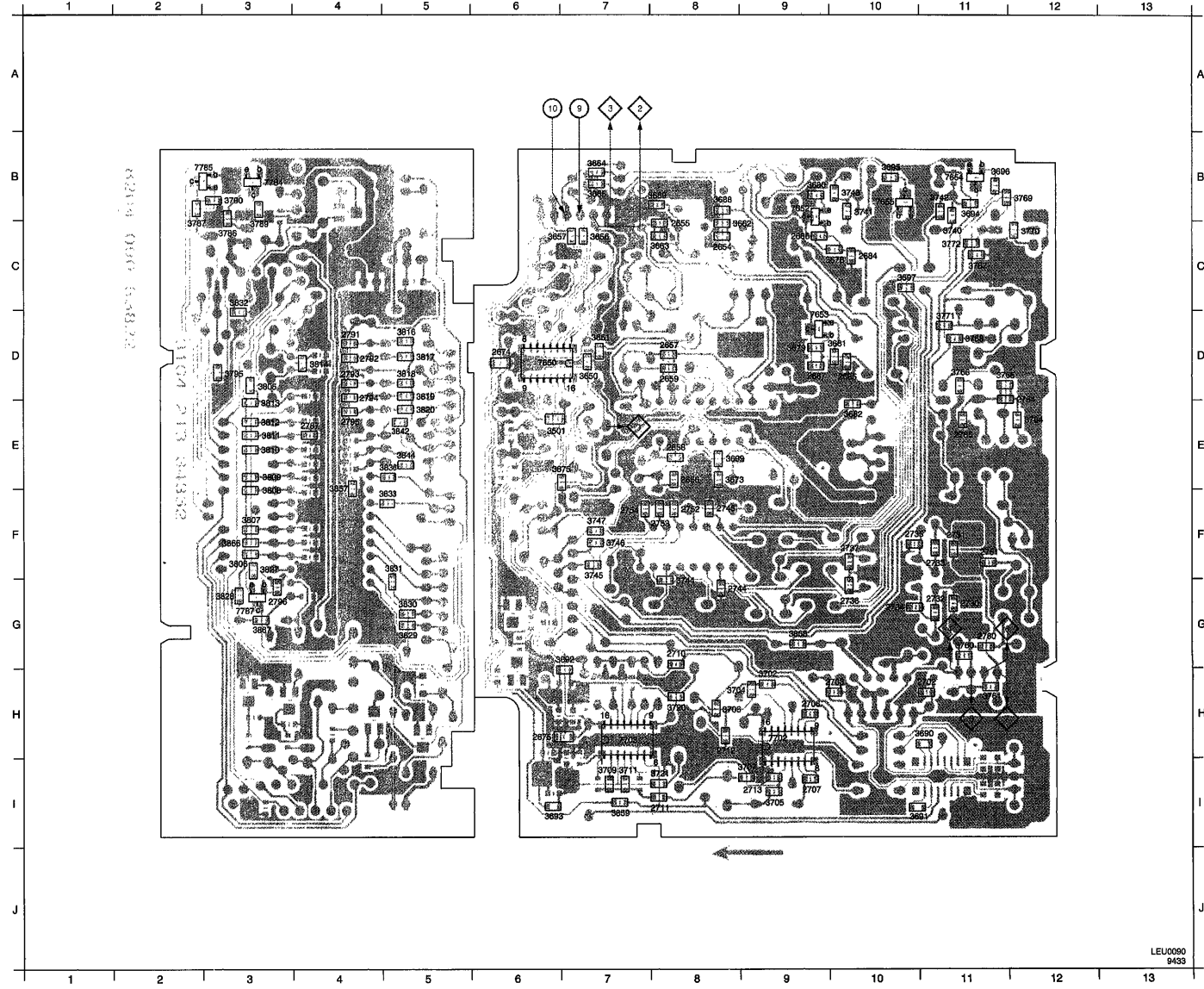
ETF3 DOLBY B SINGLE DECK COMPONENT AND CHIP LAYOUTS

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0072	E8	2650	E7	2682	C4	2716	G4	2747	C4	2766	E3	3661	D7	3723	H5	3738	E3	3757	F11	3826	E9	5790	D10	7780	D3	7790	G8	9712	D5	9727	F7	9783	C10
0073	F9	2651	C7	2683	D4	2717	H6	2748	C3	2797	G10	3666	B7	3724	H5	3739	E4	3800	E11	3837	F11	6660	G6	7761	D9	9701	F8	9715	D7	9728	G7	9784	C11
0074	F9	2652	C6	2686	C4	2718	H6	2749	B4	2799	C10	3667	B7	3730	G3	3748	E6	3801	E11	3838	C10	6760	D3	7782	C2	9702	F8	9716	D7	9730	E7	9789	H9
1701	H4	2653	C6	2690	F8	2738	F5	2750	G8	2800	D9	3674	E5	3731	F3	3749	F7	3802	E11	3856	G11	6781	D11	7783	D2	9701	I4	9717	D8	9731	E7	9798	H9
1702	F3	2690	E7	2692	D5	2739	F4	2751	G6	2808	G4	3700	I4	3732	G4	3762	G2	3803	E11	3850	B6	6782	H9	7784	D3	9703	G6	9718	D8	9733	F8		
1703	G2	2691	D6	2693	D8	2740	G6	2755	E5	3654	E8	3701	I4	3733	F4	3763	G2	3804	E11	3851	B6	6783	I8	7785	C3	9704	H6	9719	C7	9734	C6		
1704	B8	2698	F5	2708	H6	2741	F5	2756	E6	3655	D8	3703	I5	3734	C5	3773	F4	3822	D9	5730	G3	6784	G5	7781	B11	9705	H4	9721	C7	9736	D6		
1706	D11	2699	D5	2709	I6	2742	G4	2757	G7	3658	E7	3708	H7	3736	C6	3774	C3	3823	D9	5731	F3	6785	E6	7782	C12	9709	C5	9722	G4	9737	E6		
1707	D6	2672	D6	2714	H6	2743	F5	2762	F2	3659	D7	3710	H7	3738	D4	3792	F11	3824	D9	5730	E3	7701	G3	7792	C9	9710	C5	9723	F4	9740	G8		

2654	C8	2684	C10	2710	G6	2734	G10	2754	F7	2793	D4	3657	C6	3679	D9	3692	G6	3704	H8	3740	C11	3760	G11	3770	C12	3805	D3	3813	E3	3828	G3	3844	E5	7653	D9
2655	C8	2685	D10	2711	I8	2735	F10	2760	G11	2794	E4	3662	C8	3680	B9	3693	I6	3705	I9	3741	B10	3761	H11	3771	D11	3806	F3	3814	D4	3829	G5	3857	F4	7654	B10
2656	E8	2686	C9	2712	H8	2739	G10	2761	F11	2795	E4	3663	C8	3681	D9	3694	B11	3708	H8	3742	B11	3764	E12	3772	C11	3807	F3	3816	D5	3830	G5	3858	G9	7655	B11
2657	D8	2687	D9	2713	I9	2737	F10	2764	E12	2796	G3	3664	B7	3682	E10	3695	B10	3707	I8	3743	B10	3765	D11	3796	C3	3808	F3	3817	D5	3831	F5	3859	I7	7702	H9
2658	E8	2702	H10	2730	G11	2744	G8	2765	E11	3501	E9	3665	B7	3686	B8	3696	B11	3708	I7	3744	G8	3766	D11	3787	C2	3809	E3	3818	D5	3832	C3	3856	F3	7703	H7
2659	D8	2703	H9	2731	F11	2745	F8	2767	E4	3650	D7	3673	E8	3689	B7	3697	C10	3711	I7	3745	F7	3767	C11	3789	C3	3810	E3	3819	D5	3833	F4	3867	G3	7784	B3
2674	D6	2706	H9	2732	G11	2762	F8	2791	D4	3651	D7	3675	E6	3690	H10	3699	E8	3720	H8	3746	F7	3768	D11	3790	B3	3811	E3	3820	E5	3836	E4	7650	D6	7785	B2
2676	H6	2707	I9	2733	F11	2763	F8	2792	D4	3656	C7	3678	C9	3691	I10	3702	H9	3721	I8	3747	F7	3769	B12	3795	D3	3812	E3	3827	F3	3842	E5	7652	B9	7787	G3

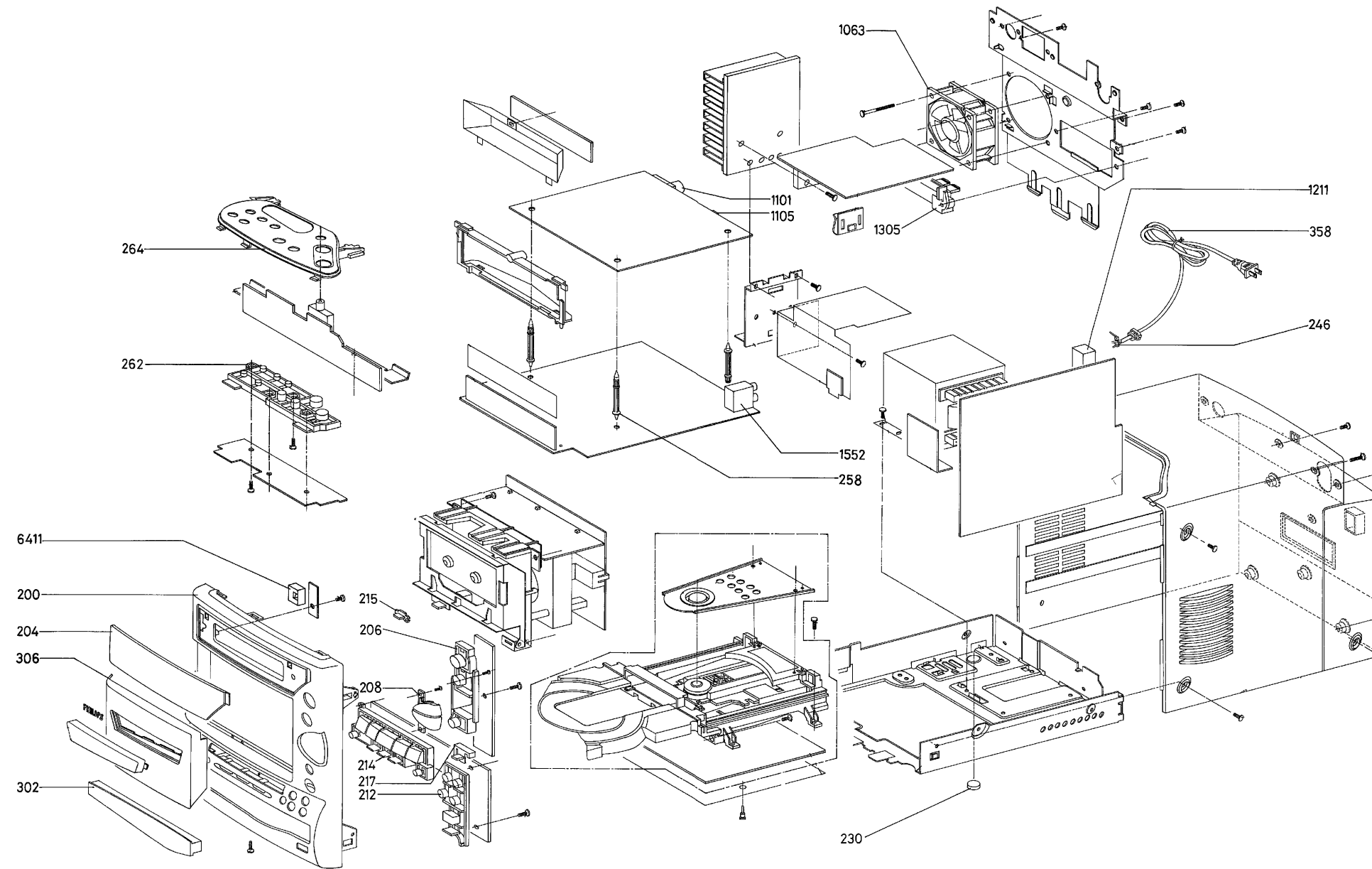


ETF3 DOLBY B SINGLE DECK
3104 217 0360 dl. 110 - 01



LEU090
9453

EXPLODED VIEW - CENTER UNIT

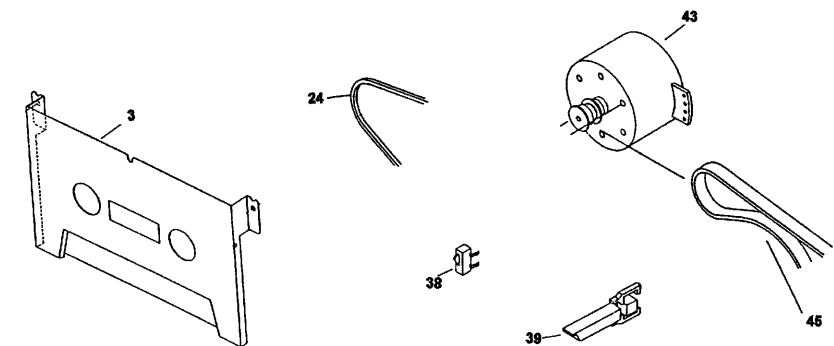


Lista Mecânica do Aparelho

200	4822 426 51766	Gabinete Frontal
204	4822 450 62323	Lente do Display
206	4822 410 63473	Botão " DSC "
208	4822 410 63474	Botão " VOLUME "
212	4822 410 63475	Botão " C D "
214	4822 410 63476	Botão " LOGIC "
215	4822 410 63471	Botão " EJECT "
217	4822 410 63472	Botão " D B B "
230	4822 462 40683	Pé
246	4822 532 60948	Espaçador
258	4822 403 30817	Botão " TUNER "
262	4822 410 63398	Parte superior do gabinete
264	4822 423 90211	Tampa do CD
302	4822 444 61013	Transportador K7
306	4822 443 64288	Caixa acústica FB17
350	4822 445 10419	Ant. FM
351	4822 303 50063	Ant. AM
352	4822 303 50082	
0356	4822 218 10562	Controle Remoto
0358	4806 321 17022	Cabo de rede
1030	4822 146 31412	Transformador de rede 110/220Vac
1063	4822 361 10689	Ventilador
1211	4822 272 10269	Seletor de voltagem

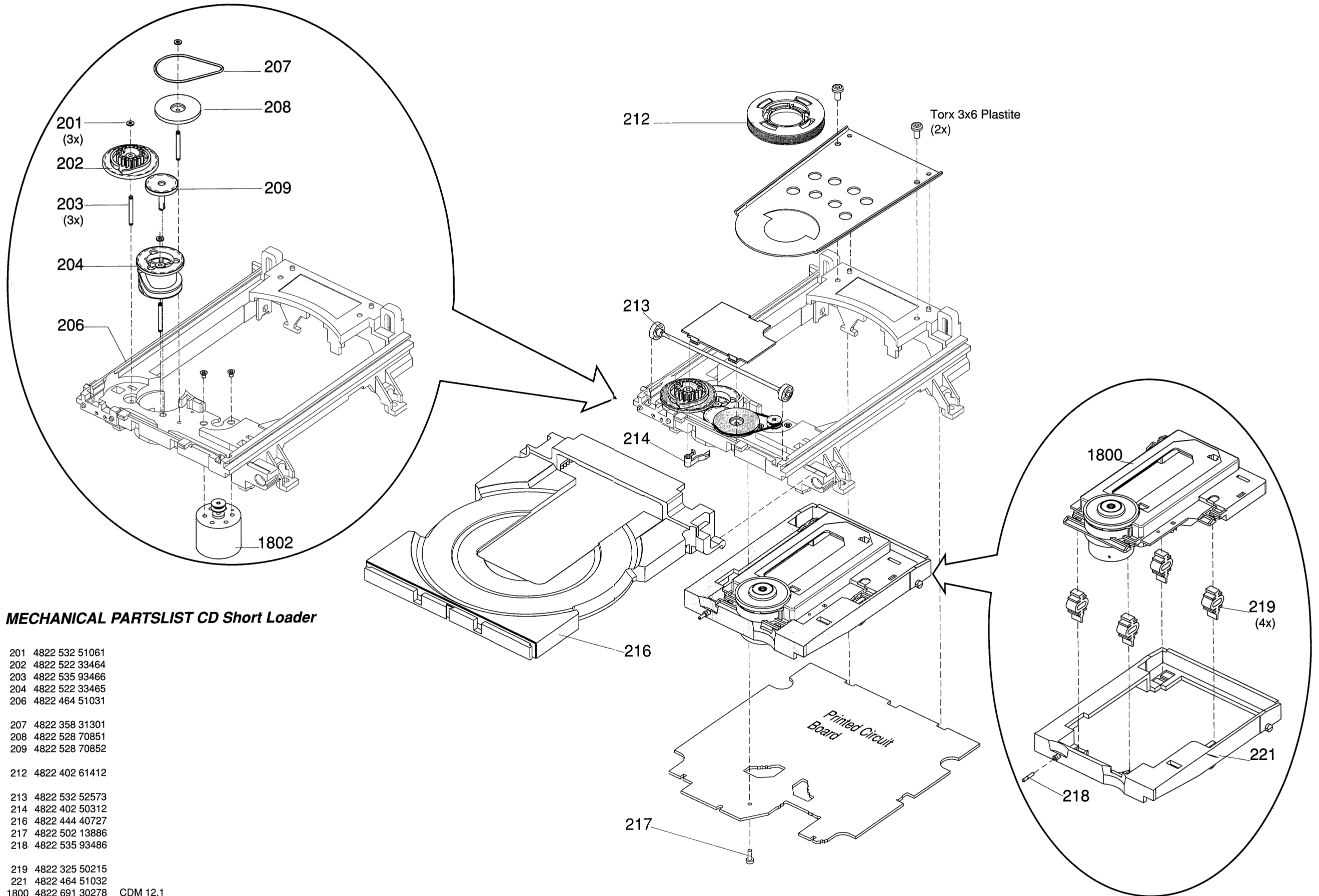
Lista Mecânica do DECK

001	4822 249 10472	Conj. cabeça REC/PLAY
002	4822 691 20985	Conj. mecanismo do DECK
003	4822 426 20213	Placa frontal do deck
008	4822 529 10289	Hidraulico
009	4822 256 92011	Suporte p/ o hidraulico
010	4822 403 70729	Conj. rolo pressor (Esquerdo)
012	4822 403 70731	Conj. rolo pressor (Direito)
018	4822 157 70155	Solenóide
024	4822 358 31219	Correia FR
038	4822 276 13318	Chave liga/desl.
039	4822 278 90756	Chave
040	4822 209 31816	IC Hall
043	4822 361 21736	Conj. motor
045	4822 358 31312	Correia larga p/ o motor



EXPLODED VIEW - CD UNIT

Exploded view CD Short Loader



MECHANICAL PARTSLIST CD Short Loader

201	4822 532 51061
202	4822 522 33464
203	4822 535 93466
204	4822 522 33465
206	4822 464 51031
207	4822 358 31301
208	4822 528 70851
209	4822 528 70852
212	4822 402 61412
213	4822 532 52573
214	4822 402 50312
216	4822 444 40727
217	4822 502 13886
218	4822 535 93486
219	4822 325 50215
221	4822 464 51032
1800	4822 691 30278 CDM 12.1
1802	4822 361 21708 MOTOR

Lista Elétrica :

Posição	Código	DESCRIÇÃO
-	Tuner - ECO4VA	
		DIVERSOS
1101	4822 267 10283	Soquete coax. 75
1104	4822 267 31505	Soquete p/ ant.
1105	4822 265 31184	Suporte p/ antena
2115	4822 125 60101	Variável 3 ~ 11.pF / 100V
3148	4822 100 11163	Pot. 100KΩ 30% 0.1W
		BOBINAS
5107	4822 157 63835	
5108	4822 157 71093	
5109/20	4806 156 37045	RF 1.5T
5122/23	4822 157 60517	
5125	4822 157 61898	0,47 μH
5140	4822 158 60511	FI de AM 450 KHz
5142	4822 157 70302	FI de AM 450 KHz
5143/44	4822 242 70665	Filtro cer. 10.7 MHz
5145	4806 242 77124	
5170	4822 242 72976	Ressonador cer. 7.2 MHz
		DIODOS
6105	4822 130 83075	HN1V02H
6109/24	4822 130 82833	1SV228
6121...	4806 130 37078	1N4148
6174	4822 130 34233	BZX79B5V1
		Tr's
7102...	4806 130 47321	BC848C
7105	4806 130 47337	2SA838B
7120	4806 130 47316	2SC1047
7168/74	4806 130 47269	BC858B
		IC's
7140	4822 209 32011	TEA5712/N2 (RF)
7172	5322 209 11517	PM74HCU04M
7173	4822 209 31998	LC7218M

Posição	Código	DESCRIÇÃO
-	CD	
		Diversos
1810	4822 276 13503	Chave de tato
		Bobinas
5860	4822 242 81151	Cristal 16.9334 MHz
5890	4822 242 72527	Resson. cer. 4 MHz
		Diodos
6857	4806 130 37078	1N4148
6881/3	4806 130 37190	BZX79C3V9
		Tr's
7820/84	4806 130 47234	BC337-40
7856	5322 130 60123	BC807-40
7872	4806 130 47321	BC848C
7881	4806 130 47269	BC858C
7883	4806 130 47050	BC558B
		IC's
7800	5322 209 11517	PC74HCU04T
7850	4822 209 31064	TDA1301T/N1
7851/2	4822 209 32852	TDA7073A/N2
7855	4822 209 31519	TDA7072A
7860	4822 209 33339	SAA7345GP/M5
7871	4822 209 32196	TDA1311AT/N2
7886	4822 209 80891	MC7805CT
7890	4822 209 33337	MC68HC05C8FB
-	COMBI	
		Diversos
1400	4822 130 91395	Display - LPH6233-1
1460...	4822 276 13114	Chave
1496...	4822 134 41198	Lampada 12V (azul)
1552	4806 267 37060	Soquete AUX/PHONO
1560	4822 267 40898	Soquete HEADPHONE
		Resistor
3452/3/4	4822 116 90836	10KΩ x 5 / 0.125W

Posição	Código	DESCRIÇÃO
-	COMBI	
		Bobinas
5401	5322 242 73697	Resson. cer. 8MHz
5402	4822 242 70938	Cristal 32.768MHz
5403/7	4822 157 52983	22μH 10%
5404	4806 157 50975	1 mH 10%
5405	4822 157 62552	2,2 μH 10%
5406	4822 157 63134	560μH 10%
		Diodos
6400...	4806 130 37078	1N4148
6411	4822 214 52009	GP1U58XP
		Tr's
7405/11	4806 130 47041	BC548B
7406	4806 130 47042	BC548C
7408/9	4806 130 47050	BC558B
7502...	4806 130 47045	BC549C
7520/21	4806 130 47332	BC338-40
		IC's
7401	4822 209 33236	TMP87C20F
7402	4822 209 31508	ST24C01
7404/7	4806 209 87164	HEF4094BP
7504/5	5322 209 14865	MC14066BCP
7512/3	4806 209 87373	NJM4560D
7515	4822 209 30537	TC9153P
7600	4822 209 10263	HEF4052B
-	POWER	
		Diversos
1211	4822 272 10269	Seletor de voltagem
1260	4822 071 51602	Fusível T1.6A / 250V
1305	4822 267 31176	Soquete p/ falante
1360/1	4822 071 53152	Fusível T3,15A / 250V
1362	4822 267 51168	Fusível T80mA / 250V
1472...	4822 276 13114	Chave de tato
1473	4822 276 13403	Chave de tato
0385	4806 321 17022	Cabo de Rede

Posição	Código	DESCRIÇÃO
-	POWER	
		Bobinas
5281	4822 157 72185	400μH 30%
5313	4822 280 80777	Relay 12V/ 7A (2p)
		Diodos
6251...	4806 130 37078	1N4148
6256	4822 130 37047	BZX79C4V7
6257...	5322 130 80686	1N5392
6261	4806 130 37190	BZX79C3V9
6266	4806 130 80235	BZX79C3V3
6360	4822 130 82078	D5SBA20
6366	4806 130 37198	BZX79C2V4
6401	4822 130 82978	LTL16KPE (red)
		Tr's
7251...	4806 130 47041	BC548B
7252	4806 130 47054	BD135
7253	4806 130 47066	BD234
7254...	4806 130 47050	BC558B
7255	4806 130 47234	BC337-40
		IC's
7258	4806 209 87639	MC78L05ACP
7261	4822 209 80817	L7805CV
7301	4822 209 31514	STK4132II
		ETF3
		Resistores
3654/5	4822 100 11771	Pot. lin. de 20KΩ
3738/9	4822 100 11771	Pot. lin. de 20KΩ
3762/3	4822 100 11163	Pot. lin. de 100KΩ
		Bobinas
5650/1	4822 156 21725	Filtro cer. MPX LDX-210
5730/1	4822 156 20811	360mH 5%
5760	4822 156 20946	100KHz
5780	4822 242 72527	Ressonador cer. 4MHz
5790	4822 157 53941	100μH 10%

