Micro System **MC-500/22/25/30/37**

Service
Service
Service

Service Manual

COMPACT disc DIGITAL AUDIO

TABLE OF CONTENTS

CLASS 1
LASER PRODUCT

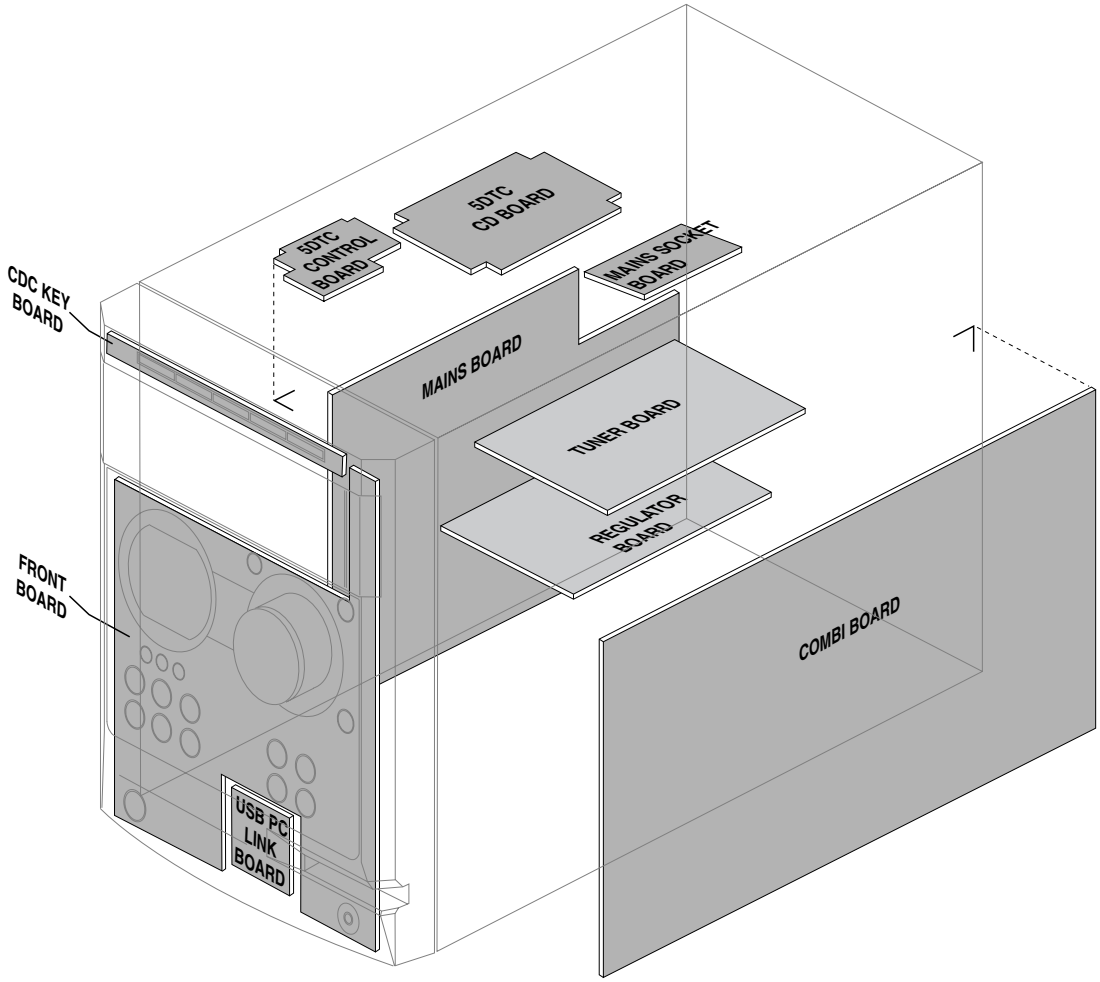
Published by BB 0303 Service Audio Printed in The Netherlands Subject to modification

GB 3139 785 30270

Version 1.0

PHILIPS

LOCATION OF PRINTED CIRCUIT BOARDS



VERSION VARIATIONS:

Type /Versions: / Features & Board in used:	MC-500									
	/22	/25	/30	/37						
Aux in /CDR in	x	x	x	x						
Line Out										
Surround Out										
Subwoofer Out										
Digital Out										
Digital in										
Matrix Surround										
CD Text										
Dolby B										
RDS	x	x								
News	x	x								
Dolby Pro Logic (DPL)										
Incredible Surround										
Karaoke Features										
Voltage Selector										
ECO Power Standby (Clock Display Off)	x	x								
ECO6 Tuner Board - Systems Non-Cenelec			x	x						
ECO6 Tuner Board - Systems Cenelec	x	x								
USB PC LINK	x	x	x	x						

SPECIFICATIONS

GENERAL:

Mains voltage : 110-127V/220-240V Switchable for /21/21M
120V for /37
230V for /22/25/30/33
Mains frequency : 50/60Hz
Power consumption : < 0.5W at ECO Power Standby
: <15W at Standby (DEMO mode off)
: 80W at Active
Clock accuracy : < 4 seconds per day
Dimension centre unit : 175 x 268 x 316mm

TUNER:

FM

Tuning range : 87.5-108MHz
Grid : 50kHz
100kHz for /37
IF frequency : 10.7MHz ± 25kHz
Aerial input : 75Ω coaxial
300Ω click fit for /37
Sensitivity at 26dB S/N : < 7µV
Selectivity at 600kHz bandwidth : > 25dB
Image rejection : > 25dB
Distortion at RF=1mV, dev. 75kHz : < 3%
-3dB Limiting point : < 8µV
Crosstalk at RF=1mV, dev. 40kHz : > 18dB

MW

Tuning range : 531-1602kHz
530-1700kHz for /21/21M/37
Grid : 9kHz
10kHz for /21/21M/37
IF frequency : 450kHz ± 1kHz
Aerial input : Frame aerial
Sensitivity at 26dB S/N : < 4.4mV/M
Selectivity at 18kHz bandwidth : > 18dB
IF rejection : > 45dB
Image rejection : > 28dB
Distortion at RF=50mV, m=80% : < 5%

AMPLIFIER:

Output power (6Ω, 1kHz, 10% THD)
L & R : 2 x 50W RMS

Output power (6Ω, 60Hz-12.5kHz, 10% THD)
L & R : 2 x 45W FTC /37

Frequency response within -3dB : 50Hz-16kHz
MAX Sound : ON/OFF
Digital Sound Control (DSC) : Pop/Jazz/Optimal/Rock
Virtual Environment Control (VEC) : Cyber Hall/Concert/
Cinema/Off

Input sensitivity
Aux in (at 1kHz) : 500mV ± 3dB at 600Ω
CDR in (at 1kHz) : 1V ± 3dB at 600Ω
USB (at 1kHz) : 830mV ± 3dB at 600Ω
Output sensitivity
Headphone output at 32Ω : 15mW ± 2dB (Vol. Max.)

5DTC:

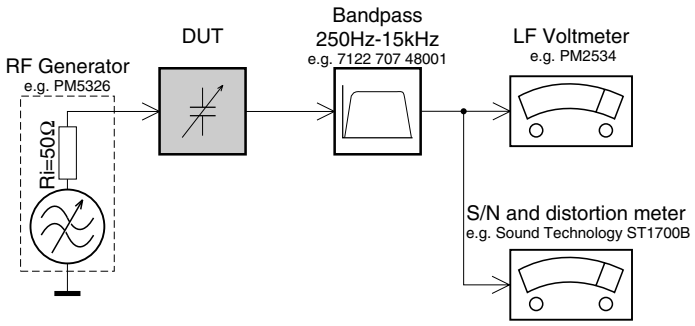
Measurement done directly at the connector on the board.
Output resistance : < 100Ω
Output voltage (0dB, 1kHz) : 0.5Vrms ± 1dB (unloaded)
Channel unbalance : < ±1dB
Channel Separation (1kHz) : >60dB
Signal to Noise Ratio (A-weighted) : > 76dBA
Frequency response (± 3dB) : 20Hz-20kHz

USB:

Measurement done directly at the connector on the board.
Output resistance : < 1.5kΩ
Output voltage (0dB, 1kHz) : 830mVrms ± 1.5dB
(R_L = 33kΩ)
Channel unbalance : < ±1dB
THD + Noise (0dB, 1kHz) : < 0.3%
Channel Crosstalk (0dB, 1kHz) : >40dB
Signal to Noise Ratio (0dB, 1kHz) : > 75dBA (A-weighted)
Frequency response (± 3dB) : 20Hz-20kHz

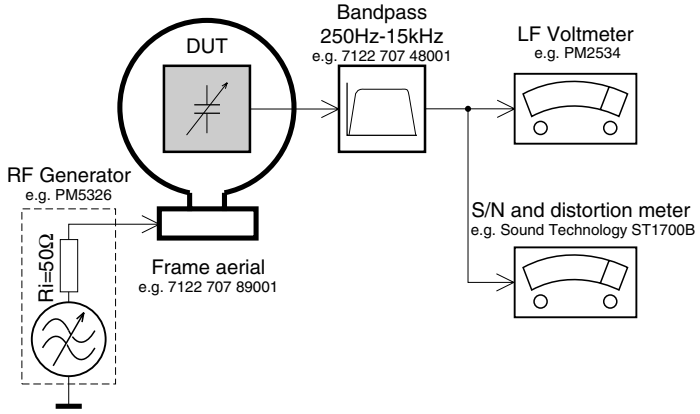
MEASUREMENT SETUP

Tuner FM



Use a bandpass filter to eliminate hum (50Hz, 100Hz) and disturbance from the pilottone (19kHz, 38kHz).

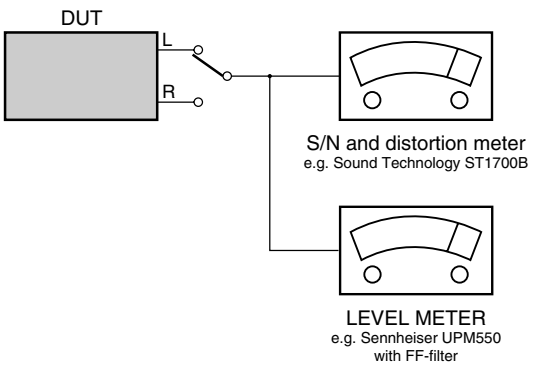
Tuner AM (MW,LW)



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).

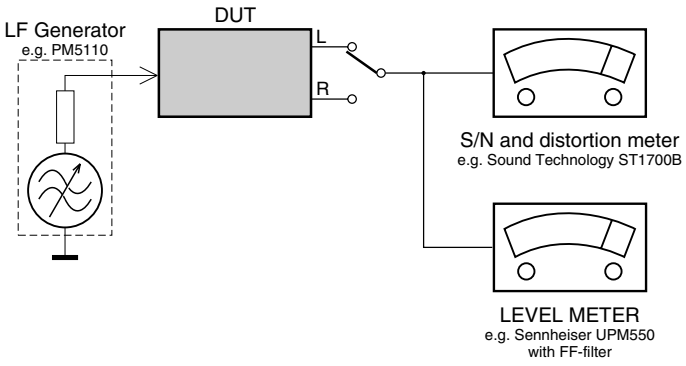
CD

Use Audio Signal Disc SBC429 4822 397 30184
(replaces test disc 3)



Recorder

Use Universal Test Cassette **CrO2** SBC419 4822 397 30069
or Universal Test Cassette **Fe** SBC420 4822 397 30071



SERVICE AIDS

Service Tools:

Universal Torx driver holder 4822 395 91019
Torx bit T10 150mm 4822 395 50456
Torx driver set T6 - T20 ..... 4822 395 50145
Torx driver T10 extended 4822 395 50423

Cassette:

SBC419 Test cassette CrO2 ..... 4822 397 30069
SBC420 Test cassette Fe 4822 397 30071
MTT150 Dolby level 200nWb/M 4822 397 30271

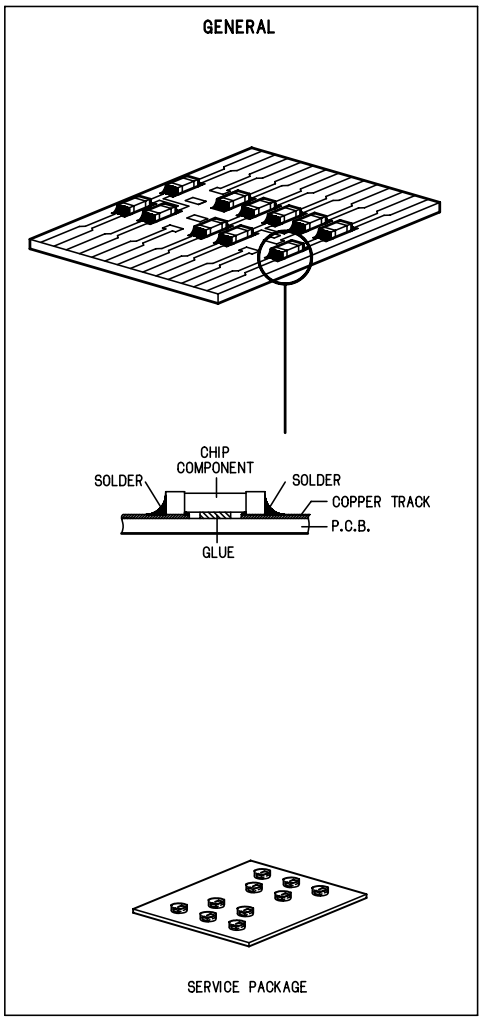
Compact Disc:

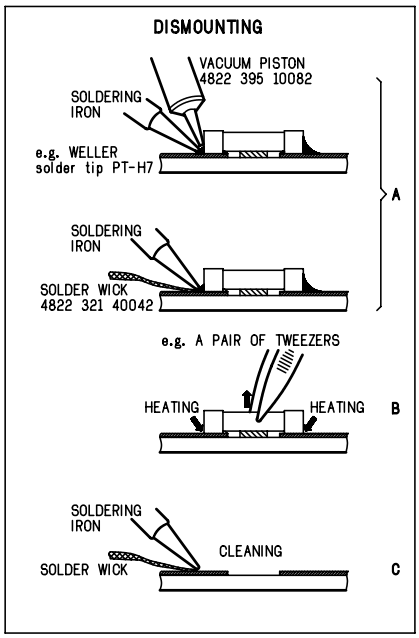
SBC426/426A Test disc 5 + 5A 4822 397 30096
SBC442 Audio Burn-in Test disc 1kHz 4822 397 30155
SBC429 Audio Signals disc 4822 397 30184
Dolby Pro-logic Test Disc 4822 395 10216

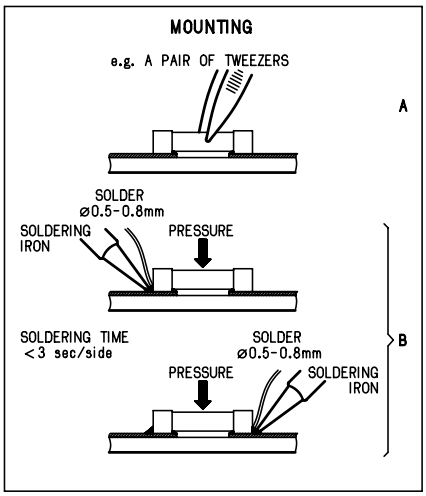
ESD Equipment:

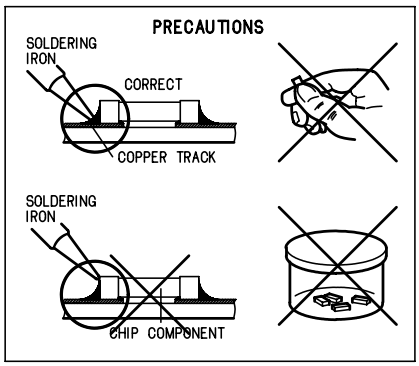
Anti-static table mat - large 1200x650x1.25mm ... 4822 466 10953
Anti-static table mat - small 600x650x1.25mm 4822 466 10958
Anti-static wristband 4822 395 10223
Connector box (1MΩ) 4822 320 11307
Extension cable
(to connect wristband to conn. box) 4822 320 11305
Connecting cable
(to connect table mat to conn. box) 4822 320 11306
Earth cable (to connect product to mat or box) 4822 320 11308
Complete kit ESD3
(combining all above products) 4822 320 10671
Wristband tester 4822 344 13999

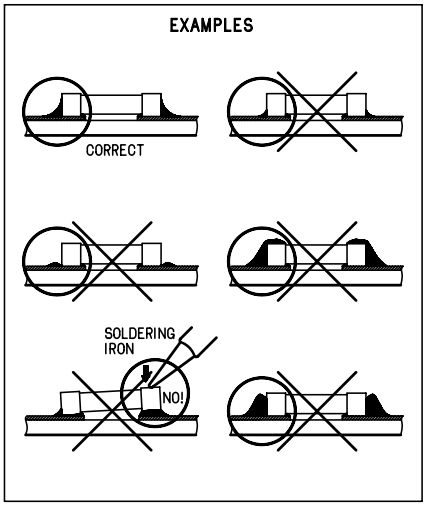
HANDLING CHIP COMPONENTS











ESD

GB WARNING

All ICs and many other semi-conductors are susceptible to electrostatic discharges (ESD).
Careless handling during repair can reduce life drastically.
When repairing, make sure that you are connected with the same potential as the mass of the set via a wrist wrap with resistance.
Keep components and tools also at this potential.

NL WAARSCHUWING

Alle IC's en vele andere halfgeleiders zijn gevoelig voor electrostatische ontladingen (ESD).
Onzorgvuldig behandelen tijdens reparatie kan de levensduur drastisch doen verminderen.
Zorg ervoor dat u tijdens reparatie via een polsband met weerstand verbonden bent met hetzelfde potentiaal als de massa van het apparaat.
Houd componenten en hulpmiddelen ook op ditzelfde potentiaal.

F ATTENTION

Tous les IC et beaucoup d'autres semi-conducteurs sont sensibles aux décharges statiques (ESD).
Leur longévité pourrait être considérablement écourtée par le fait qu'aucune précaution n'est prise à leur manipulation.
Lors de réparations, s'assurer de bien être relié au même potentiel que la masse de l'appareil et enfiler le bracelet serti d'une résistance de sécurité.
Veiller à ce que les composants ainsi que les outils que l'on utilise soient également à ce potentiel.

D WARNUNG

Alle ICs und viele andere Halbleiter sind empfindlich gegenüber elektrostatischen Entladungen (ESD).
Unsorgfältige Behandlung im Reparaturfall kan die Lebensdauer drastisch reduzieren.
Veranlassen Sie, dass Sie im Reparaturfall über ein Pulsarmband mit Widerstand verbunden sind mit dem gleichen Potential wie die Masse des Gerätes.
Bauteile und Hilfsmittel auch auf dieses gleiche Potential halten.

I AVVERTIMENTO

Tutti IC e parecchi semi-conduttori sono sensibili alle scariche statiche (ESD).
La loro longevità potrebbe essere fortemente ridatta in caso di non osservazione della più grande cauzione alla loro manipolazione.
Durante le riparazioni occorre quindi essere collegato allo stesso potenziale che quello della massa dell'apparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

GB

Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified, be used.

NL

Veiligheidsbepalingen vereisen, dat het apparaat bij reparatie in zijn oorspronkelijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.

F

Les normes de sécurité exigent que l'appareil soit remis à l'état d'origine et que soient utiliséés les piéces de rechange identiques à celles spécifiées.

D

Bei jeder Reparatur sind die geltenden Sicherheitsvorschriften zu beachten. Der Original zustand des Geräts darf nicht verändert werden; für Reparaturen sind Original-Ersatzteile zu verwenden.

I

Le norme di sicurezza esigono che l'apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambio identici a quelli specificati.

"After servicing and before returning set to customer perform a leakage current measurement test from all exposed metal parts to earth ground to assure no shock hazard exist. The leakage current must not exceed 0.5mA."

"Pour votre sécurité, ces documents doivent être utilisés par des spécialistes agréés, seuls habilités à réparer votre appareil en panne".

GB Warning !

Invisible laser radiation when open.
Avoid direct exposure to beam.

S Varning !

Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

SF Varoitus !

Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen!

DK Advarse !

Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

DISMANTLING INSTRUCTIONS

Dismantling of the 5DTC Module

1) Loosen 4 screws and remove the Cover Top (pos 255) by sliding it out towards the rear before lifting up.
   - 2 screws on the rear
   - 1 screw each on the left & right side
2) Loosen 3 screws each to remove the Panel Left (pos 253) and Panel Right (pos 254). The Panels are remove by sliding it towards the rear and outwards.
   - 1 screw on the side
   - 2 screws on the rear
3) Take a paper clip or any stiff wire diameter of 1mm-1.5mm. Place the set in position and insert the paper clip or stiff wire as shown in Figure 1.
4) To remove the Cover CD Orn (pos 111), you have to feel and give a push in the correct direction (see Figure 1) and correct position (see Figure 2) to release the catch of the Cover CD Orn before removing it out.
5) Loosen 4 screws A (see Figure 3 and Figure 9) to remove the 5DTC Module (pos 1103).
   - 2 screws on the front
   - 2 screws on the rear

   Note : For information on the 'Emergency opening of the trays' of the 5DTC Module, refer to Chapter 10 (Page 10-7).

Figure 1

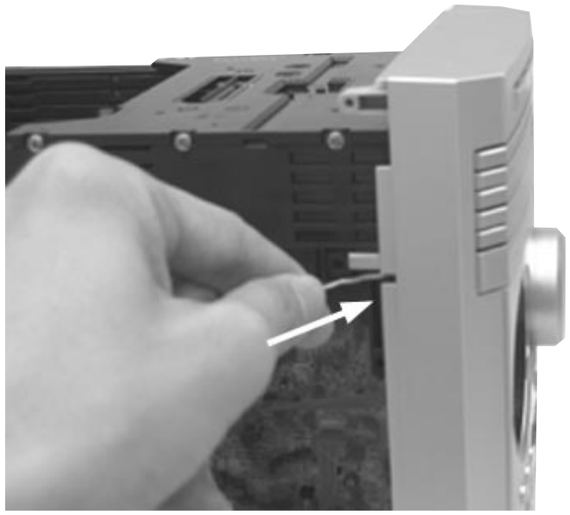
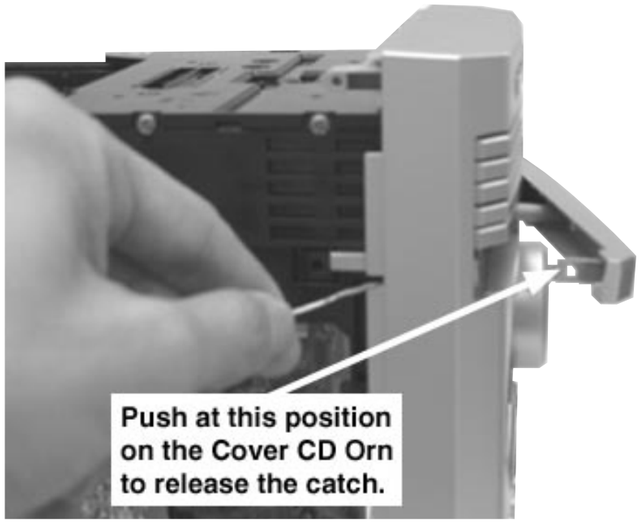
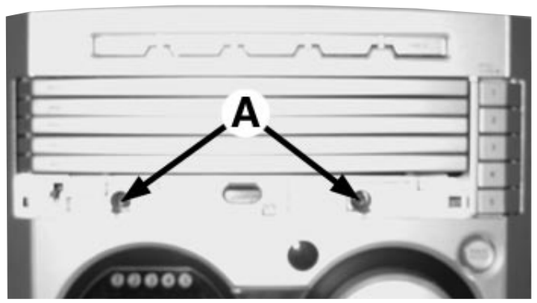


Figure 2



2-1

Figure 3



Detaching the Front Panel assembly from the Bottom/Rear assembly

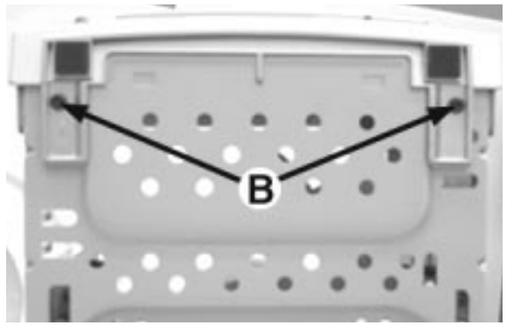


Figure 4

1) Remove 2 screws B (pos 282) as shown in Figure 4 from the bottom of the Cabinet Front (pos 101).
2) Release the fixation of the Combi Board (pos 1102-1003) to Bracket Combi (pos 252) by releasing the 2 catches C1 (see Figure 5) and pulling the Combi Board outwards as shown in Figure 6.
3) Uncatch 2 catches C2 (see Figure 5) on the left & right sides of the Cabinet Front (pos 101) and slides the Front Panel assembly out towards the front.

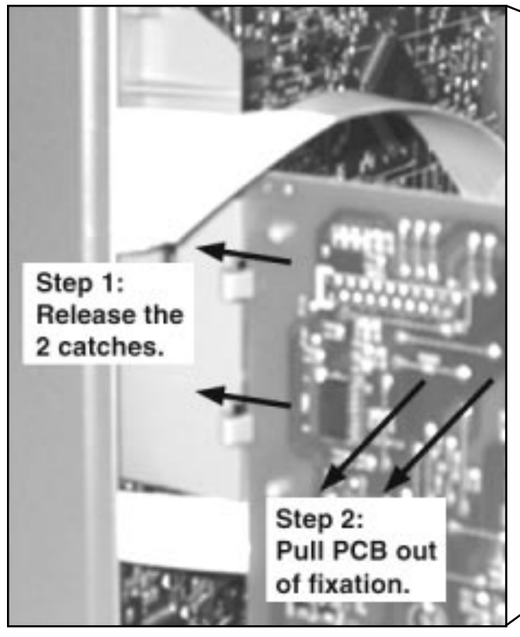


Figure 6

Figure 5

DISMANTLING INSTRUCTIONS

Dismantling of the Front Panel assembly

1) The Knob Volume (pos 136) can be remove by pulling it out in the direction as shown in Figure 7.
2) Loosen 4 screws D (see Figure 8) to remove the Bracket Top (pos 251) and CDC Key Board (pos 1105B).
3) Loosen 2 screws E (see Figure 8) to remove the Bracket Combi (pos 252).
4) Loosen 9 screws F (see Figure 8) to remove the Front Board (pos 1105A).
5) Loosen 3 screws G (see Figure 8) to remove the USB PC LINK Board (pos 1106).

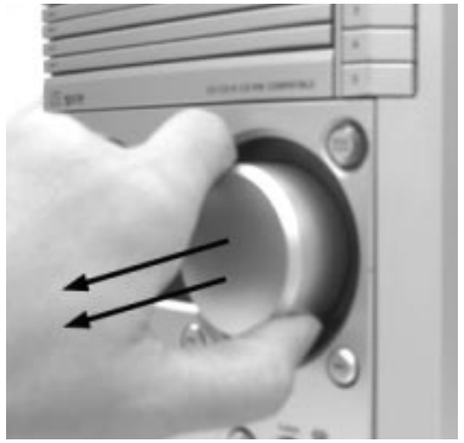
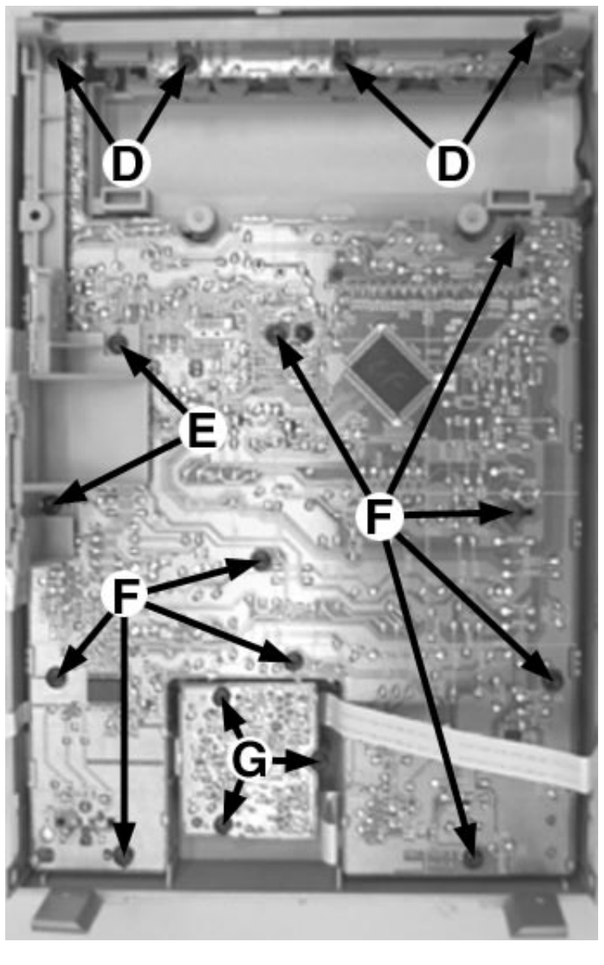


Figure 7

Figure 8



2-2

Dismantling of the Rear Panel assembly

1) Loosen 3 screws H and 2 catches C3 (see Figure 9) to remove the Tuner Board assembly.
2) Loosen 1 screw K (see Figure 9) to free the Mains Socket Board (pos 1102-1001B).
3) Loosen 4 screws J and 2 catches C4 (see Figure 9) to remove the Cabinet Rear (pos 256) by sliding it out towards the rear (see Figuer 10).
   Note : Tuner Board assembly and Mains Socket Board can also be remove together with the Cabinet Rear.
4) Loosen 4 screws L (see Figure 9) to remove the Fan (pos 1104) from the Cabinet Rear.

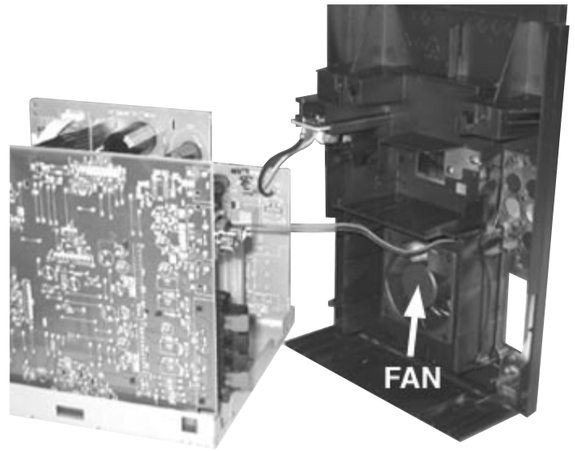
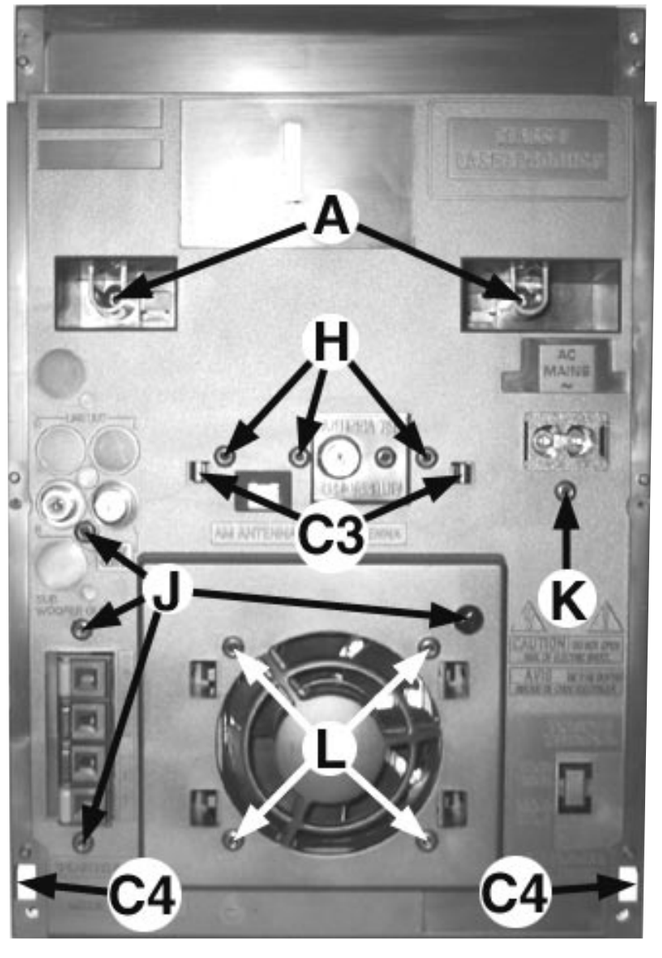


Figure 10

Figure 9



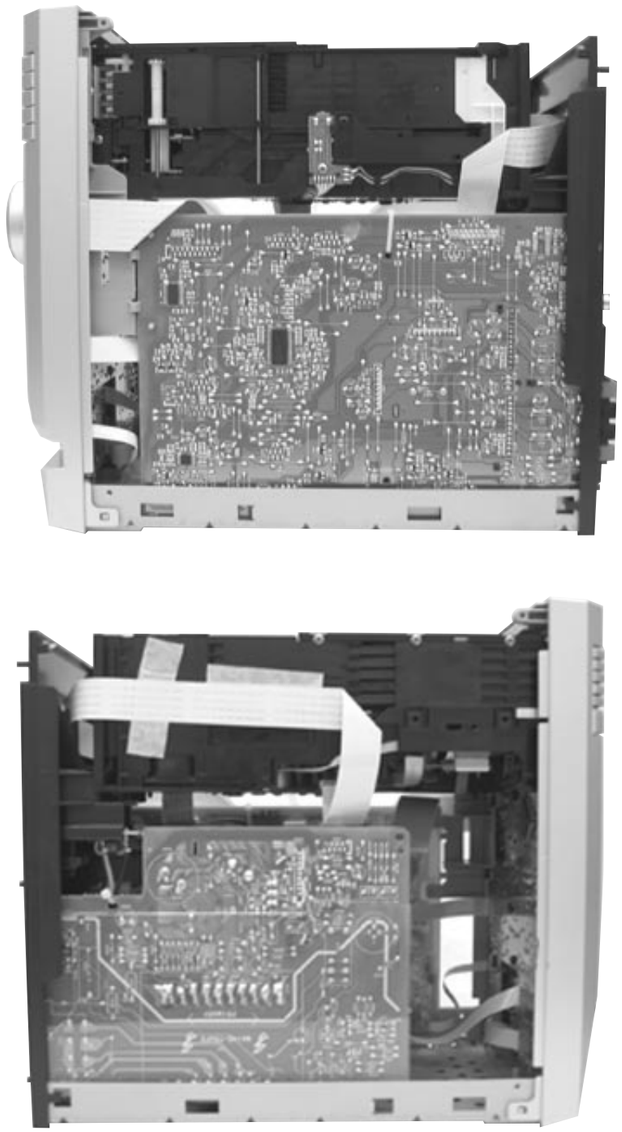
DISMANTLING INSTRUCTIONS

Repair Hints & Service Positions

1) During repair it is possible to disconnect the ECO6 Tuner board and/or 5DTC Module completely unless the fault is suspected to be in that area. This will not affect the performance of the rest of the set.

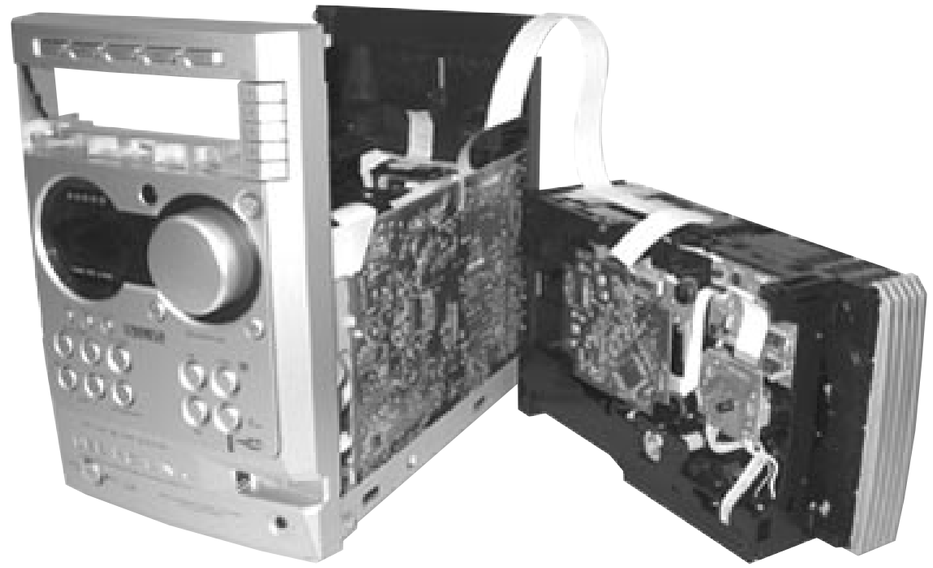
Note: The flex cables are very fragile, care should be taken not to damage them during repair. After repair, be very sure that the flex cables are inserted properly into the flex sockets before encasing, otherwise faults may occurs.

Service position A

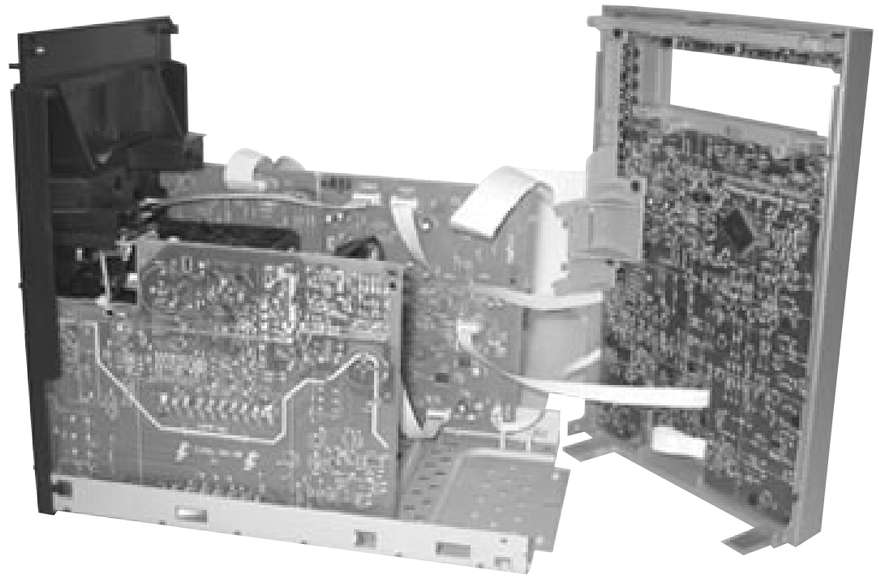


2-3

Service position B

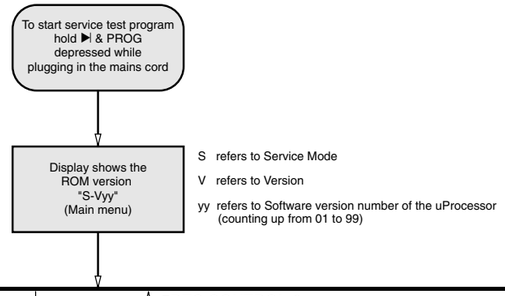


Service position C



3-1

SERVICE TEST PROGRAM



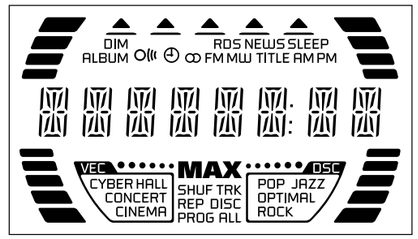


Figure 1

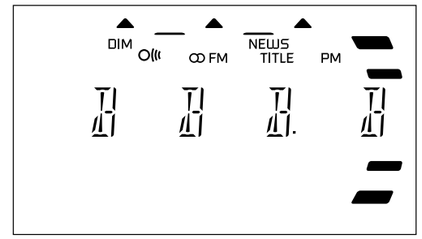
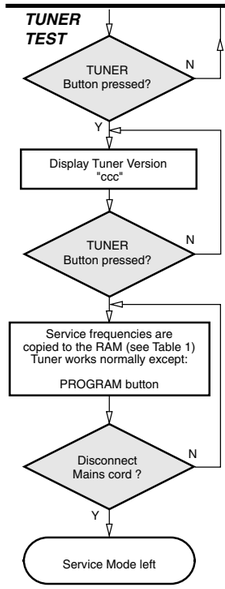
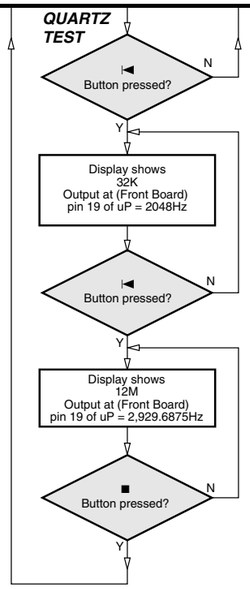
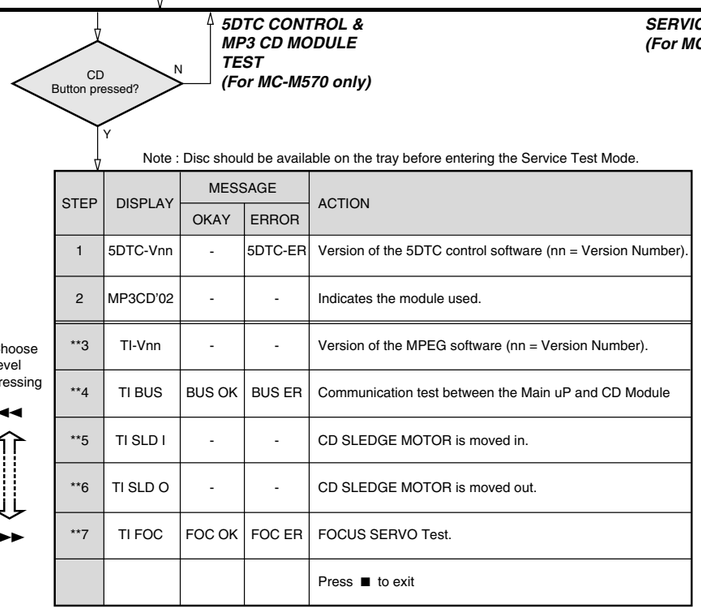


Figure 2

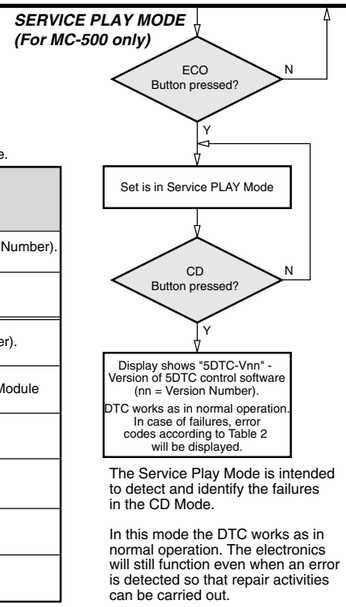






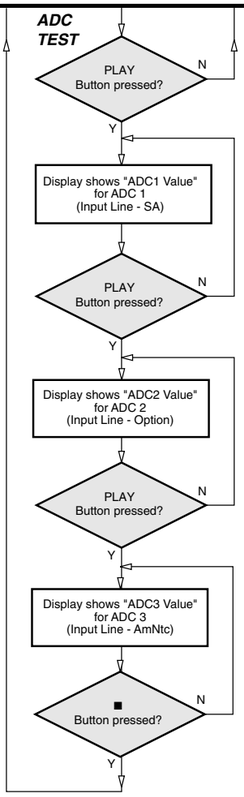
Note : Disc should be available on the tray before entering the Service Test Mode.

STEP	DISPLAY	MESSAGE		ACTION
		OKAY	ERROR	
1	5DTC-Vnn	-	5DTC-ER	Version of the 5DTC control software (nn = Version Number).
2	MP3CD'02	-	-	Indicates the module used.
**3	TI-Vnn	-	-	Version of the MPEG software (nn = Version Number).
**4	TI BUS	BUS OK	BUS ER	Communication test between the Main uP and CD Module
**5	TI SLD I	-	-	CD SLEDGE MOTOR is moved in.
**6	TI SLD O	-	-	CD SLEDGE MOTOR is moved out.
**7	TI FOC	FOC OK	FOC ER	FOCUS SERVO Test.
				Press ■ to exit



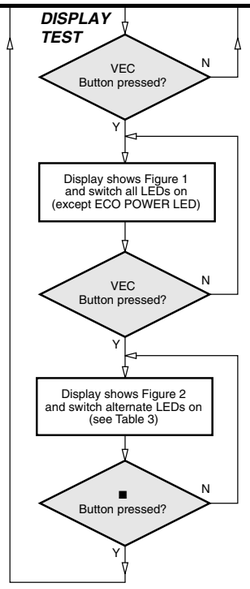
The Service Play Mode is intended to detect and identify the failures in the CD Mode.

In this mode the DTC works as in normal operation. The electronics will still function even when an error is detected so that repair activities can be carried out.



ADC Test is used for checking the ADC inputs to the microprocessor.

The display shows an ADC value between 0 and 255 for an input signal between 0 and 5V.



LEDs	MC-M570	MC-500
CD	OFF	-
TUNER	ON	-
AUX	OFF	-
USB PC LINK	ON	-
MAX SOUND	OFF	OFF
USB Indicator	ON	ON

Table 3

Various other Tests

PRESET	Europe "EUR"	East Europe "EAS"	East Eur. Extended-band "EAS"	USA "USA"	Oversea "OSE"
1	87.5MHz	87.5MHz	65.81MHz	87.5MHz	87.5MHz
2	108MHz	108MHz	108MHz	108MHz	108MHz
3	531kHz	531kHz	74MHz	530kHz	531/530kHz*
4	1602kHz	1602kHz	87.5MHz	1700kHz	1602/1700kHz*
5	558kHz	558kHz	531kHz	560kHz	558/560kHz*
6	1494kHz	1494kHz	1602kHz	1500kHz	1494/1500kHz*
7	87.5MHz	87.5MHz	558kHz	98MHz	87.5/98MHz*
8	87.5MHz	87.5MHz	1494kHz	87.5MHz	87.5MHz
9	87.5MHz	87.5MHz	98MHz	87.5MHz	87.5MHz
10	87.5MHz	87.5MHz	70.01MHz	87.5MHz	87.5MHz
11	98MHz	98MHz	65.81MHz	87.5MHz	98/87.5MHz*

Table 1

Note: * Depending on the selected grid frequency (9 or 10kHz).
By holding the PROG and ►► buttons depressed while switching on the Mains supply, one of the undermentioned features will be activated:
- the tuning grid frequency is toggled between 9kHz and 10kHz for the Oversea (/21) version.
- the extended FM1 (65.81MHz - 74MHz) is toggled on and off for East Eur. (/34) version.

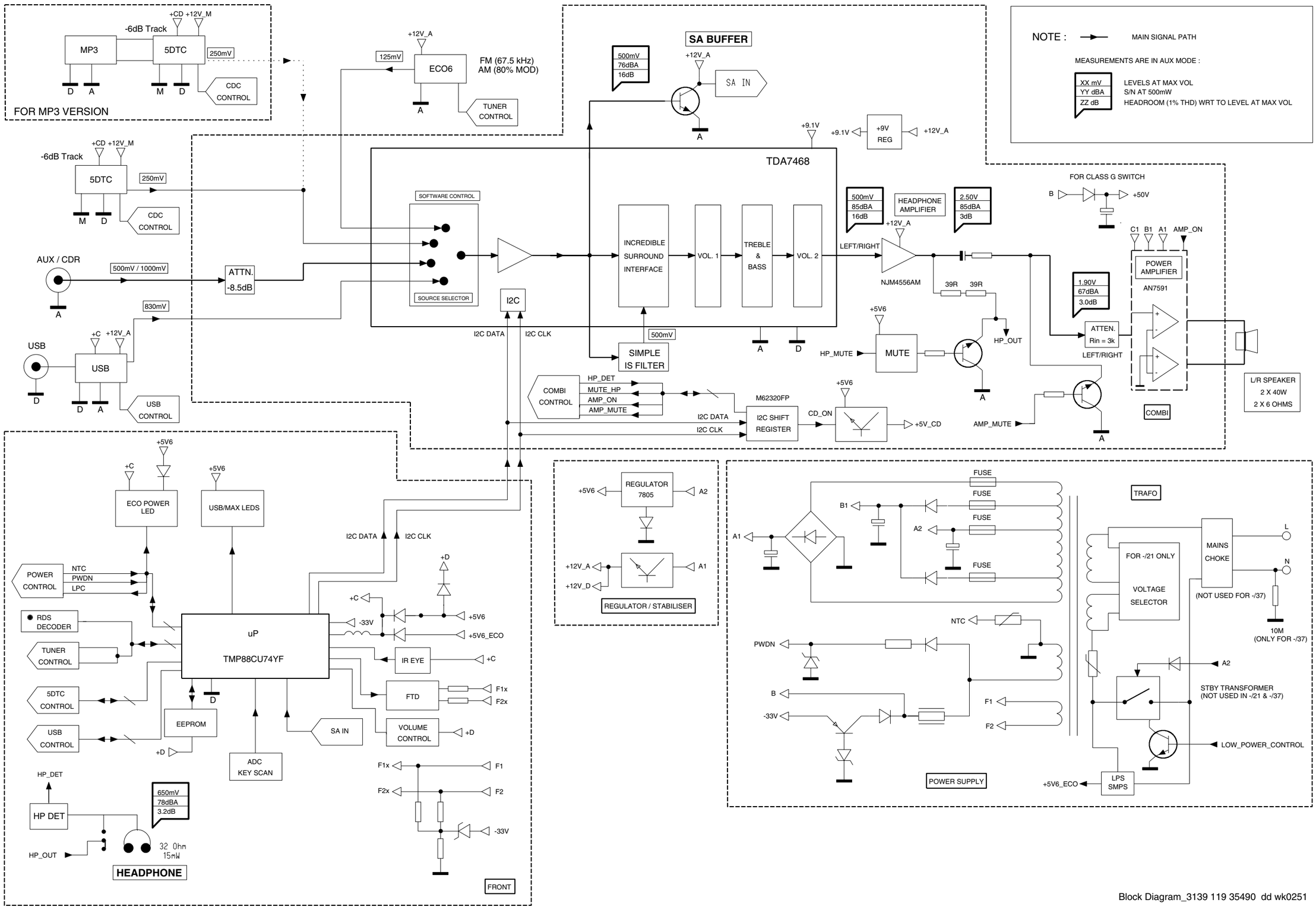
Error code	Error Description
E1000	Focus Error Triggered when the focus cannot be found within a certain time when starting up the CD, or if the focus is lost for more than a certain time during playing of CD.
E1001	Radial Error Triggered when the radial servo is off-track for a certain time during playing of CD.
E1002	Sledge In Error The sledge did not reach its inner position (inner-switch is still close) before approximately 6 seconds have passed by. Inner-switch or sledge motor problem.
E1003	Sledge Out Error The sledge did not come out of its inner position (inner-switch is still open) before approximately 250ms have passed by. Inner-switch or sledge motor problem.
E1005	Jump Error Triggered in normal play when the jump destination could not be found within a certain time.
E1006	Subcode Error Triggered when a new subcode was missing for a certain time during playing of CD.
E1007	PLL Error The Phase Lock Loop could not lock within a certain time.
E1008	Turntable Motor Error Generated when the CD could not reached 75% of speed during start-up within a certain time. Disc motor problem.
E1020	Focus Search Error The focus point has not been found within a certain time.
E1061	The tray could not enter the inside position and is opening again. This can happen if the tray is blocked such that it cannot go fully inside, or if the 5DTC control module is defective and never closes.
E1079	The tray could not reach the outside position and is stopped at its blocked position. This can happen if the tray is blocked such that it cannot go fully outside, or if the 5DTC control module is defective and never opens.

Table 2

TEST	*Activated with*	*ACTION*
EEPROM TEST	►► ■ to Exit	A test pattern will be sent to the EEPROM. "PASS" is displayed if the uProcessor read back the test pattern correctly, otherwise "FAIL" will be displayed.
EEPROM FORMAT TEST	◄◄	Load default data. Display shows "NEW" for 1 second. ***Caution! All presets from the customer will be lost!!***
DEMO TOGGLE	MAX SOUND	Pressing this button will toggle between DEMO ON and DEMO OFF. The DEMO status will scroll once across the Display.
ROTARY ENCODER TEST	Rotary Volume Knob	Display shows value for 2 seconds. Values increases or decreases until Volume Maximum (0dB) or Volume Minimum (VOL MUTE) is reached.
MICRONAS FIRMWARE VERSION	USB PC LINK ■ to Exit	To read out the Firmware Version of IC UAC3553 on the USB PC LINK Board. Display shows "Vxxxx" (xxxx = Firmware Version number).
LEAVE SERVICE TEST PROGRAM	Disconnect mains cord	

4-1

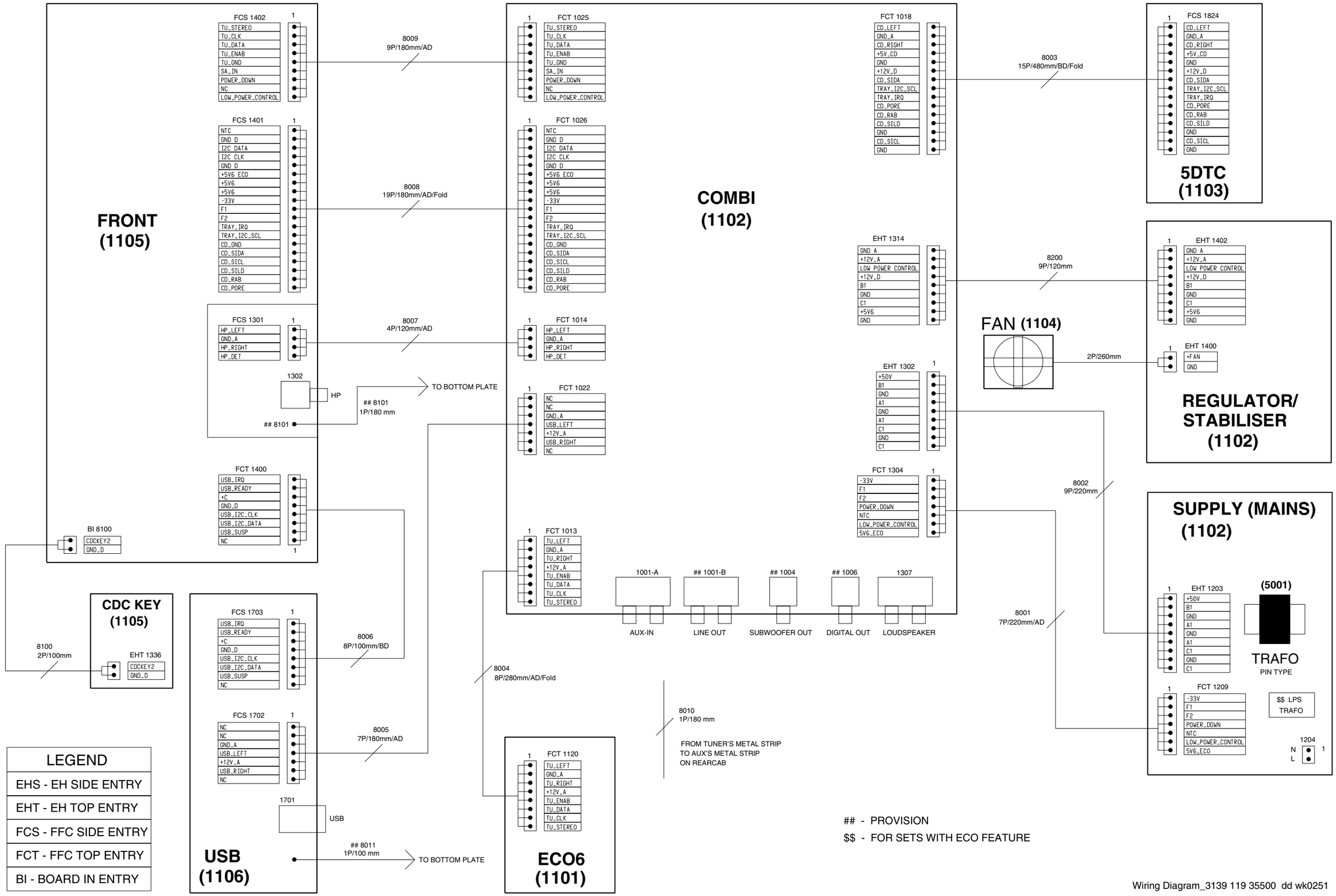
SET BLOCK DIAGRAM



Block Diagram_3139 119 35490 dd wk0251

5-1

SET WIRING DIAGRAM

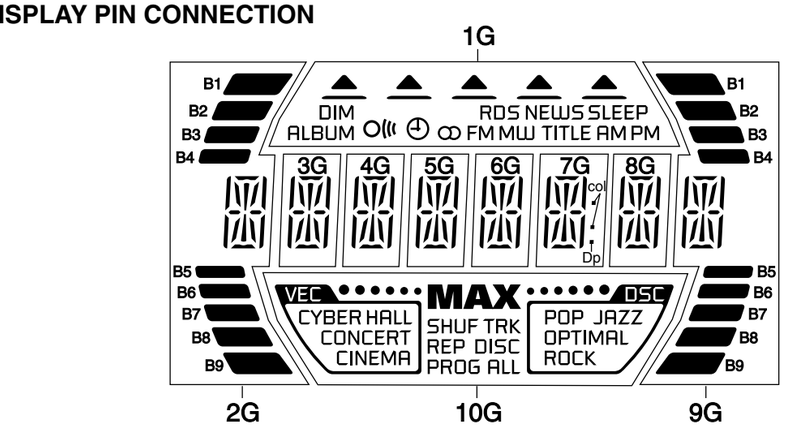


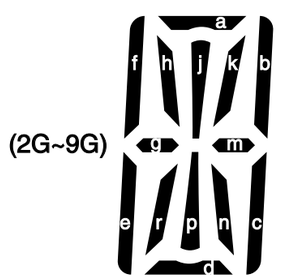
Wiring Diagram_3139 119 35500 dd wk0251

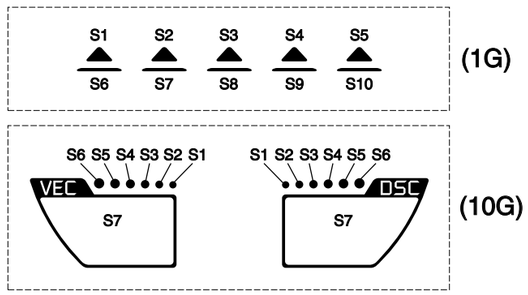
FRONT BOARD

TABLE OF CONTENTS

FTD DISPLAY PIN CONNECTION





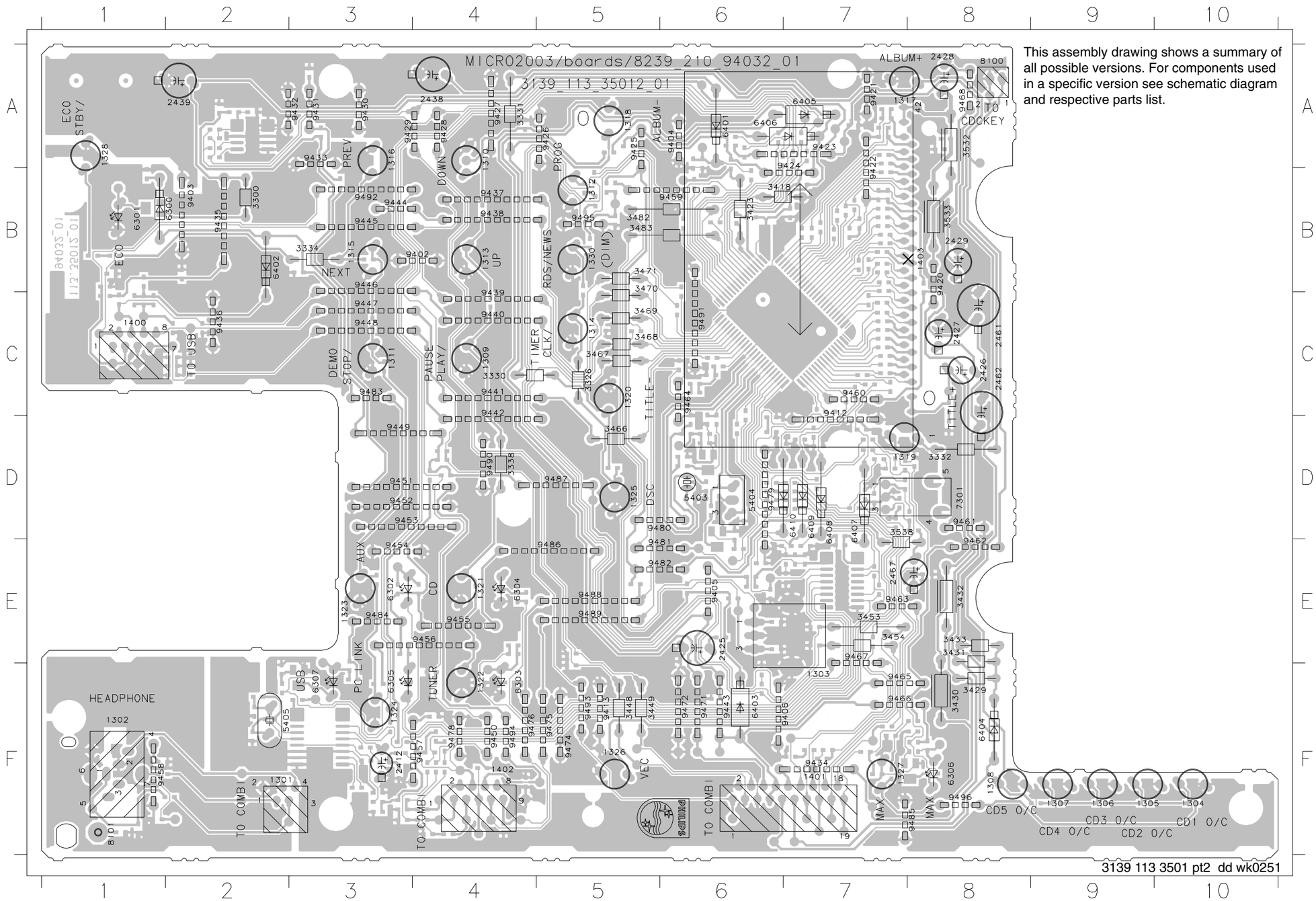


	1G	2G	3G	4G	5G	6G	7G	8G	9G	10G
P1	S1	a	a	a	a	a	a	a	a	S1
P2	S2	h	h	h	h	h	h	h	h	S2
P3	S3	j , p	j , p	j , p	j , p	j , p	j , p	j , p	j , p	S3
P4	S4	k	k	k	k	k	k	k	k	S4
P5	S5	b	b	b	b	b	b	b	b	S5
P6	S6	f	f	f	f	f	f	f	f	S6
P7	S7	m	m	m	m	m	m	m	m	S7
P8	S8	g	g	g	g	g	g	g	g	MAX
P9	S9	c	c	c	c	c	c	c	c	SHUF
P10	S10	e	e	e	e	e	e	e	e	TRK
P11	DIM	r	r	r	r	r	r	r	r	REP
P12	ALBUM	n	n	n	n	n	n	n	n	DISC
P13	O(((	d	d	d	d	d	d	d	d	PROG
P14	🕘	B1	-	-	-	-	col	-	B1	ALL
P15	∞	B2	-	-	-	-	Dp	-	B2	CYBER
P16	RDS	B3	-	-	-	-	-	-	B3	HALL
P17	NEWS	B4	-	-	-	-	-	-	B4	CONCERT
P18	SLEEP	B5	-	-	-	-	-	-	B5	CINEMA
P19	FM	B6	-	-	-	-	-	-	B6	POP
P20	MW	B7	-	-	-	-	-	-	B7	JAZZ
P21	TITLE	B8	-	-	-	-	-	-	B8	OPTIMAL
P22	AM	B9	-	-	-	-	-	-	B9	ROCK
P23	PM	-	-	-	-	-	-	-	-	-

6-2

FRONT BOARD - COMPONENT LAYOUT

1301	F2	1310	A4	1319	D7	1328	A1	2427	C8	3326	C5	3430	F8	3467	C5	3538	D7	6305	F3	6407	D7	9404	A6	9424	A7	9433	A3	9442	C4	9451	D3	9460	C7	9471	F6	9482	E5	9491	C6
1302	F1	1311	C3	1320	C5	1330	B5	2428	A8	3330	C4	3431	E8	3468	C5	5403	D6	6306	F8	6408	D7	9405	E6	9425	A5	9434	F7	9443	F6	9452	D3	9461	D8	9472	F6	9483	C3	9492	B3
1303	F7	1312	B5	1321	E4	1400	C1	2429	B8	3331	A4	3432	E8	3469	C5	5404	D6	6307	F3	6409	D7	9406	F7	9426	A5	9435	B2	9444	B3	9453	D3	9462	E8	9474	F5	9484	E3	9493	F5
1304	F10	1313	B4	1322	F4	1401	F7	2438	A4	3332	D8	3433	E8	3470	B5	5405	F2	6401	A6	6410	D7	9412	C7	9427	A4	9436	C2	9445	B3	9454	E3	9463	E7	9475	F5	9485	F8	9494	F4
1305	F9	1314	C5	1323	E3	1402	F4	2439	A2	3334	B3	3448	F5	3471	B5	6300	B2	6402	B2	7301	D8	9413	F5	9428	A4	9437	B4	9446	B3	9455	E4	9464	C6	9476	F4	9486	E5	9495	B5
1306	F9	1315	B3	1324	F3	1403	B8	2461	C8	3338	D4	3449	F5	3482	B5	6301	B1	6403	F6	8100	A8	9420	B8	9429	A3	9438	B4	9447	C3	9456	E4	9465	F7	9478	F4	9487	D5	9496	F8
1307	F9	1316	A3	1325	D5	2412	F3	2462	C8	3418	B6	3453	E7	3483	B5	6302	E3	6404	F8	8101	F1	9421	A7	9430	A3	9439	C4	9448	C3	9457	F4	9466	F7	9479	D6	9488	E5		
1308	F8	1317	A7	1326	F5	2425	E6	2467	E7	3423	B6	3454	E7	3532	A8	6303	F4	6405	A7	9402	B4	9422	A7	9431	A3	9440	C4	9449	D3	9458	F1	9467	E7	9480	D5	9489	E5		
1309	C4	1318	A5	1327	F7	2426	C8	3300	B2	3429	F8	3466	D5	3533	B8	6304	E4	6406	A6	9403	B2	9423	A7	9432	A3	9441	C4	9450	F4	9459	B6	9468	A8	9481	E5	9490	D4		



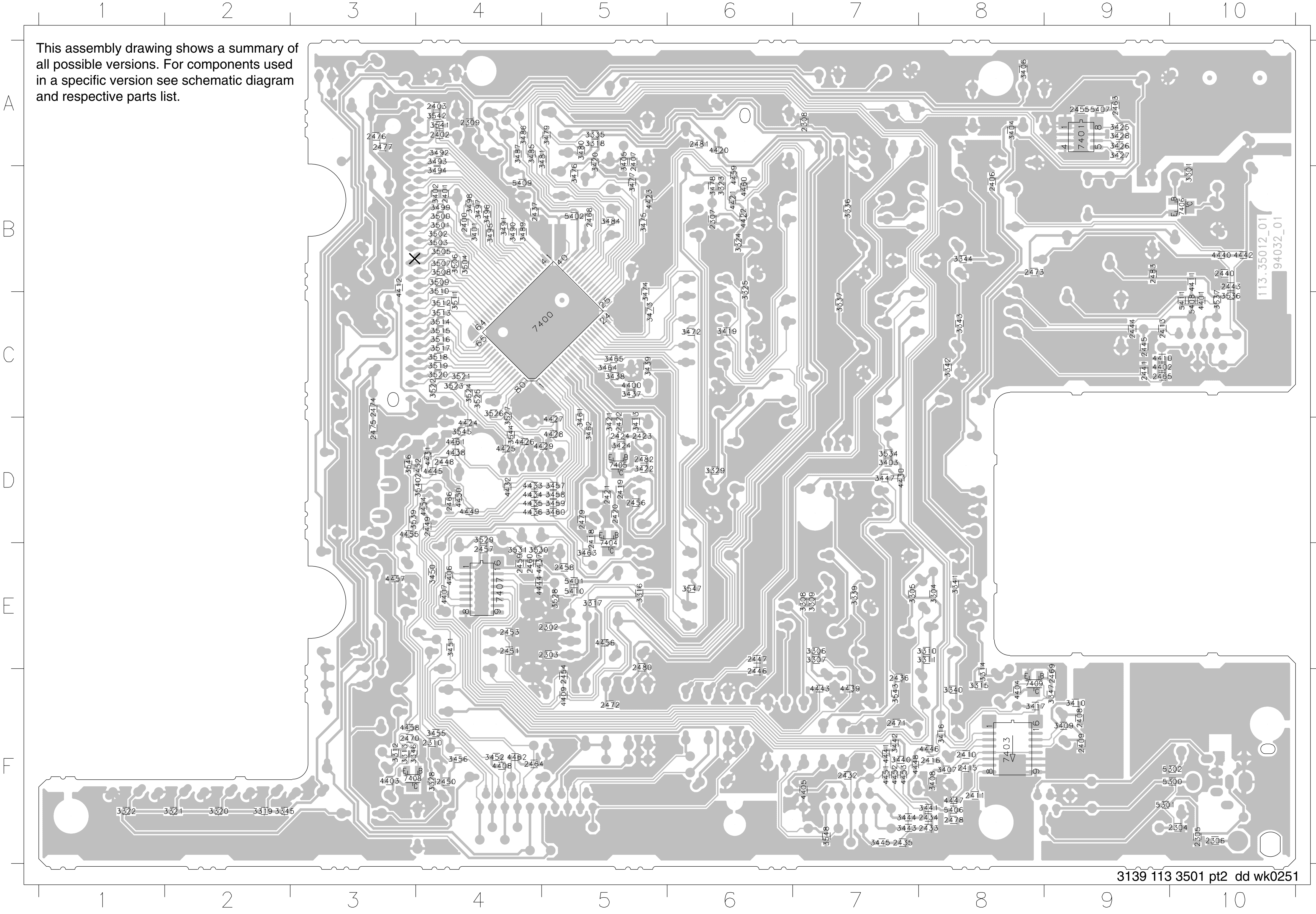
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

6-3

FRONT BOARD - CHIP LAYOUT

2302	E5	2408	F9	2433	F8	2451	E4	2469	F9	3301	B10	3318	A5	3341	E8	3409	F9	3438	C5	3458	D5	3479	A5	3497	B4	3512	C4	3527	C4	3546	D3	4412	B3	4434	D4	4449	D4	5301	F9	7406	B10
2303	E5	2409	F9	2434	F8	2452	D4	2470	F3	3304	E8	3319	F2	3342	C8	3410	F9	3439	C5	3459	D5	3480	A5	3498	B4	3513	C4	3528	E5	3547	E6	4420	A6	4435	D4	4450	D4	5302	F10	7407	E4
2304	F10	2410	F8	2435	F7	2453	E4	2471	F7	3305	E7	3320	F2	3343	C8	3413	D5	3440	F7	3460	D5	3481	A5	3499	B4	3514	C4	3529	D4	3548	F7	4421	B6	4436	D4	4451	F7	5401	E5	7408	F3
2305	F10	2411	F8	2436	F7	2454	F5	2472	F5	3306	E7	3321	F2	3344	B8	3416	F8	3441	F8	3461	C5	3484	B5	3500	B4	3515	C4	3530	E4	4400	C5	4422	B6	4437	E4	4452	F7	5402	B5	7409	F8
2306	F10	2413	C9	2437	B4	2455	A9	2473	B8	3307	E7	3322	F1	3345	F2	3417	F8	3442	F7	3462	D5	3485	A4	3501	B4	3516	C4	3531	E4	4401	C10	4423	B5	4438	D4	4453	F7	5406	F8		
2307	B6	2415	F8	2440	B10	2456	D5	2474	C3	3308	E7	3323	B6	3346	F3	3419	C6	3443	F7	3463	E5	3486	A4	3502	B4	3517	C4	3534	D7	4402	C9	4424	D4	4439	F7	4454	D4	5407	A9		
2308	A7	2416	F8	2441	C9	2457	E4	2475	D3	3309	E7	3324	B6	3347	F9	3420	A5	3444	F7	3464	C5	3487	A4	3503	B4	3518	C4	3536	C10	4403	F3	4425	D4	4440	B10	4455	D3	5408	C10		
2309	A4	2418	D5	2443	B10	2458	E5	2476	A3	3310	E8	3325	B6	3401	B4	3421	D5	3445	F7	3465	C5	3489	B4	3504	B4	3519	C4	3537	C10	4404	F8	4426	D4	4441	F7	4456	E5	5409	B4		
2310	F4	2419	D5	2444	C9	2459	E4	2477	A3	3311	E8	3328	F4	3402	B4	3422	D5	3447	D7	3472	C6	3490	B4	3505	B4	3520	C4	3539	D3	4405	F7	4427	D5	4442	B10	4457	E3	5410	E5		
2400	B4	2420	D5	2445	C9	2460	E4	2478	F8	3312	F3	3329	D6	3403	D7	3424	D5	3450	E4	3473	C5	3491	B4	3506	B4	3521	C4	3540	D4	4406	E4	4428	D5	4443	F7	4458	F3	5411	C10		
2401	B4	2421	D5	2446	F6	2463	A9	2479	D5	3313	F3	3335	A5	3404	A8	3425	A9	3451	E4	3474	B5	3492	A4	3507	B4	3522	C4	3541	A4	4407	E4	4429	D5	4444	E4	4459	B6	7400	C5		
2402	A4	2422	D5	2447	E6	2464	F4	2480	E5	3314	F8	3336	B7	3405	A5	3426	A9	3452	F4	3475	B5	3493	A4	3508	B4	3523	C4	3542	A4	4408	F4	4430	D7	4445	D4	4460	B6	7401	A9		
2403	A4	2423	D5	2448	D4	2465	C9	2481	A6	3315	F8	3337	C7	3406	A8	3427	A9	3455	F4	3476	B5	3494	B4	3509	B4	3524	C4	3543	F7	4409	F5	4431	D4	4446	F8	4461	D4	7403	F8		
2406	B8	2424	D5	2449	D4	2466	D4	2482	D5	3316	E5	3339	E7	3407	F8	3428	A9	3456	F4	3477	B5	3495	B4	3510	B4	3525	C4	3544	D4	4410	C9	4432	D4	4447	F8	4462	F4	7404	D5		
2407	A5	2432	F7	2450	F4	2468	B5	2483	B9	3317	E5	3340	F8	3408	F8	3437	C5	3457	D5	3478	B6	3496	B4	3511	C4	3526	C4	3545	D4	4411	B10	4433	D4	4448	F7	5300	F10	7405	D5		

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



6-4

FRONT BOARD - CIRCUIT DIAGRAM (Part 1)

Front Board
Circuit Diagram (Part 1)

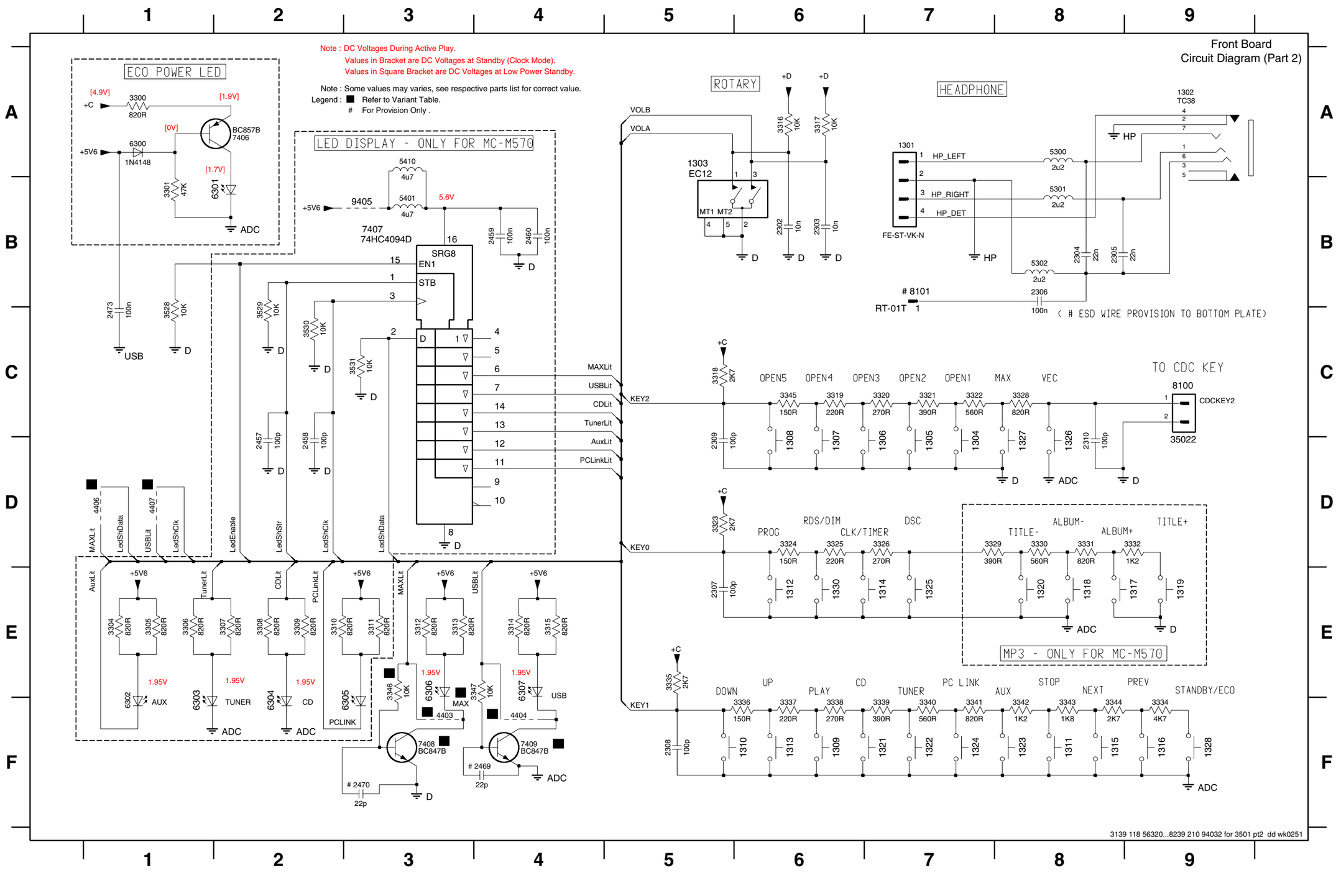
Note : DC Voltages During Active Play.
Values in Bracket are DC Voltages at Standby (Clock Mode).
Values in Square Bracket are DC Voltages at Low Power Standby.

Note : Some values may varies, see respective parts list for correct value.
Legend : ■ Refer to Variant Table.
For Provision Only .

6-5

FRONT BOARD - CIRCUIT DIAGRAM (Part 2)

1301 A7	1306 D7	1311 F8	1316 F9	1321 F7	1326 D8	2303 B6	2308 F5	2459 B4	3300 A1	3307 E2	3312 E3	3317 A6	3322 C7	3328 C8	3334 F9	3339 F7	3344 F8	3529 C2	4406 D1	5401 B3	6303 F1	7406 A2	8101 B7
1302 A9	1307 D6	1312 E6	1317 E9	1322 F7	1327 D8	2304 B8	2309 D5	2460 B4	3301 B1	3308 E2	3313 E3	3318 C5	3323 D5	3329 D7	3335 E5	3340 F7	3345 C6	3530 C2	4407 D1	5410 A3	6304 F2	7407 B3	9405 B3
1303 A5	1308 D6	1313 F6	1318 E8	1323 F8	1328 F9	2305 B8	2310 D8	2469 F4	3304 E1	3309 E2	3314 E4	3319 C6	3324 D6	3330 D8	3336 F6	3341 F7	3346 E3	3531 C3	5300 A8	6300 A1	6305 F3	7408 F3	
1304 D7	1309 F6	1314 E7	1319 E9	1324 F7	1330 E6	2306 B8	2457 D2	2470 F3	3305 E1	3310 E2	3315 E4	3320 C7	3325 D6	3331 D8	3337 F6	3342 F8	3347 E4	4403 F3	5301 B8	6301 B2	6306 E3	7409 F4	
1305 D7	1310 F6	1315 F8	1320 E8	1325 E7	2302 B6	2307 E5	2458 D2	2473 C1	3306 E1	3311 E3	3316 A6	3321 C7	3326 D7	3332 D9	3338 F6	3343 F8	3528 C1	4404 F4	5302 B8	6302 F1	6307 E4	8100 C9	



6-6

FRONT BOARD - CIRCUIT DIAGRAM (Part 3)

Front Board
Circuit Diagram (Part 3)

TO COMBI

MP3	NON-MP3
	NTC
	GND_IIC
	IIC_DATA
	IIC_CLK
	GND_D
	+5V6_ECO
	+5V6
	+5V6
	-33V
	F1
	F2
	TRAY_IRQ
	TRAY_IIC_SCL
	CD_GND
TRAY_IIC_SDA	CD_SIDA
uP_DATA	CD_SICL
uP_CLK	CD_SILD
uP_FRAME	CD_RAB
uC_RESET	CD_PORE

1401 FE-ST-VK-N

9413 I2C I2C IIC

2446 10p # 2447 10p IIC

3448 220R IIC_DATA

3449 220R IIC_CLK

D

0V [5.6V] +5V6_ECO

+5V6 5.6V

-33V -33V

F1 5.7Vac

F2 5.7Vac

3450 470R TRAY_IRQ

3451 470R TRAY_IIC_SCL

ESD PROVISION
2448 47p D 2449 47p

2464 100n CD

4408

3452 470R TRAY_IIC_SDA_CD_SIDA

3453 470R CD_SICL__uP_DATA

3454 470R CD_SILD__uP_CLK

3455 470R CD_RAB__uP_FRAME

3456 470R CD_PORE__uC_RESET

4409
2450 47p 2451 10p 2452 10p 2453 10p 2454 10p D

FOR ESD PROVISION ONLY

NTC IIC_DATA IIC_CLK TRAY_IRQ TRAY_IIC_SCL TRAY_IIC_SDA_CD_SIDA CD_SICL__uP_DATA CD_SILD__uP_CLK CD_RAB__uP_FRAME CD_PORE__uC_RESET

+C +D

3547 39K 3440 10K 3441 10K 3442 10K 3447 10K

TUSTEREO TUCLK TUDATA TUCE TUENABLE SA_IN PWDN Standby

3443 1K 3444 1K 3445 1K 3543 1K 2432 100p

3548 47K 2433 47p 2434 47p 2435 47p 2436 47p 4405 TU

D

FOR ESD PROVISION ONLY

TO COMBI

1402 FE-ST-VK-N

1 TU_STEREO
2 TU_CLK
3 TU_DATA
4 TU_ENABLE
5 TU_GND
6 SA_IN
7 POWER_DOWN
8 NC
9 LOW_PWR_CTRL

+5V6_ECO 6405 1N4003 5402 4u7 5409 4u7 +H +5V
2480 100n 2438 47u 16V 2437 100n D D

+5V6 6403 1N4003 +D +5V
2425 47u 16V 2463 100n 2478 100n D

+5V6 6406 1N4003 +C +5V
2472 100n 2439 47u 16V 2468 100n # 2481 100n 2482 100n D D

4.5Vac F1 3429 220R 3430 6R8 3432 10R F1x 2.5Vac
2426 47u 50V # 2474 220p
2427 47u 50V # 2475 220p FTD

4.5Vac F2 3431 220R 3532 6R8 3533 10R F2x 2.5Vac
2428 47u 50V # 2476 220p
2429 47u 50V # 2477 220p
3433 22K 6404 BZX79-B5V6 -33V FTD

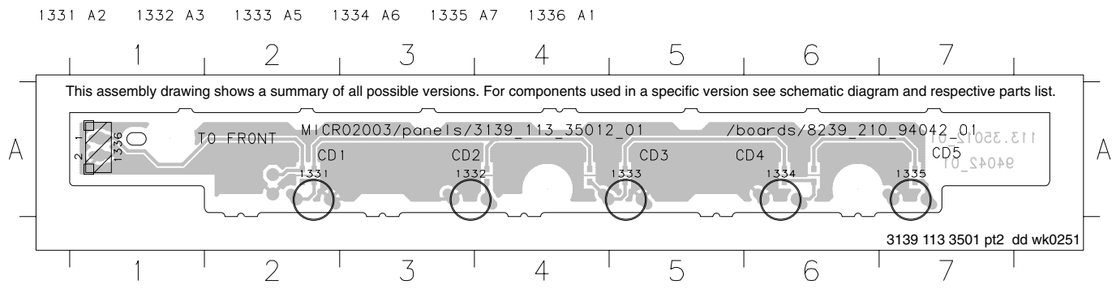
Note : DC Voltages During Active Play.
Values in Bracket are DC Voltages at Standby (Clock Mode).
Values in Square Bracket are DC Voltages at Low Power Standby.

Note : Some values may varies, see respective parts list for correct value.
Legend : ■ Refer to Variant Table.
For Provision Only .

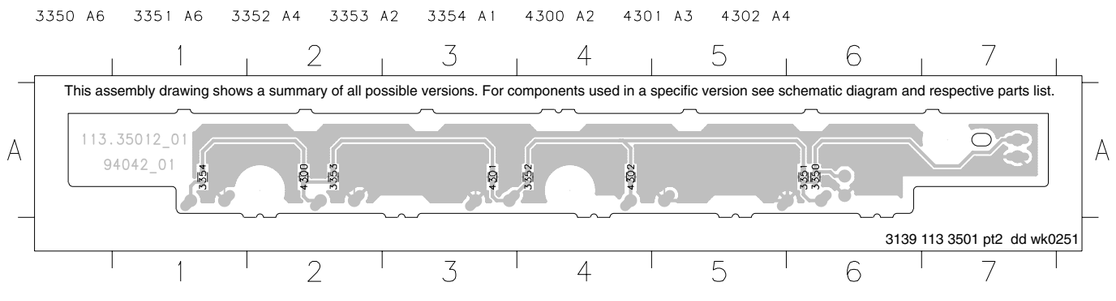
3139 118 56320...8239 210 94032 for 3501 pt2 dd wk0251

1401 A2
1402 A8
2425 E5
2426 D8
2427 E8
2428 E8
2429 F8
2432 B7
2433 C6
2434 C6
2435 C7
2436 C7
2437 E3
2438 E3
2439 F2
2446 A4
2447 A4
2448 B4
2449 B5
2450 D3
2451 D3
2452 D3
2453 D3
2454 D4
2463 E5
2464 C3
2468 F3
2472 F2
2474 D8
2475 E8
2476 E8
2477 F8
2478 E5
2480 E2
2481 F3
2482 F3
3429 D7
3430 D8
3431 F7
3432 D8
3433 F7
3440 A6
3441 A6
3442 A7
3443 A8
3444 B7
3445 B8
3447 A7
3448 B4
3449 B4
3450 B4
3451 B4
3452 C4
3453 C3
3454 C3
3455 C3
3456 D3
3532 E8
3533 F8
3543 B7
3547 A6
3548 C6
4405 C8
4408 C4
4409 D4
5402 E3
5409 E3
6403 E4
6404 F7
6405 E2
6406 F2
9413 A3

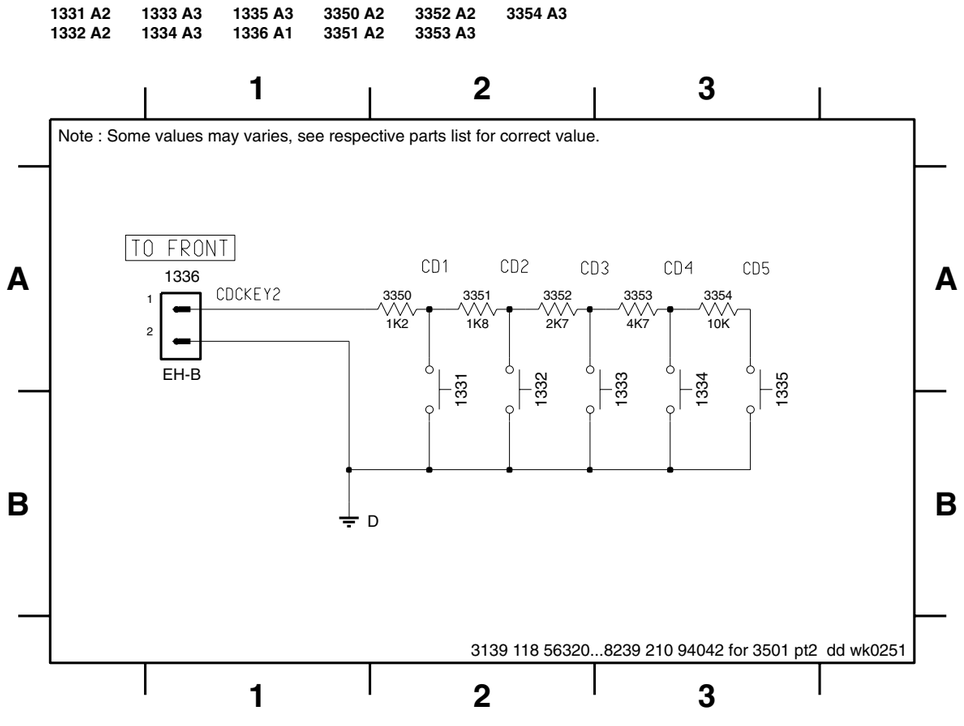
CDC KEY BOARD - COMPONENT LAYOUT



CDC KEY BOARD - CHIP LAYOUT



CDC KEY BOARD - CIRCUIT DIAGRAM



6-7

VARIANT TABLE

Model / Version / Item No.	MC-500/22 MC-500/25	MC-500/30 MC-500/33 MC-500/37	MC-M570/22	MC-M570/21 MC-M570/33 MC-M570/37
3346	10K	10K	—	—
3347	10K	10K	—	—
3413	100K	—	100K	100K
3403 / 3534	1K8	1K8	—	—
3406	33K	33K	15K	15K
3418	—	10K	—	10K
3419	—	10K	—	10K
3423	1K8	—	1K8	1K8
3437	680K	680K	—	—
3438	1M	1M	2M2	2M2
3439	1M	1M	—	—
3452	—	—	470R	470R
3545	10K	10K	—	—
3547	39K	—	—	—
4400	—	—	X	X
4403	—	—	X	X
4404	—	—	X	X
4406	X	X	—	—
4407	X	X	—	—
4408	X	X	—	—
6405	X	—	X	X
6407	—	—	X	X
7408	X	X	—	—
7409	X	X	—	—

X - Item in use.

6-8

ELECTRICAL PARTS LIST - FRONT BOARD

ELECTRICAL PARTS LIST - FRONT BOARD

MISCELLANEOUS

1301	4822 265 11183	Flex Connector 4P	
1302	2422 026 05059	Headphone Socket	
1303	2422 129 16708	Rotary Encoder 24P	
1304	4822 276 13775	Tact Switch	
1305	4822 276 13775	Tact Switch	
1306	4822 276 13775	Tact Switch	
1307	4822 276 13775	Tact Switch	
1308	4822 276 13775	Tact Switch	
1309	4822 276 13775	Tact Switch	
1310	4822 276 13775	Tact Switch	
1311	4822 276 13775	Tact Switch	
1312	4822 276 13775	Tact Switch	
1313	4822 276 13775	Tact Switch	
1314	4822 276 13775	Tact Switch	
1315	4822 276 13775	Tact Switch	
1316	4822 276 13775	Tact Switch	
1321	4822 276 13775	Tact Switch	
1322	4822 276 13775	Tact Switch	
1323	4822 276 13775	Tact Switch	
1324	4822 276 13775	Tact Switch	
1325	4822 276 13775	Tact Switch	
1326	4822 276 13775	Tact Switch	
1327	4822 276 13775	Tact Switch	
1328	4822 276 13775	Tact Switch	
1330	4822 276 13775	Tact Switch	
1331	4822 276 13775	Tact Switch	
1332	4822 276 13775	Tact Switch	
1333	4822 276 13775	Tact Switch	
1334	4822 276 13775	Tact Switch	
1335	4822 276 13775	Tact Switch	
1400	4822 265 11535	Flex Connector 8P	
1401	4822 265 11545	Flex Connector 19P	
1402	4822 265 11531	Flex Connector 9P	
1403	3139 110 53331	FTD (HNA-10LS02T)	

CAPACITORS

2302	5322 126 11583	10nF 10% 50V	
2303	5322 126 11583	10nF 10% 50V	
2304	4822 126 14494	22nF 10% 25V	
2305	4822 126 14494	22nF 10% 25V	
2306	2238 586 59812	100nF 50V	
2307	2020 552 94427	100pF 5% 50V	
2308	2020 552 94427	100pF 5% 50V	
2309	2020 552 94427	100pF 5% 50V	
2310	2020 552 94427	100pF 5% 50V	
2406	3198 017 41050	1uF 10V	
2407	4822 126 13879	220nF +80/-20% 16V	
2408	4822 126 11785	47pF 5% 50V	/22/25
2409	4822 126 11785	47pF 5% 50V	/22/25
2410	4822 126 14249	560pF 10% 50V	/22/25
2411	4822 126 14249	560pF 10% 50V	/22/25
2412	4822 124 22652	2,2uF 20% 50V	/22/25
2413	2238 586 59812	100nF 50V	
2415	2238 586 59812	100nF 50V	/22/25
2416	5322 126 11578	1nF 10% 50V	/22/25
2418	2222 867 15339	33pF 5% 50V	
2419	4822 122 33761	22pF 5% 50V	
2420	4822 122 33761	22pF 5% 50V	
2421	4822 126 14223	2,2pF 50V	
2422	5322 126 11583	10nF 10% 50V	
2423	3198 017 44740	470nF 10V	
2424	5322 126 11583	10nF 10% 50V	
2425	4822 124 81286	47uF 20% 16V	
2426	4822 124 12032	4,7uF 20% 50V	
2427	4822 124 12032	4,7uF 20% 50V	
2428	4822 124 12032	4,7uF 20% 50V	
2429	4822 124 12032	4,7uF 20% 50V	
2432	2020 552 94427	100pF 5% 50V	
2437	2238 586 59812	100nF 50V	
2438	4822 124 81286	47uF 20% 16V	
2439	4822 124 81286	47uF 20% 16V	
2455	2238 586 59812	100nF 50V	
2456	4822 122 33761	22pF 5% 50V	
2461	3198 028 52290	22uF 20% 50V	
2462	3198 028 52290	22uF 20% 50V	
2463	2238 586 59812	100nF 50V	
2464	2238 586 59812	100nF 50V	
2466	4822 126 14238	2,2nF 50V	
2467	4822 124 12032	4,7uF 20% 50V	
2468	2238 586 59812	100nF 50V	
2471	3198 017 34730	47nF 16V	/22/25
2473	2238 586 59812	100nF 50V	
2478	2238 586 59812	100nF 50V	
2482	2238 586 59812	100nF 50V	

RESISTORS

3300	4822 116 52231	820R 5% 0,5W	/22/25
3301	4822 117 12925	47k 1% 0,063W	/22/25
3312	4822 117 12968	820R 5% 0,62W	
3313	4822 117 12968	820R 5% 0,62W	
3314	4822 117 12968	820R 5% 0,62W	
3315	4822 117 12968	820R 5% 0,62W	
3316	4822 051 30103	10k 5% 0,062W	
3317	4822 051 30103	10k 5% 0,062W	
3318	4822 051 30272	2k7 5% 0,062W	
3319	4822 051 30221	220R 5% 0,062W	
3320	4822 051 30271	270R 5% 0,062W	
3321	4822 051 30391	390R 5% 0,062W	
3322	4822 051 30561	560R 5% 0,062W	
3323	4822 051 30272	2k7 5% 0,062W	
3324	4822 051 30151	150R 5% 0,062W	
3325	4822 051 30221	220R 5% 0,062W	
3326	4822 116 83876	270R 5% 0,5W	
3328	4822 117 12968	820R 5% 0,62W	
3334	4822 116 52283	4k7 5% 0,5W	
3335	4822 051 30272	2k7 5% 0,062W	
3336	4822 051 30151	150R 5% 0,062W	
3337	4822 051 30221	220R 5% 0,062W	
3338	4822 116 83876	270R 5% 0,5W	
3339	4822 051 30391	390R 5% 0,062W	
3340	4822 051 30561	560R 5% 0,062W	
3341	4822 117 12968	820R 5% 0,62W	
3342	4822 117 11817	1k2 1% 1/16W	
3343	4822 117 12903	1k8 1% 0,063W	
3344	4822 051 30272	2k7 5% 0,062W	
3345	4822 051 30151	150R 5% 0,062W	
3346	4822 051 30103	10k 5% 0,062W	
3347	4822 051 30103	10k 5% 0,062W	
3350	4822 117 11817	1k2 1% 1/16W	
3351	4822 117 12903	1k8 1% 0,063W	
3352	4822 051 30272	2k7 5% 0,062W	
3353	4822 051 30472	4k7 5% 0,062W	
3354	4822 051 30103	10k 5% 0,062W	
3403	4822 117 12903	1k8 1% 0,063W	
3404	4822 051 30684	680k 5% 0,062W	
3405	4822 051 30474	470k 5% 0,062W	
3406	4822 051 30333	33k 5% 0,062W	
3407	4822 051 30152	1k5 5% 0,062W	/22/25
3408	4822 051 30103	10k 5% 0,062W	/22/25
3409	4822 051 30222	2k2 5% 0,062W	/22/25
3410	4822 117 12891	220k 1%	/22/25
3413	4822 117 13632	100k 1% 0,62W	/22/25
3416	4822 051 30102	1k 5% 0,062W	/22/25
3417	4822 051 30102	1k 5% 0,062W	/22/25
3418	4822 050 21003	10k 1% 0,6W	/30/37
3419	4822 051 30103	10k 5% 0,062W	/30/37
3420	4822 051 30272	2k7 5% 0,062W	
3421	4822 051 30102	1k 5% 0,062W	
3422	4822 051 30684	680k 5% 0,062W	
3423	4822 116 52249	1k8 5% 0,5W	/22/25
3424	4822 117 12891	220k 1%	
3425	4822 051 30682	6k8 5% 0,062W	
3426	4822 051 30102	1k 5% 0,062W	
3427	4822 051 30102	1k 5% 0,062W	
3428	4822 051 30682	6k8 5% 0,062W	
3429	4822 116 83872	220R 5% 0,5W	
3430	4822 052 10688	⚠ 6R8 5% 0,33W	
3431	4822 116 83872	220R 5% 0,5W	
3432	4822 052 10109	⚠ 10R 5% 0,33W	
3433	4822 116 52257	22k 5% 0,5W	
3437	4822 051 30684	680k 5% 0,062W	
3438	4822 051 30105	1M 5% 0,062W	
3439	4822 051 30105	1M 5% 0,062W	
3440	4822 051 30103	10k 5% 0,062W	
3441	4822 051 30103	10k 5% 0,062W	
3442	4822 051 30103	10k 5% 0,062W	
3443	4822 051 30102	1k 5% 0,062W	
3444	4822 051 30102	1k 5% 0,062W	
3445	4822 051 30102	1k 5% 0,062W	
3447	4822 051 30103	10k 5% 0,062W	
3448	4822 116 83872	220R 5% 0,5W	
3449	4822 116 83872	220R 5% 0,5W	
3450	4822 051 30471	470R 5% 0,062W	
3451	4822 051 30471	470R 5% 0,062W	
3453	4822 116 83883	470R 5% 0,5W	
3454	4822 116 83883	470R 5% 0,5W	
3455	4822 051 30471	470R 5% 0,062W	
3456	4822 051 30471	470R 5% 0,062W	
3457	4822 051 30471	470R 5% 0,062W	
3458	4822 051 30102	1k 5% 0,062W	
3459	4822 051 30102	1k 5% 0,062W	
3460	4822 051 30102	1k 5% 0,062W	
3461	4822 051 30471	470R 5% 0,062W	
3462	4822 051 30102	1k 5% 0,062W	
3463	4822 051 30472	4k7 5% 0,062W	
3464	4822 051 30102	1k 5% 0,062W	
3465	4822 051 30102	1k 5% 0,062W	
3466	4822 116 52175	100R 5% 0,5W	
3467	4822 116 52175	100R 5% 0,5W	
3468	4822 116 52175	100R 5% 0,5W	
3469	4822 116 52175	100R 5% 0,5W	
3470	4822 050 11002	1k 1% 0,4W	
3471	4822 050 11002	1k 1% 0,4W	
3472	4822 051 30102	1k 5% 0,062W	
3473	4822 051 30471	470R 5% 0,062W	
3474	4822 051 30471	470R 5% 0,062W	
3475	4822 051 30471	470R 5% 0,062W	
3476	4822 051 30102	1k 5% 0,062W	
3477	4822 051 30102	1k 5% 0,062W	
3478	4822 051 30102	1k 5% 0,062W	
3479	4822 051 30102	1k 5% 0,062W	
3480	4822 051 30102	1k 5% 0,062W	
3481	4822 051 30102	1k 5% 0,062W	
3482	4822 050 11002	1k 1% 0,4W	
3483	4822 050 11002	1k 1% 0,4W	
3484	4822 051 30102	1k 5% 0,062W	
3485	4822 051 30102	1k 5% 0,062W	
3486	4822 051 30102	1k 5% 0,062W	
3487	4822 051 30102	1k 5% 0,062W	
3489	4822 051 30102	1k 5% 0,062W	
3490	4822 051 30102	1k 5% 0,062W	
3491	4822 051 30102	1k 5% 0,062W	
3492	4822 051 30102	1k 5% 0,062W	
3493	4822 051 30102	1k 5% 0,062W	
3494	4822 051 30102	1k 5% 0,062W	
3495	4822 051 30102	1k 5% 0,062W	
3496	4822 051 30102	1k 5% 0,062W	
3497	4822 051 30102	1k 5% 0,062W	

ELECTRICAL PARTS LIST - FRONT BOARD

RESISTORS

3498	4822 051 30102	1k 5% 0,062W	
3499	4822 051 30102	1k 5% 0,062W	
3500	4822 051 30102	1k 5% 0,062W	
3501	4822 051 30102	1k 5% 0,062W	
3502	4822 051 30102	1k 5% 0,062W	
3503	4822 051 30102	1k 5% 0,062W	
3504	4822 051 30102	1k 5% 0,062W	
3505	4822 051 30102	1k 5% 0,062W	
3506	4822 051 30102	1k 5% 0,062W	
3507	4822 051 30102	1k 5% 0,062W	
3508	4822 051 30102	1k 5% 0,062W	
3509	4822 051 30102	1k 5% 0,062W	
3510	4822 051 30102	1k 5% 0,062W	
3511	4822 051 30102	1k 5% 0,062W	
3512	4822 051 30102	1k 5% 0,062W	
3513	4822 051 30102	1k 5% 0,062W	
3514	4822 051 30102	1k 5% 0,062W	
3515	4822 051 30102	1k 5% 0,062W	
3516	4822 051 30102	1k 5% 0,062W	
3517	4822 051 30102	1k 5% 0,062W	
3518	4822 051 30102	1k 5% 0,062W	
3519	4822 051 30102	1k 5% 0,062W	
3520	4822 051 30102	1k 5% 0,062W	
3521	4822 051 30102	1k 5% 0,062W	
3522	4822 051 30102	1k 5% 0,062W	
3523	4822 051 30102	1k 5% 0,062W	
3524	4822 051 30102	1k 5% 0,062W	
3525	4822 051 30102	1k 5% 0,062W	
3526	4822 051 30471	470R 5% 0,062W	
3527	4822 051 30471	470R 5% 0,062W	
3528	4822 051 30103	10k 5% 0,062W	
3532	4822 052 10688	⚠ 6R8 5% 0,33W	
3533	4822 052 10109	⚠ 10R 5% 0,33W	
3534	4822 117 12903	1k8 1% 0,063W	
3536	4822 051 30472	4k7 5% 0,062W	
3537	4822 051 30472	4k7 5% 0,062W	
3538	4822 116 52175	100R 5% 0,5W	
3539	4822 051 30103	10k 5% 0,062W	
3540	4822 051 30102	1k 5% 0,062W	
3543	4822 051 30102	1k 5% 0,062W	
3545	4822 051 30103	10k 5% 0,062W	
3547	4822 051 30393	39k 5% 0,062W	/22/25
4300	4822 051 30008	0R Jumper 0603	
4301	4822 051 30008	0R Jumper 0603	
4302	4822 051 30008	0R Jumper 0603	
4402	4822 051 30008	0R Jumper 0603	
4406	4822 051 30008	0R Jumper 0603	
4407	4822 051 30008	0R Jumper 0603	
4408	4822 051 30008	0R Jumper 0603	
4410	4822 051 30008	0R Jumper 0603	
4411	4822 051 30008	0R Jumper 0603	
4420	4822 051 30008	0R Jumper 0603	
4421	4822 051 30008	0R Jumper 0603	
4422	4822 051 30008	0R Jumper 0603	
4423	4822 051 30008	0R Jumper 0603	
4424	4822 051 30008	0R Jumper 0603	
4425	4822 051 30008	0R Jumper 0603	
4426	4822 051 30008	0R Jumper 0603	
4427	4822 051 30008	0R Jumper 0603	
4428	4822 051 30008	0R Jumper 0603	
4429	4822 051 30008	0R Jumper 0603	
4430	4822 051 30008	0R Jumper 0603	
4431	4822 051 30008	0R Jumper 0603	
4432	4822 051 30008	0R Jumper 0603	
4433	4822 051 30008	0R Jumper 0603	
4434	4822 051 30008	0R Jumper 0603	
4435	4822 051 30008	0R Jumper 0603	
4436	4822 051 30008	0R Jumper 0603	
4437	4822 051 30008	0R Jumper 0603	
4438	4822 051 30008	0R Jumper 0603	
4439	4822 051 30008	0R Jumper 0603	
4440	4822 051 30008	0R Jumper 0603	
4441	4822 051 30008	0R Jumper 0603	
4442	4822 051 30008	0R Jumper 0603	
4443	4822 051 30008	0R Jumper 0603	
4444	4822 051 30008	0R Jumper 0603	
4445	4822 051 30008	0R Jumper 0603	
4446	4822 051 30008	0R Jumper 0603	
4447	4822 051 30008	0R Jumper 0603	
4448	4822 051 30008	0R Jumper 0603	
4449	4822 051 30008	0R Jumper 0603	
4450	4822 051 30008	0R Jumper 0603	
4451	4822 051 30008	0R Jumper 0603	
4452	4822 051 30008	0R Jumper 0603	
4453	4822 051 30008	0R Jumper 0603	
4454	4822 051 30008	0R Jumper 0603	
4455	4822 051 30008	0R Jumper 0603	
4456	4822 051 30008	0R Jumper 0603	
4457	4822 051 30008	0R Jumper 0603	
4458	4822 051 30008	0R Jumper 0603	
4459	4822 051 30008	0R Jumper 0603	
4460	4822 051 30008	0R Jumper 0603	
4461	4822 051 30008	0R Jumper 0603	
4462	4822 051 30008	0R Jumper 0603	

COILS & FILTERS

5300	3198 018 52280	FXD IND 2,2uH 10%	
5301	3198 018 52280	FXD IND 2,2uH 10%	
5302	3198 018 52280	FXD IND 2,2uH 10%	
5402	3198 018 54780	FXD IND 4,7uH 10%	
5403	2422 543 01069	RES XTL 32,768kHz	
5404	5322 242 73686	RES CER 12MHz	
5405	4822 242 11033	RES XTL 4,332MHz	/22/25
5406	3198 018 52280	FXD IND 2,2uH 10%	/22/25

ELECTRICAL PARTS LIST - FRONT BOARD

COILS & FILTERS

5407	3198 018 52280	FXD IND 2,2uH 10%	
5408	3198 018 54780	FXD IND 4,7uH 10%	
5409	3198 018 54780	FXD IND 4,7uH 10%	
5411	3198 018 54780	FXD IND 4,7uH 10%	

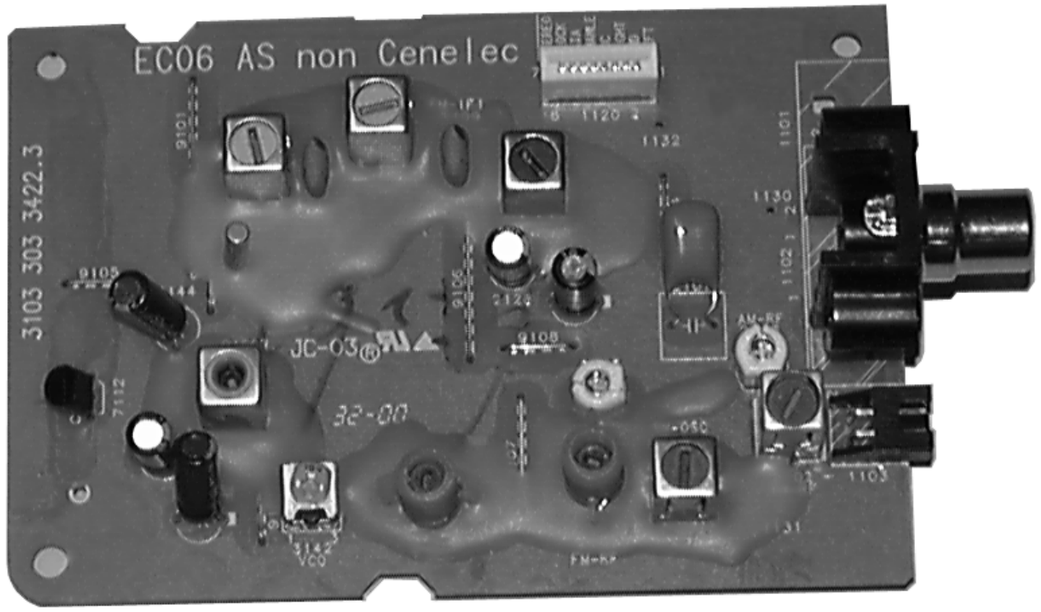
DIODES

6300	4822 130 30621	1N4148	/22/25
6301	9322 179 76676	LED VS LTL-816EELC	/22/25
6306	9322 178 15676	LED VS LTL-8166FTNN	
6307	9322 178 15676	LED VS LTL-8166FTNN	
6401	4822 130 30621	1N4148	
6403	4822 130 31878	1N4003G	
6404	4822 130 83206	BZX79-B5V6	
6405	4822 130 31878	1N4003G	/22/25
6406	4822 130 31878	1N4003G	
6408	4822 130 30621	1N4148	
6409	4822 130 30621	1N4148	
6410	4822 130 30621	1N4148	

TRANSISTORS & INTEGRATED CIRCUITS

7301	9322 185 97667	IR Receiver TSOP4836ZC1	
7400	3139 110 53381	TMP88CU74YF - '500S53381'	
7401	9322 145 26668	M24C02-WMN6	
7403	9352 686 05118	SAA6581T	/22/25
7404	5322 130 60159	BC847B	
7405	5322 130 60159	BC847B	
7406	4822 130 60373	BC857B	/22/25
7408	5322 130 60159	BC847B	
7409	5322 130 60159	BC847B	

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



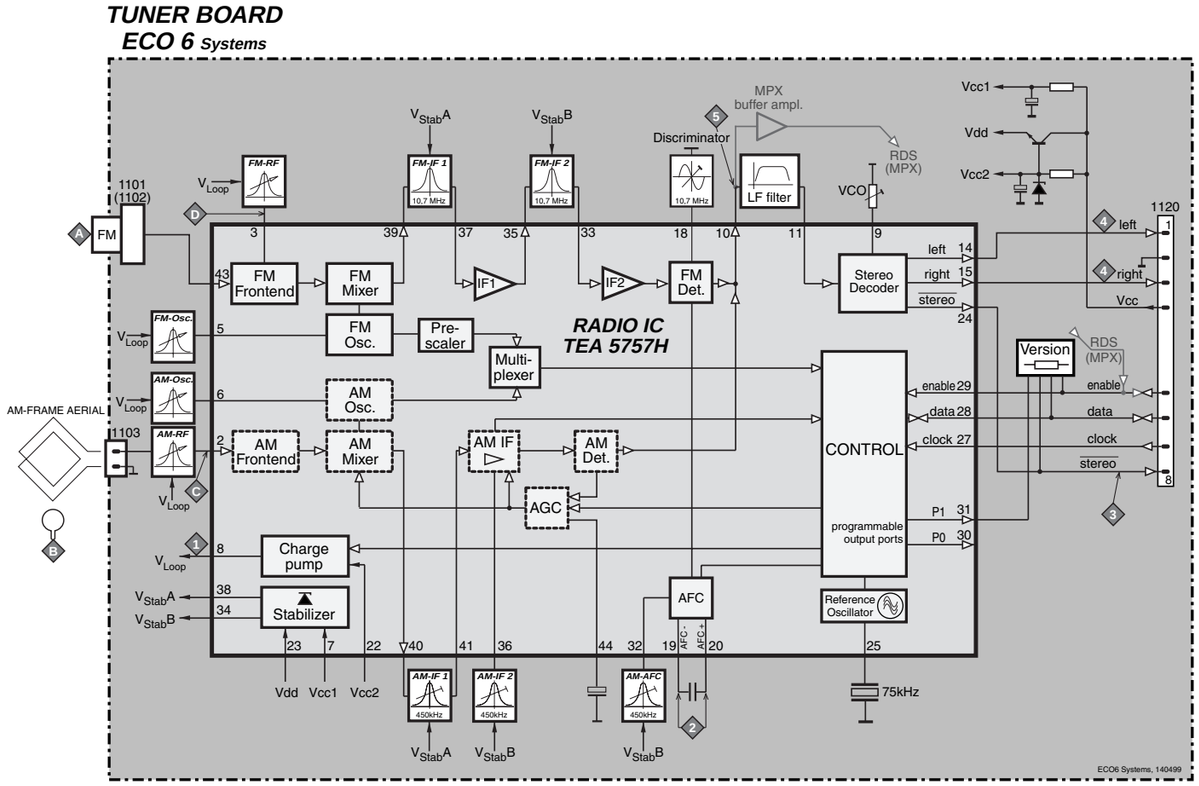
ECO6 Tuner Board

version: ***SYSTEMS non-CENELEC***

TABLE OF CONTENTS

7A-1

BLOCK DIAGRAM



7A-2

TUNER BOARD ECO6 / SYSTEMS NON CENELEC

VERSION PROGRAMMING COMPONENTS

VERSION	6120	3156	3157	3170	7111
/00 /02 FM/MW/LW	☒				
/00 /02 FM/MW		☒			☒
/01 FM/MW			☒		
/14 FM-OIRT/MW	☒				
/17 FM/AM		☒			☒
/06 FM-Japan/AM			☒	☒	

☒ component mounted

VERSION DETECTION

LEGEND

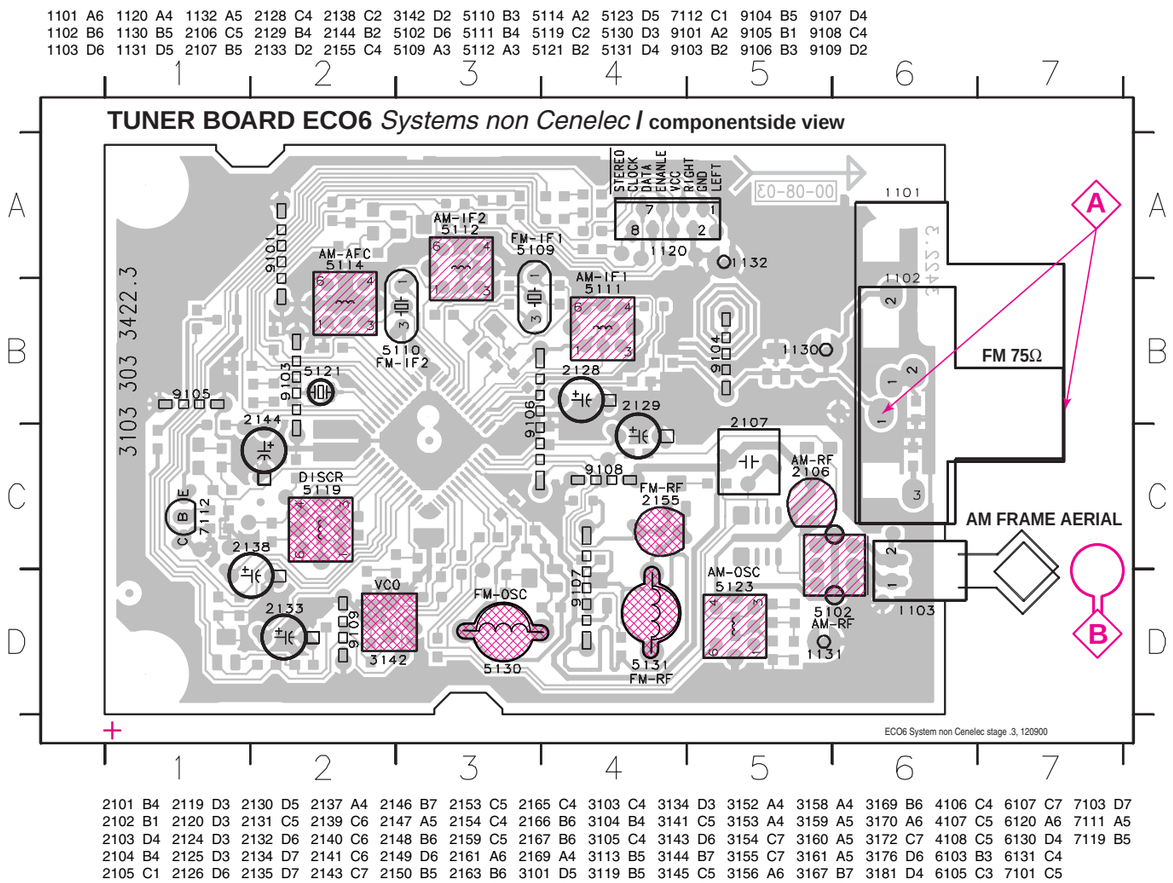
ⓟ...for provision only
USA ... for USA version only
E-EU ... for East European version only
J ... for Japanese version only

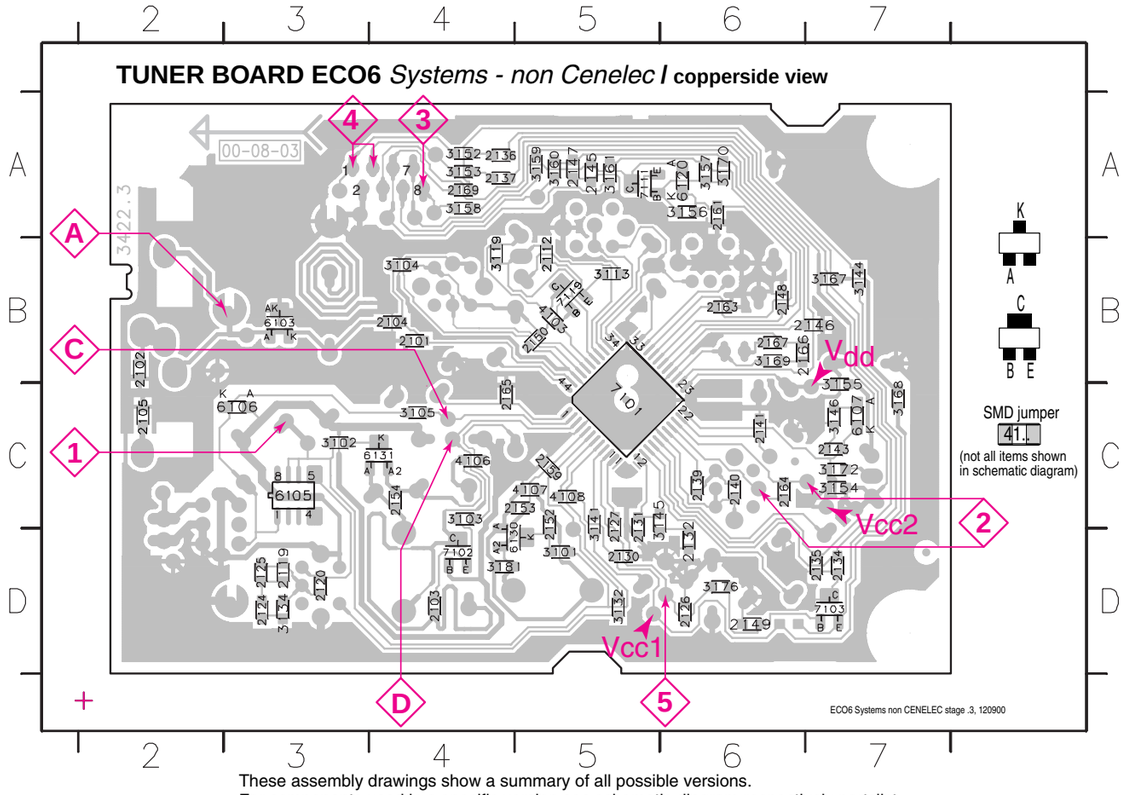
...V FM mode stereo
...V MW mode
...V LW mode
Ⓥ EVM
voltages measured while set is tuned to a strong transmitter

Signal path
FM
AM
MPX (Audio Frequency)
AF - left/right

ECO6 Sys-non Cenelec, 000911

7A-3





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

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

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 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)
MW 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
LW 153 - 279kHz			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
MW FM/MW/LW- version, 9kHz grid 531 - 1602kHz			1602kHz	5123		8V ±0.2V
			531kHz	check		1.1V ±0.4V
FM IF						
FM	10.7MHz, 45mV continuous wave	◇D	IC 7101 21 shortcircuit to block AFC 2141	5119	◇2	0 ± 3 mV DC
FM RF						
FM 87.5 - 108MHz (65.81 - 74, 87.5 - 108MHz)	108MHz	◇A	108MHz	2155	◇4	MAX
	87.5MHz (65.81MHz)	mod=1kHz Δf=±22.5kHz	87.5MHz (65.81MHz)	5131		
VCO						
FM	98MHz, 1mV continuous wave	◇A	98MHz	3142	◇3	152kHz ±1kHz 1)
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	◇C Δf=±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 100nF 220R	5111	◇5	max. f_o symmetric
			IC 7101 40 100nF 220R see remark 2)	5112		
AM AFC **MW**		◇C continuous wave V_{RF} = 2mV		5114	◇2	0 ± 2 mV DC
AM RF 3)						
MW 4) FM/MW/LW- and FM/MW-version (9kHz grid) 531 - 1602kHz	1494kHz	◇B	1494kHz	2106	◇5	max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		
MW FM/AM-version, 10kHz grid 530 - 1700kHz	1500kHz	Δf = ±30kHz V_{RF} as low as possible	1500kHz	2106		
	560kHz		560kHz	5102		

ECO6, Sys + PA with frame aerial, 070799

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

1) If sensitivity of frequency counter is too low adjust to max. channel separation (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

Electrical Partslist *ECO6* *SYSTEMS NON-CENELEC*

7A-4

MISCELLANEOUS

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

CAPACITORS

2101 ©	4822 126 13692	47pF	1%	63V	
2102 ©	4822 126 13838	100nF	10%	50V	not USA
2103 ©	5322 122 31647	1nF	10%	63V	
2104 ©	5322 122 32531	100pF	5%	50V	
2105 ©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00191	3-11pF TRIMCAP.,N450			
2107	4822 121 51319	1µF	20%	50V	
2120 ©	4822 126 13689	18pF	1%	63V	
2124 ©	5322 122 32654	22nF	10%	63V	
2125 ©	2020 552 96199	560pF	1%	50V	
2126 ©	5322 122 31863	330pF	5%	50V	
2127 ©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130 ©	5322 122 32654	22nF	10%	63V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134 ©	4822 126 13188	15nF	5%	63V	not USA
2134 ©	5322 122 32654	22nF	10%	63V	USA only
2135 ©	4822 126 13188	15nF	5%	63V	not USA
2135 ©	5322 122 32654	22nF	10%	63V	USA only
2136 ©	4822 126 14076	220nF	20%	25V	
2137 ©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139 ©	4822 126 14236	15pF	5%	50V	
2140 ©	4822 126 13695	82pF	1%	63V	
2141 ©	4822 126 13838	100nF	10%	50V	
2143 ©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145 ©	4822 122 33575	220pF	5%	50V	
2146 ©	4822 122 33575	220pF	5%	50V	
2147 ©	4822 122 33575	220pF	5%	50V	
2148 ©	4822 122 33127	2,2nF	10%	63V	
2149 ©	5322 122 32659	33pF	5%	50V	RDS only
2150 ©	4822 126 13838	100nF	10%	50V	
2152 ©	4822 126 12105	33nF	5%	63V	not for East Europe
2152 ©	5322 116 80853	560pF	5%	63V	for East Europe only
2153 ©	4822 126 13486	15pF	2%	63V	not for East Europe
2153 ©	4822 122 33926	12pF	2%	50V	for East Europe only
2155	2020 800 00191	3-11pF TRIMCAP.,N450			
2159 ©	5322 122 32659	33pF	5%	50V	
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 13838	100nF	10%	50V	
2166 ©	5322 122 31647	1nF	10%	63V	
2167 ©	4822 122 33926	12pF	5%	50V	
2169 ©	4822 122 33127	2,2nF	10%	63V	RDS only

RESISTORS

3101 ©	4822 051 20333	33kΩ	5%	0,1W	
3102 ©	4822 117 10837	100kΩ	1%	0,1W	
3103 ©	4822 051 20822	8,2kΩ	5%	0,1W	
3104 ©	4822 117 13577	330Ω	1%	0,1W	
3105 ©	4822 117 11503	220Ω	5%	0,1W	
3132 ©	4822 051 20479	47Ω	5%	0,1W	
3134 ©	4822 051 20223	22kΩ	5%	0,1W	
3141 ©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			

RESISTORS

3143 ©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144 ©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3152 ©	4822 051 20471	470Ω	5%	0,1W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154 ©	4822 117 13577	330Ω	1%	0,1W	
3155 ©	4822 117 11503	220Ω	5%	0,1W	
3156 ©	4822 117 10837	100kΩ	1%	0,1W	
3157 ©	4822 117 10837	100kΩ	1%	0,1W	
3158 ©	4822 051 20471	470Ω	5%	0,1W	
3159 ©	4822 051 20471	470Ω	5%	0,1W	
3160 ©	4822 051 20471	470Ω	5%	0,1W	
3161 ©	4822 051 20223	22kΩ	5%	0,1W	
3167 ©	4822 051 20121	120Ω	5%	0,1W	
3168 ©	4822 051 20121	120Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170 ©	4822 117 10837	100kΩ	1%	0,1W	
3172 ©	4822 051 20562	5,6kΩ	5%	0,1W	
3176 ©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3181 ©	4822 051 10102	1kΩ	2%	0,25W	
4103 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4107 ©	4822 051 20008	CHIP JUMPER 0805			
4108 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

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

DIODES

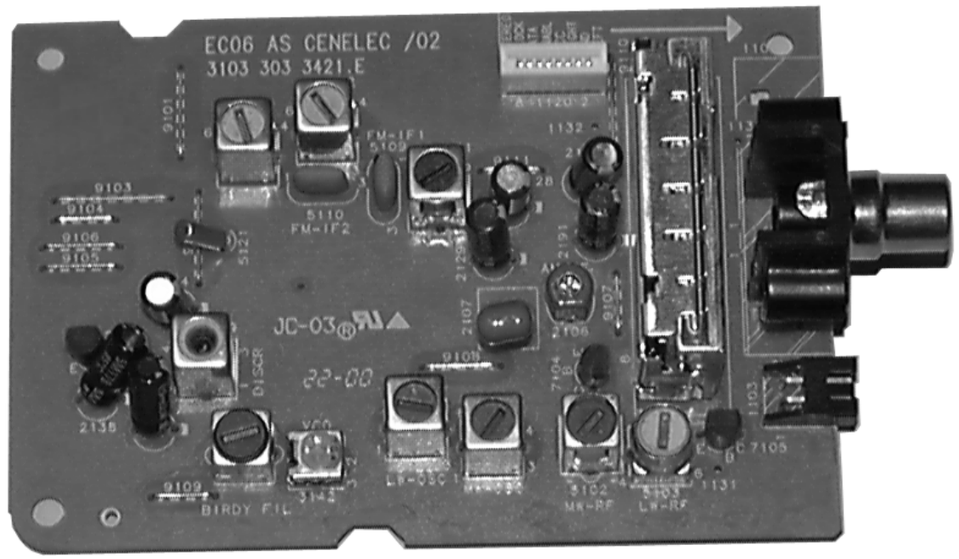
6103 ©	5322 130 34337	BAV99
6105 ©	4822 130 83075	HN1V02H
6106 ©	4822 130 83757	BAS216
6107 ©	9340 386 90115	BZX284-C11
6120 ©	4822 130 83757	BAS216
6130 ©	4822 130 82833	1SV228
6131 ©	4822 130 82833	1SV228

TRANSISTORS

7102	4822 130 42131	BF550	
7103 ©	5322 130 42756	BC857C	RDS only
7111 ©	5322 130 42755	BC847C	
7112	4822 130 44503	BC547C	

INTEGRATED CIRCUITS

7101 ©	9351 740 80557	TEA5757H/V1, RADIO IC

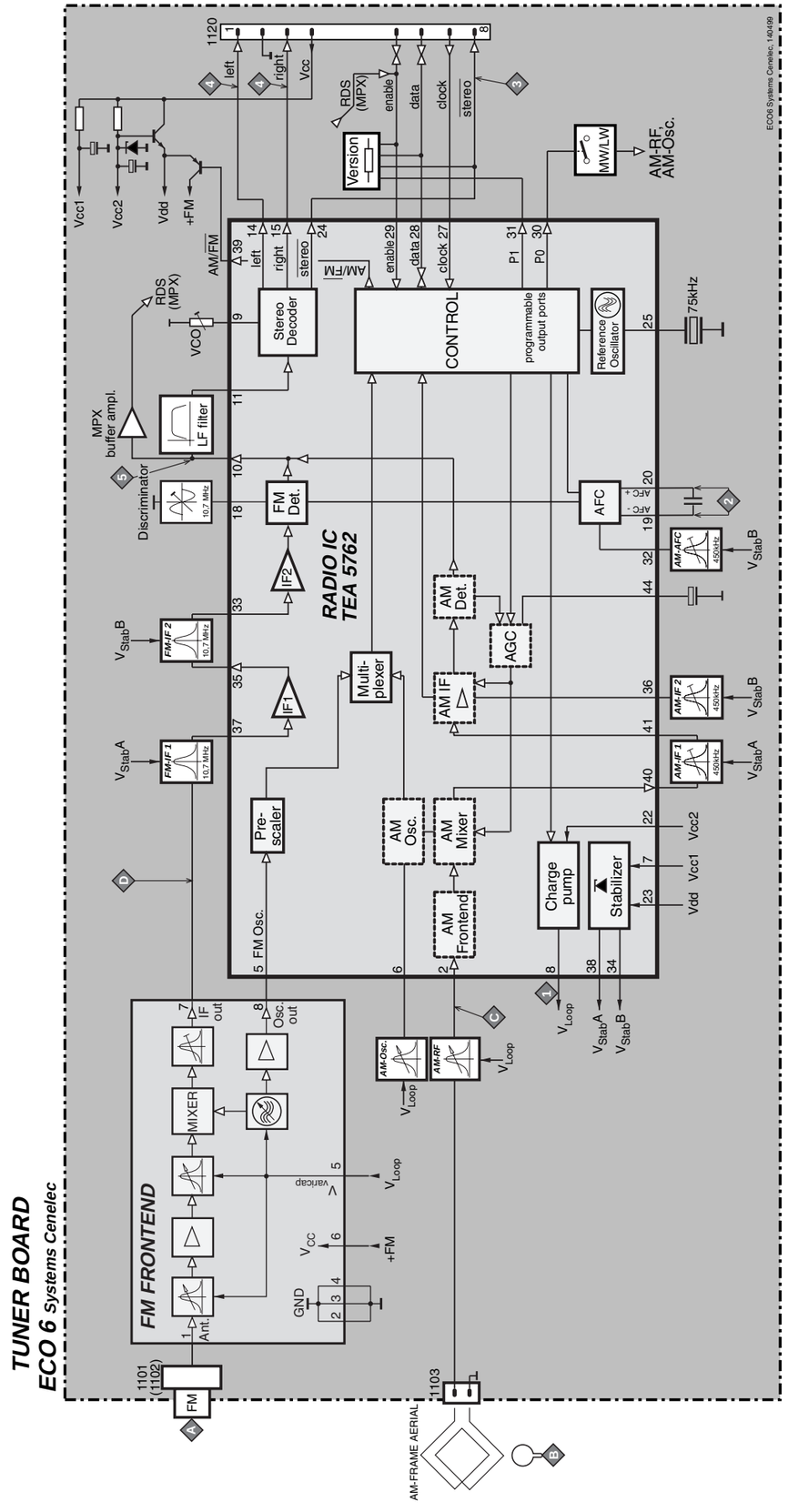


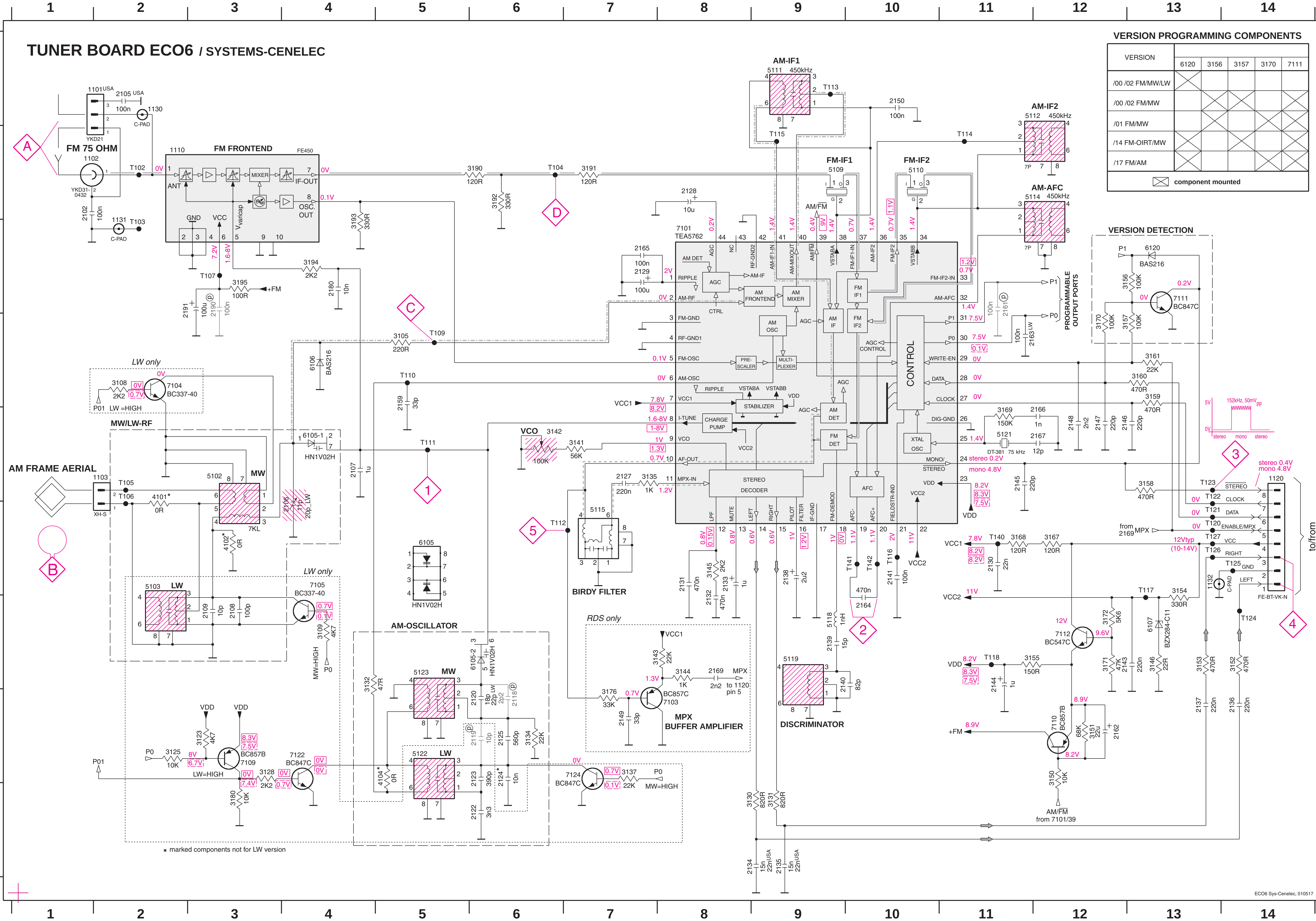
ECO6 Tuner Board

version: ***SYSTEMS CENELEC***

TABLE OF CONTENTS

BLOCK DIAGRAM





1101	A2	5121	E11
1102	B1	5122	H5
1103	E2	5123	G5
1110	B2	6105-1	E4
1120	E14	6105-2	G6
1130	A2	6106	D4
1131	C2	6107	G13
1132	F13	6120	C13
2102	B1	7101	C8
2105	A2	7103	H8
2106	E3	7104	D2
2107	E4	7105	F4
2108	G3	7109	H3
2109	G3	7110	H12
2118	H6	7111	C13
2119	H6	7112	G12
2120	H6	7122	H4
2122	I6	7124	H7
2123	H6	T102	B2
2124	H6	T103	B2
2125	H6	T104	B6
2127	E7	T105	E2
2128	B8	T106	E2
2129	C7	T107	C3
2130	F11	T109	D5
2131	F8	T110	D5
2132	F8	T111	E5
2133	F8	T112	F7
2134	I8	T113	A9
2135	I9	T114	B11
2136	H14	T116	F10
2137	H13	T117	F13
2138	F9	T118	G11
2139	G9	T120	F13
2140	G9	T121	F13
2141	F10	T122	E13
2143	G12	T123	E13
2144	G11	T124	G14
2145	E11	T125	F14
2146	E12	T126	F13
2147	E12	T127	F13
2148	E12	T140	F11
2149	H7	T141	F10
2150	A10	T142	F10
2159	D5		
2161	C11		
2162	H12		
2163	D11		
2164	G10		
2165	C7		
2166	E11		
2167	E11		
2169	G8		
2180	C4		
2190	C3		
2191	C3		
3105	D5		
3108	D2		
3109	G4		
3123	H3		
3125	H2		
3128	H3		
3130	I9		
3131	I9		
3132	G4		
3134	H6		
3135	E7		
3137	H7		
3141	E7		
3142	E6		
3143	G7		
3144	G8		
3145	F8		
3146	G13		
3150	H12		
3151	H12		
3152	G14		
3153	G13		
3154	F13		
3155	G12		
3156	C12		
3157	D12		
3158	E13		
3159	D13		
3160	D13		
3161	D13		
3167	F12		
3168	F11		
3169	E11		
3170	D12		
3171	G12		
3172	G12		
3176	H7		
3180	I3		
3190	B6		
3191	B7		
3192	B6		
3193	B4		
3194	C4		
3195	C3		
4101	E2		
4102	F3		
4104	H5		
5102	E3		
5103	F2		
5109	B9		
5110	B10		
5111	A9		
5112	A11		
5114	B11		
5115	E7		
5118	G9		
5119	G9		

LEGEND

* ... only assembled in FM/AM-version
(P)...for provision only
USA ... for USA version only
LW ... for LW version only

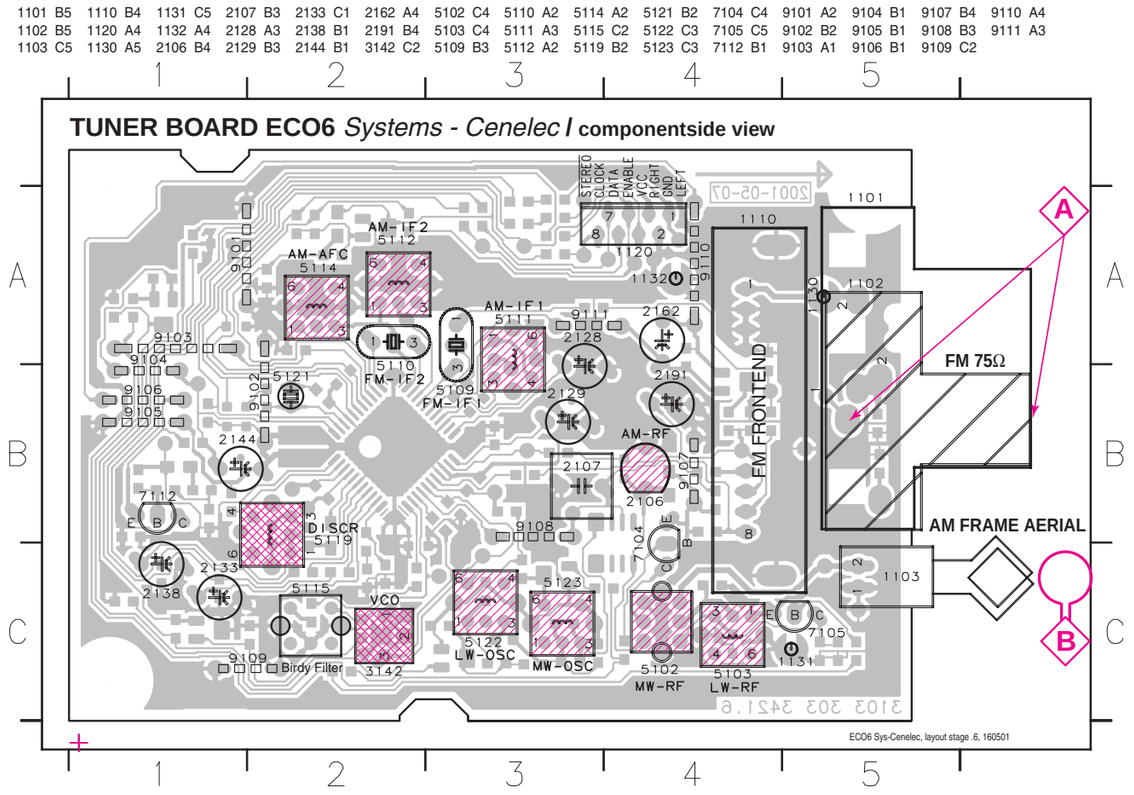
SMD jumper: 41xx 0R

EVM

...V FM mode stereo
...V MW mode
...V LW mode
voltages measured while set is tuned to a strong transmitter

Signal path

- FM
- AM
- MPX (Audio Frequency)
- AF - left/right



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

7B-3

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

Waverange	Input frequency	Input	Tuned to	Adjust	Output	Scope/Voltmeter
VARICAP ALIGNMENT						
FM 87.5 - 108MHz (50kHz grid)			108MHz	check	1	8V ±1.2V
			87.5MHz	check		1.6V ±0.5V
MW 531 - 1602kHz (9kHz grid)			1602kHz	5123		8V ±0.2V 3-band 6.9V ±0.2V 2-band
			531kHz	check		1.1V ±0.4V
LW 153 - 279kHz (3kHz grid)			279kHz	5122		8V ±0.2V
			153kHz	check		1.1V ±0.4V
FM - IF						
FM	10.7MHz, 45mV continuous wave	D	IC 7101 21 shortcircuit to block AFC 2141	5119	2	0mV ±3mV
FM - VCO						
FM	98MHz, 1mV continuous wave	A	98MHz	3142	3	152kHz ±1kHz 1)
FM RF (channel separation)	Note: The FM-frontend unit has already been adjusted by the factory and needs therefore no further adjustments for service purposes.					
FM	98MHz, 1mV 90% Left + 9% pilot mod=1kHz	A	98MHz	IF coil inside FM frontend 1110	4	right channel min.
AM IF						
MW	450kHz connect pin 6 of IC 7101 (AM Osc.) with 3.3kΩ to Vcc	C Δf = ±10kHz V_{RF} = 0.5mV (as low as possible)	IC 7101 36 220R 100nF	5111	5	max. f_o symmetric
			IC 7101 40 220R 100nF see remark 2)	5112		
AM AFC **MW**		C continuous wave V_{RF} = 2mV		5114	2	0mV ±2mV
AM RF 3)						
MW	1494kHz	B Δf = ±30kHz V_{RF} as low as possible	1494kHz	2106	5	max. f_o symmetric
	558kHz		558kHz	5102		
LW	198kHz		198kHz	5103		

ECO6 Sys Cenelec, 190599

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

1) If sensitivity of frequency counter is too low adjust to max. channel separation (input signal: stereo left 90% + 9%, adjust output on right channel to minimum)

2) RC network serves for damping the IF-filter while adjusting the other one.

3) For AM RF adjustments the original frame antenna has to be used! MW has to be aligned before LW.

↕ Repeat

Electrical Partslist *ECO6* SYSTEMS-CENELEC

7B-4

MISCELLANEOUS

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

CAPACITORS

2102 ©	4822 126 13838	100nF	10%	50V	not USA
2105 ©	4822 126 13838	100nF	10%	50V	USA only
2106	2020 800 00204	TRIMCAP. 4,2 - 20pF, N750			LW only
2106	2020 800 00191	TRIMCAP. 3 - 11pF, N450			FM/AM only
2107	4822 121 51319	1µF	20%	50V	
2108 ©	5322 122 32531	100pF	5%	50V	LW only
2109 ©	5322 122 32448	10pF	5%	50V	LW only
2120 ©	4822 126 13689	18pF	1%	63V	FM/AM only
2120 ©	5322 122 32658	22pF	5%	50V	LW only
2122 ©	4822 122 33891	3,3nF	10%	63V	LW only
2123 ©	2020 552 93494	390pF	1%	50V	LW only
2124 ©	4822 122 33177	10nF	20%	50V	FM/AM only
2125 ©	2020 552 96199	560pF	1%	50V	
2127 ©	4822 126 14076	220nF	20%	25V	
2128	4822 124 40248	10µF	20%	63V	
2129	4822 124 41584	100µF	20%	10V	
2130 ©	5322 122 32654	22nF	10%	63V	
2131 ©	4822 126 13482	470nF	20%	16V	
2132 ©	4822 126 13482	470nF	20%	16V	
2133	4822 124 21913	1µF	20%	63V	
2134 ©	3198 017 31530	15nF	10%	50V	not USA
2134 ©	5322 122 32654	22nF	10%	63V	USA only
2135 ©	3198 017 31530	15nF	10%	50V	not USA
2135 ©	3198 017 32230	22nF	10%	25V	USA only
2136 ©	4822 126 14076	220nF	20%	25V	
2137 ©	4822 126 14076	220nF	20%	25V	
2138	4822 124 22652	2,2µF	20%	50V	
2139 ©	4822 126 14236	15pF	5%	50V	
2140 ©	4822 126 13695	82pF	1%	63V	
2141 ©	4822 126 13838	100nF	10%	50V	
2143 ©	4822 126 14076	220nF	20%	25V	
2144	4822 124 21913	1µF	20%	63V	
2145 ©	4822 122 33575	220pF	5%	50V	
2146 ©	4822 122 33575	220pF	5%	50V	
2147 ©	4822 122 33575	220pF	5%	50V	
2148 ©	4822 122 33127	2,2nF	10%	63V	
2149 ©	5322 122 32659	33pF	5%	50V	RDS only
2150 ©	4822 126 13838	100nF	10%	50V	
2159 ©	5322 122 31151	22µF	20%	50V	
2163 ©	4822 126 13838	100nF	10%	50V	LW only
2164 ©	4822 126 13482	470nF	20%	16V	
2165 ©	4822 126 13838	100nF	10%	50V	
2166 ©	5322 122 31647	1nF	10%	63V	
2167 ©	4822 122 33926	12pF	5%	50V	
2169 ©	4822 122 33127	2,2nF	10%	63V	RDS only
2180 ©	3198 017 31030	10nF	10%	50V	
2190 ©	4822 126 13838	100nF	10%	50V	
2191	4822 124 40178	100µF	20%	10V	

RESISTORS

3105 ©	4822 117 11503	220Ω	5%	0,1W	
3108 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3109 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3123 ©	4822 051 20472	4,7kΩ	5%	0,1W	LW only
3125 ©	4822 117 10833	10kΩ	1%	0,1W	LW only

RESISTORS

3128 ©	4822 117 11449	2,2kΩ	1%	0,1W	LW only
3130 ©	3198 021 38210	820Ω	5%	0,06W	
3131 ©	3198 021 38210	820Ω	5%	0,06W	
3132 ©	4822 051 20479	47Ω	5%	0,1W	
3134 ©	4822 051 20223	22kΩ	5%	0,1W	
3135 ©	3198 021 31020	1kΩ	5%	0,06W	
3137 ©	4822 051 20223	22kΩ	5%	0,1W	LW only
3141 ©	4822 117 11148	56kΩ	1%	0,1W	
3142	4822 100 12159	TRIMPOT. 100kΩ			
3143 ©	4822 051 20223	22kΩ	5%	0,1W	RDS only
3144 ©	4822 051 10102	1kΩ	2%	0,25W	RDS only
3145 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3146 ©	4822 051 20229	22Ω	5%	0,1W	
3150 ©	4822 117 10833	10kΩ	1%	0,1W	
3151 ©	4822 051 20683	68kΩ	5%	0,1W	
3152 ©	4822 051 20471	470Ω	5%	0,1W	
3153 ©	4822 051 20471	470Ω	5%	0,1W	
3154 ©	4822 117 13577	330Ω	1%	0,1W	
3155 ©	4822 117 10353	150Ω	5%	0,1W	
3156 ©	4822 117 10837	100kΩ	1%	0,1W	
3157 ©	4822 117 10837	100kΩ	1%	0,1W	
3158 ©	4822 051 20471	470Ω	5%	0,1W	
3159 ©	4822 051 20471	470Ω	5%	0,1W	
3160 ©	4822 051 20471	470Ω	5%	0,1W	
3161 ©	4822 051 20223	22kΩ	5%	0,1W	
3167 ©	4822 051 20121	120Ω	5%	0,1W	
3168 ©	4822 051 20121	120Ω	5%	0,1W	
3169 ©	4822 051 20154	150kΩ	5%	0,1W	
3170 ©	4822 117 10837	100kΩ	1%	0,1W	
3171 ©	4822 117 10834	47kΩ	1%	0,1W	
3172 ©	4822 051 20562	5,6kΩ	5%	0,1W	
3176 ©	4822 051 20333	33kΩ	5%	0,1W	RDS only
3180 ©	4822 117 10833	10kΩ	1%	0,1W	LW only
3190 ©	4822 051 20121	120Ω	5%	0,1W	
3191 ©	4822 051 20121	120Ω	5%	0,1W	
3192 ©	4822 117 13577	330Ω	1%	0,1W	
3193 ©	4822 117 13577	330Ω	1%	0,1W	
3194 ©	4822 117 11449	2,2kΩ	1%	0,1W	
3195 ©	4822 051 20101	100Ω	5%	0,1W	
4101 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4102 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4104 ©	4822 051 20008	CHIP JUMPER 0805			FM/AM only
4105 ©	4822 051 20008	CHIP JUMPER 0805			
4106 ©	4822 051 20008	CHIP JUMPER 0805			
4107 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

5102	4822 157 71634	RF-COIL MW	
5103	2422 549 44107	RF-COIL LW	LW only
5109	4822 157 71639	FM-IF FILTER 10,7MHz	
5110	4822 242 70665	FM-IF FILTER 10,7MHz	
5111	2422 549 44023	AM-IF FILTER 450kHz	
5112	4822 157 70302	AM-IF FILTER 450kHz	
5114	4822 157 70302	AM-IF FILTER 450kHz	
5115	4822 157 71636	ANTI BIRDY FILTER	
5118 ©	2422 535 95881	100nH	
5119	4822 157 11443	DISCRIMINATOR COIL	
5121	4822 242 10261	QUARTZ 75kHz	
5122	2422 549 44108	RF-COIL, LW-OSCILLATOR	LW only
5123	2422 549 44108	RF-COIL, MW-OSCILLATOR	

DIODES

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

TRANSISTORS

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

INTEGRATED CIRCUITS

7101	4822 209 90315	TEA5762H/V1, RADIO IC

MAINS BOARD

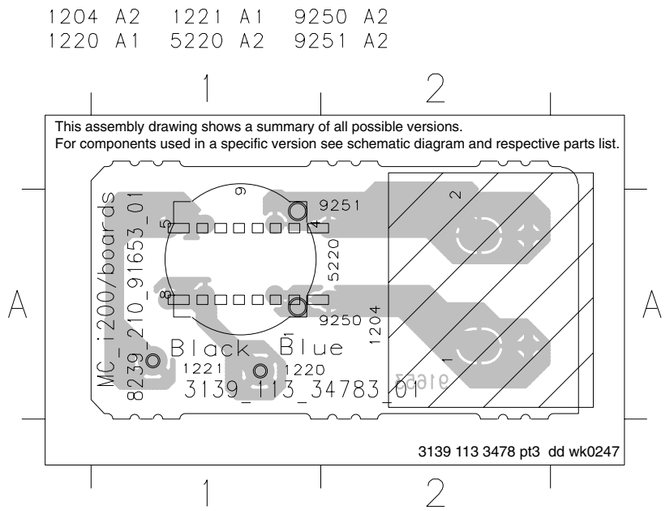
TABLE OF CONTENTS

Brief introduction of the Mains Board

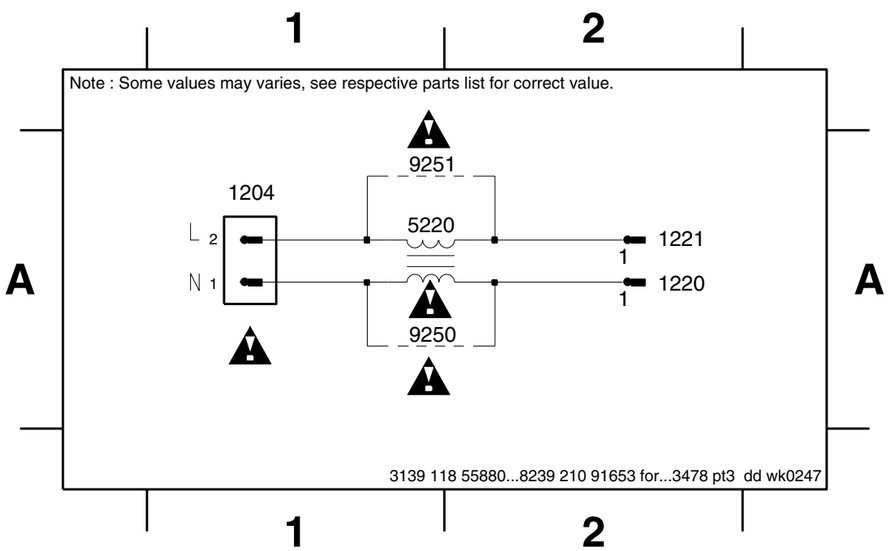
ECO Power
Standby Transformer 5203 provides the LPS supply to control the relay 1210, cutting of the Mains supply to the Mains transformer during the ECO Power (standby) mode.

The Mains transformer provides the following:
- 5V6_ECO for Low Power Supply
- +A, +A/2 and +B to the Combi board

MAINS SOCKET - CIRCUIT DIAGRAM & COMPONENT LAYOUT

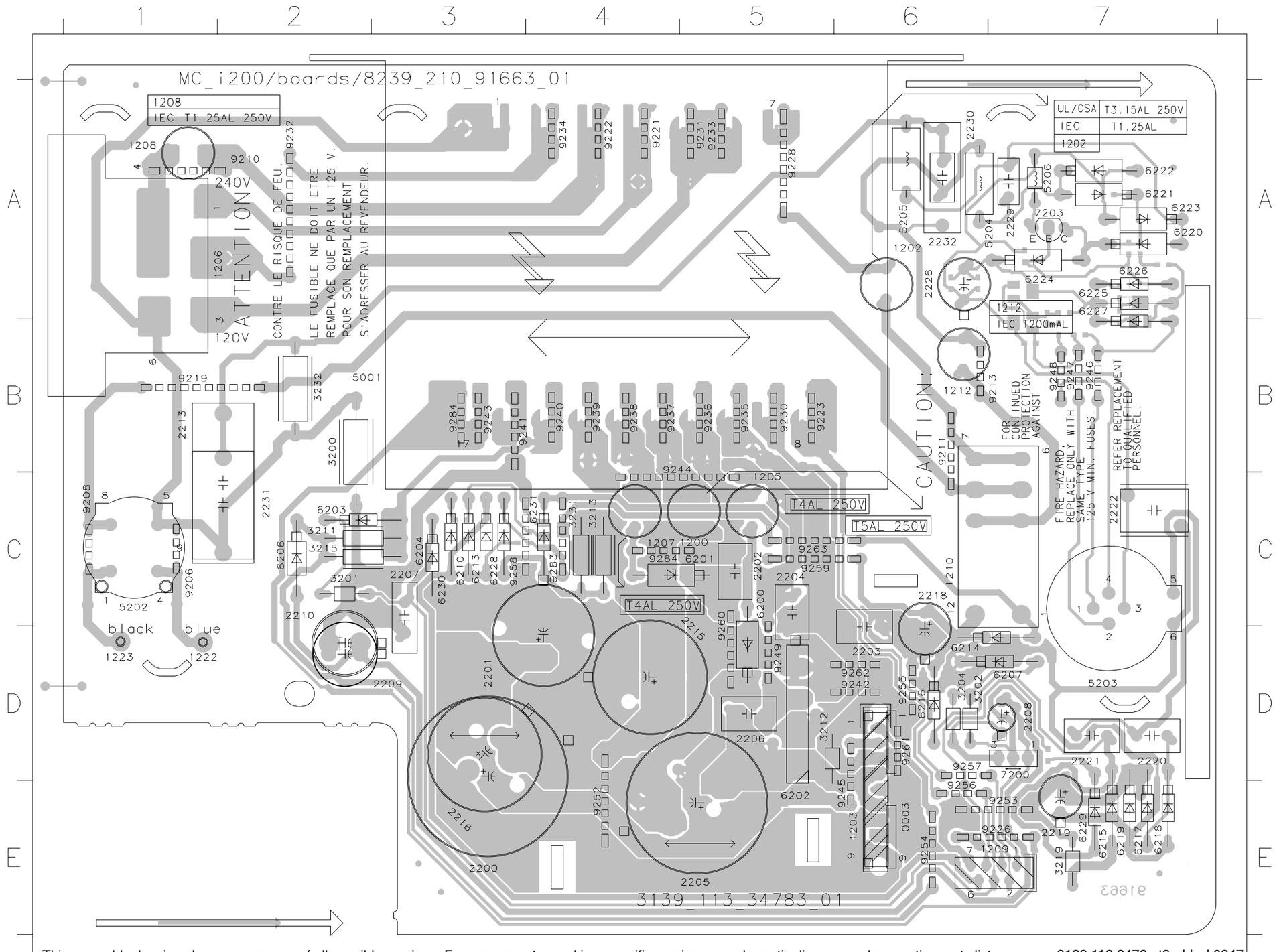


1204 A1 1220 A2 1221 A2 5220 A1 9250 A1 9251 A1



8-2

MAINS BOARD - COMPONENT LAYOUT



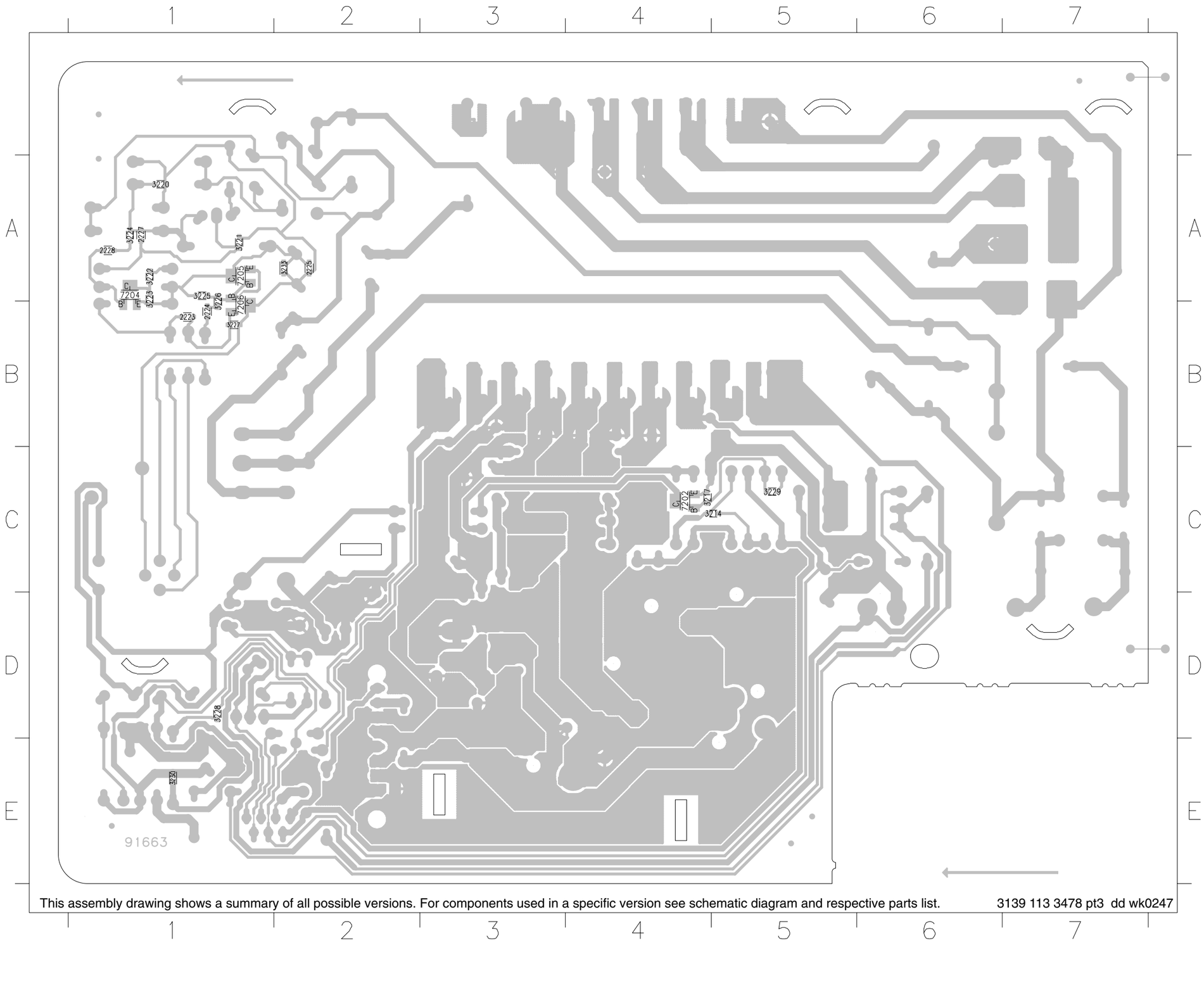
This assembly drawing shows a summary of all possible versions. For components used in a specific version see schematic diagram and respective parts list.

3139 113 3478 pt3 dd wk0247

0003	E6	9211	B6
1200	C5	9213	B7
1202	A6	9219	B1
1203	E6	9221	A4
1205	C5	9222	A4
1206	A2	9223	B5
1207	C4	9226	E7
1208	A1	9228	A5
1209	E7	9230	B5
1210	C6	9231	A5
1212	B6	9232	A2
1222	D1	9233	A5
1223	D1	9234	A4
2200	E3	9235	B5
2201	D3	9236	B5
2202	C5	9237	B4
2203	D6	9238	B4
2204	C5	9239	B4
2205	E5	9240	B4
2206	D5	9241	B3
2207	C3	9242	D6
2208	D7	9243	B3
2209	D3	9244	B4
2210	C2	9245	E6
2211	B1	9246	B7
2215	D5	9247	B7
2216	E3	9248	B7
2218	C6	9249	D5
2219	E7	9252	F4
2220	D7	9253	E7
2221	D7	9254	E7
2222	C7	9255	D6
2226	A6	9256	E6
2229	A7	9257	D6
2230	A6	9258	C3
2231	C2	9259	C5
2232	A6	9260	C4
3200	B2	9261	D6
3201	C2	9262	D6
3202	D6	9263	C5
3204	D6	9264	C4
3211	C2	9283	C4
3212	D5	9284	B3
3213	C4		
3215	C2		
3219	E7		
3231	C4		
3232	B2		
5001	B2		
5202	C1		
5203	D7		
5204	A7		
5205	A6		
5206	A7		
6200	C5		
6201	C5		
6202	E5		
6203	C2		
6204	C3		
6206	C2		
6207	D7		
6210	C3		
6213	C3		
6214	D6		
6215	E7		
6216	D6		
6217	E7		
6218	E7		
6219	E7		
6220	A7		
6221	A7		
6222	A7		
6223	A7		
6224	A7		
6225	A7		
6226	A7		
6227	A7		
6228	C3		
6229	E7		
6230	C3		
6231	C4		
7200	D7		
7203	A7		
9206	C1		
9208	C1		
9210	A2		

8-3

MAINS BOARD - CHIP LAYOUT

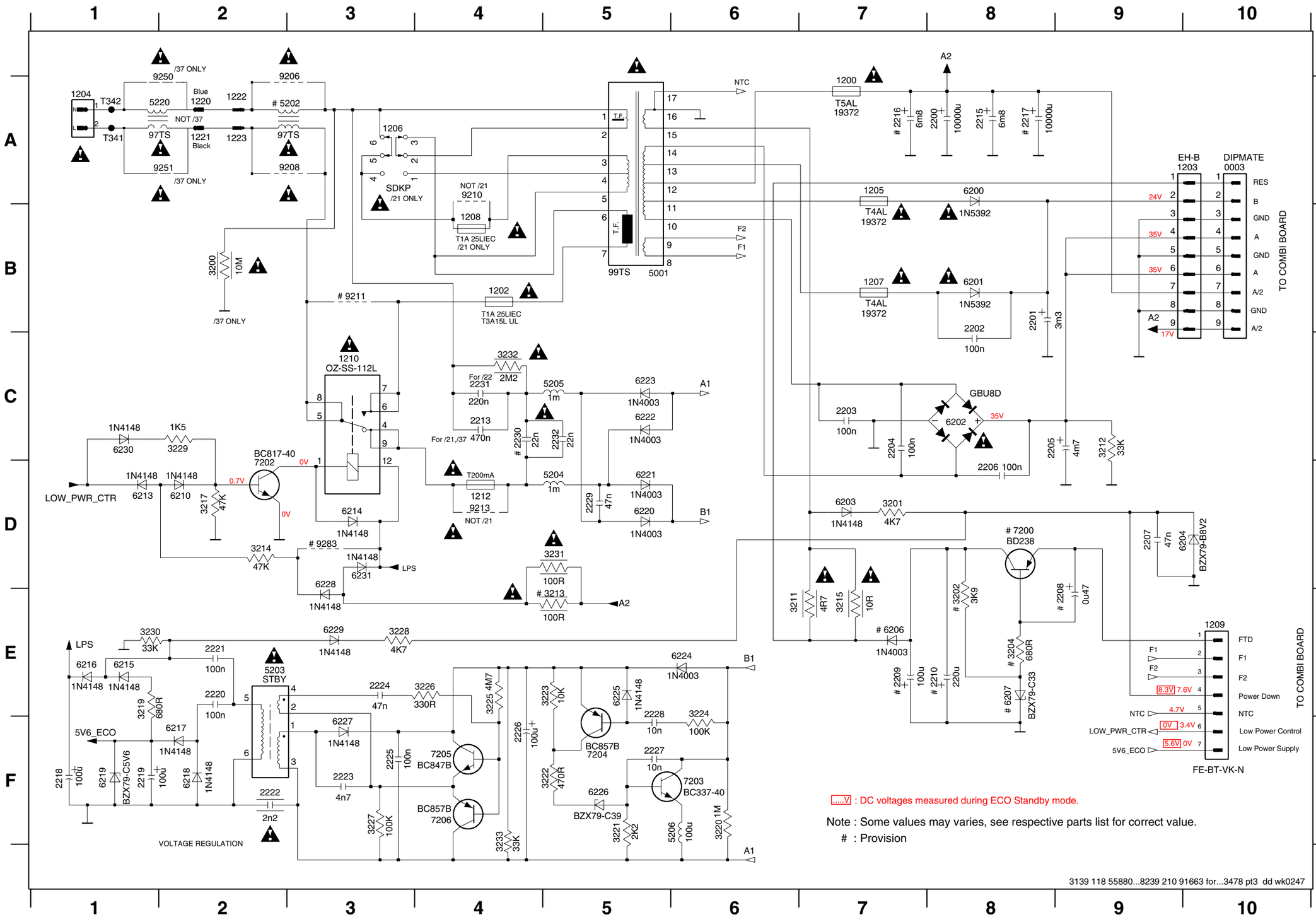


2223 B1
2224 B1
2225 A2
2227 A1
2228 A1
3214 C5
3217 C4
3220 A1
3221 A1
3222 A1
3223 A1
3224 A1
3225 A1
3226 B1
3227 B1
3228 D1
3229 C5
3230 E1
3233 A2
7202 C4
7204 A1
7205 A1
7206 B1

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

8-4

MAINS BOARD - CIRCUIT DIAGRAM



ELECTRICAL PARTS LIST - MAINS BOARD

MISCELLANEOUS

1200	2422 086 10963	⚠ Fuse RAD LT 5A	
1202	4822 071 51252	⚠ Fuse RAD LT 1,25A	/22/25/30
1202	4822 252 51121	⚠ Fuse RAD LT 3,15A	/37
1204	4822 265 31015	⚠ Mains Socket	/22/25/30
1204	2422 030 00328	⚠ Mains Socket	/37
1205	2422 086 10786	⚠ Fuse RAD LT 4A	
1207	2422 086 10786	⚠ Fuse RAD LT 4A	
1209	4822 267 10953	Flex Connector 7P	
1210	2422 132 07519	⚠ Relay 1P 12V 16A	/22/25

CAPACITORS

2200	4822 124 12012	4700uF 20% 25V	
2201	4822 124 42367	3300uF 20% 35V	
2202	5322 121 42386	100nF 5% 63V	
2203	5322 121 42386	100nF 5% 63V	
2204	5322 121 42386	100nF 5% 63V	/22/25/37
2205	4822 124 80415	4700uF 20% 50V	
2206	5322 121 42386	100nF 5% 63V	
2207	4822 126 14559	47nF 50V	
2208	5322 124 41948	470nF 20% 50V	
2210	2020 012 93547	100uF 20% 63V	
2218	2020 012 93583	100uF 20% 25V	/22/25
2219	4822 124 23052	100uF 20% 16V	/22/25
2220	5322 121 42386	100nF 5% 63V	/22/25
2221	5322 121 42386	100nF 5% 63V	/22/25
2222	2020 554 90173	⚠ 2,2nF 20% 250V	/22/25
2223	4822 126 13193	4,7nF 10% 63V	/22/25
2224	3198 017 34730	47nF 16V	/22/25
2225	2238 586 59812	100nF 50V	/22/25
2226	4822 124 40255	100uF 20% 63V	/22/25
2227	5322 126 11583	10nF 10% 50V	/22/25
2228	5322 126 11583	10nF 10% 50V	/22/25
2229	4822 121 43526	47nF 5% 250V	/22/25
2231	2222 338 22224	⚠ 220nF 20% 275V	/22/25
2232	2222 336 19106	⚠ 22nF 20% 275V	/22/25

RESISTORS

3200	4822 053 21106	⚠ 10M 5% 0,5W	/37
3201	4822 116 52283	4k7 5% 0,5W	
3202	4822 116 52276	3k9 5% 0,5W	
3204	4822 116 52228	680R 5% 0,5W	
3211	4822 052 10478	⚠ 4R7 5% 0,33W	
3212	4822 050 23303	33k 1% 0,6W	
3214	4822 117 12925	47k 1% 0,063W	/22/25
3215	4822 052 10109	⚠ 10R 5% 0,33W	
3217	4822 117 12925	47k 1% 0,063W	/22/25
3219	4822 116 52228	680R 5% 0,5W	/22/25
3220	4822 051 30105	1M 5% 0,062W	/22/25
3221	4822 051 30222	2k2 5% 0,062W	/22/25
3222	4822 051 30471	470R 5% 0,062W	/22/25
3223	4822 051 30103	10k 5% 0,062W	/22/25
3224	4822 117 13632	100k 1% 0,62W	/22/25
3225	4822 051 30475	4M7 5% 0,062W	/22/25
3226	4822 051 30331	330R 5% 0,062W	/22/25
3227	4822 117 13632	100k 1% 0,62W	/22/25
3228	4822 051 30472	4k7 5% 0,062W	/22/25
3229	4822 051 30472	4k7 5% 0,062W	/22/25
3230	4822 051 30333	33k 5% 0,062W	/22/25
3231	4822 052 10101	⚠ 100R 5% 0,33W	/22/25
3232	4822 053 21225	⚠ 2M2 5% 0,5W	/22/25
3233	4822 051 30333	33k 5% 0,062W	/22/25

COILS & FILTERS

5203	2422 549 45157	⚠ Standby Transformer	/22/25
5204	4822 157 53473	Coil 1000uH 10%	/22/25
5205	4822 157 53473	Coil 1000uH 10%	/22/25
5206	4822 157 11228	Coil 100uH 5%	/22/25
5220	4822 157 11832	⚠ 400uH 3A	/22/25/30

DIODES

6200	4822 130 31878	⚠ 1N4003G	
6200	5322 130 80686	⚠ 1N5392	
6201	4822 130 31878	⚠ 1N4003G	
6201	5322 130 80686	⚠ 1N5392	
6202	4822 130 11139	⚠ GBU8D	
6203	4822 130 30621	1N4148	
6204	4822 130 34382	BZX79-B8V2	
6206	4822 130 31878	1N4003G	
6207	4822 130 34142	BZX79-C33	
6210	4822 130 30621	1N4148	/22/25
6213	4822 130 30621	1N4148	/22/25
6214	4822 130 30621	1N4148	/22/25
6215	4822 130 30621	1N4148	/22/25
6216	4822 130 30621	1N4148	/22/25
6217	4822 130 30621	1N4148	/22/25
6218	4822 130 30621	1N4148	/22/25
6219	4822 130 34173	BZX79-C5V6	/22/25
6220	4822 130 31878	1N4003G	/22/25
6221	4822 130 31878	1N4003G	/22/25
6222	4822 130 31878	1N4003G	/22/25
6223	4822 130 31878	1N4003G	/22/25
6224	4822 130 31878	1N4003G	/22/25
6225	4822 130 30621	1N4148	/22/25
6226	4822 130 34145	BZX79-C39	/22/25
6227	4822 130 30621	1N4148	/22/25
6228	4822 130 30621	1N4148	/22/25
6229	4822 130 30621	1N4148	/22/25
6230	4822 130 30621	1N4148	/22/25
6231	4822 130 30621	1N4148	/22/25

TRANSISTORS & INTEGRATED CIRCUITS

7200	4822 130 40917	BD238	
7202	4822 130 42804	BC817-25	/22/25
7203	4822 130 40855	BC337-40	/22/25

ELECTRICAL PARTS LIST - MAINS BOARD

TRANSISTORS & INTEGRATED CIRCUITS

7204	4822 130 60373	BC857B	/22/25
7205	5322 130 60159	BC847B	/22/25
7206	4822 130 60373	BC857B	/22/25

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

COMBI & REGULATOR BOARDS

TABLE OF CONTENTS

9-1

Brief introduction of the Regulator Board

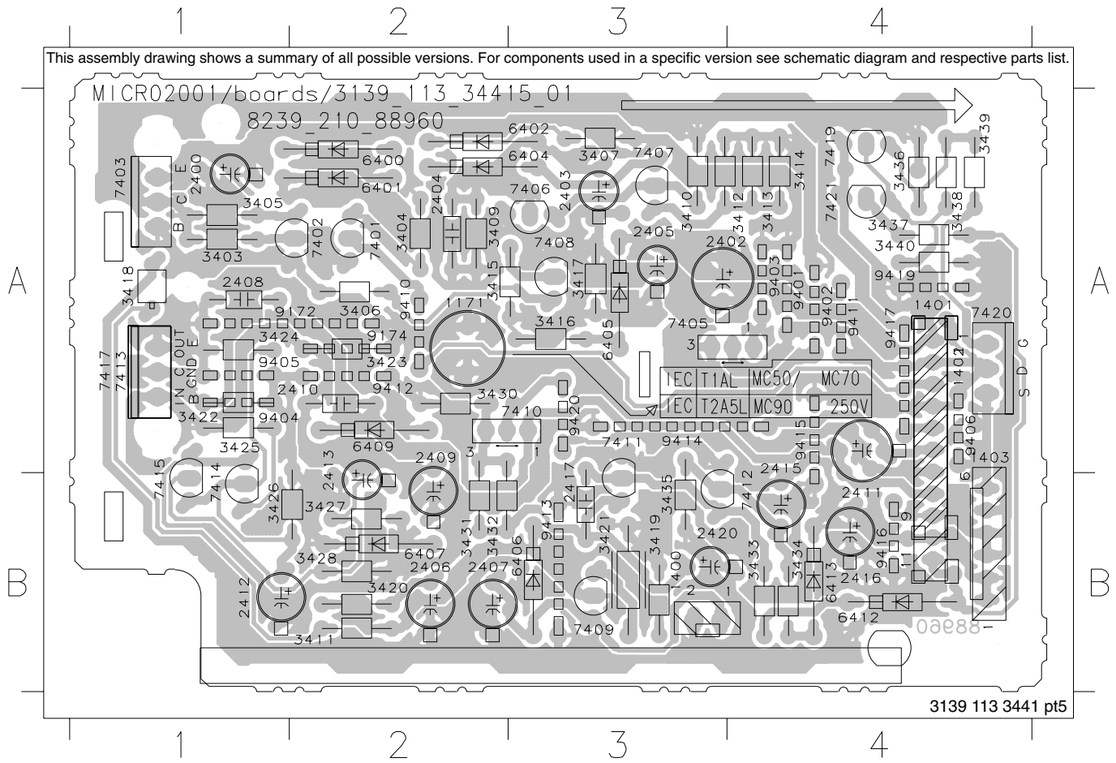
The regulator board provides the following:

a) 12V supply: +12V_A and +12V_M derived from the +A supply
b) 5,6V and 5V supply: +5V6 and 5V_VCD derived from the +A/2 supply

Technical Remarks

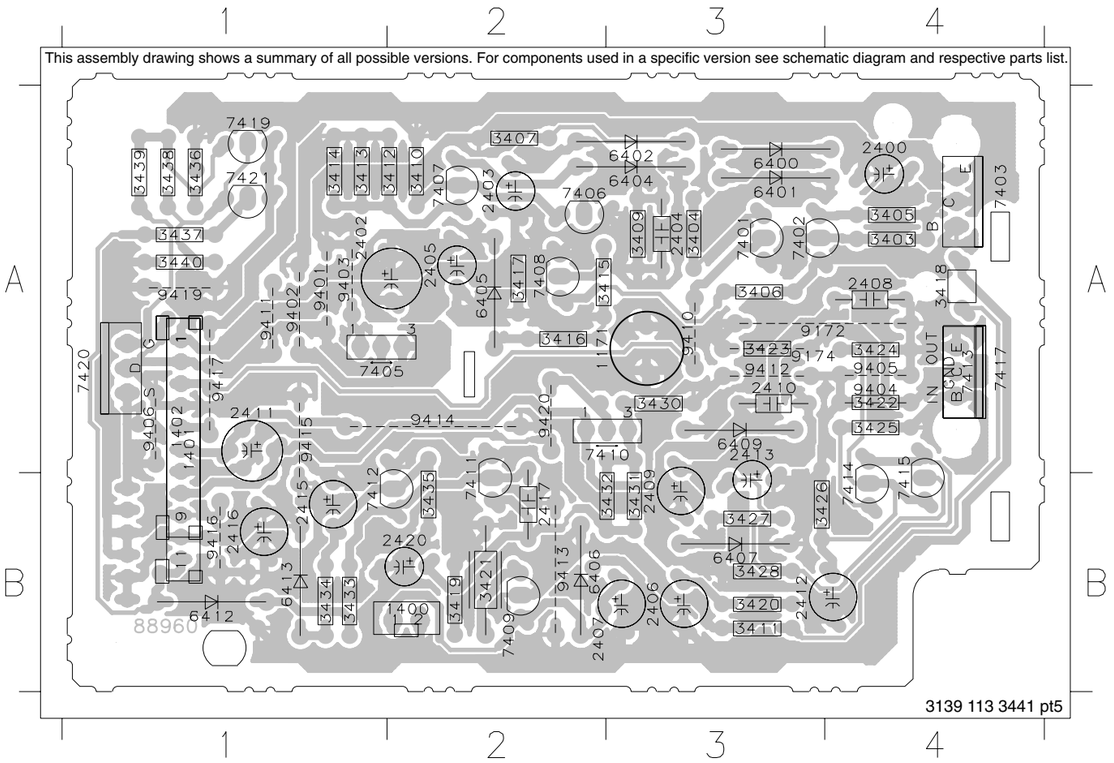
REGULATOR BOARD - COMPONENT SIDE VIEW

1171 A2	2408 A1	3405 A1	3418 A1	3431 B2	6402 A3	7406 A3	7420 A4	9412 A2
1400 B3	2409 A2	3406 A2	3419 B3	3432 B2	6404 A3	7407 A3	7421 A4	9413 B3
1401 A4	2410 A2	3407 A3	3420 B2	3433 B4	6405 A3	7408 A3	9172 A2	9414 A3
1402 A4	2411 B4	3409 A2	3421 B3	3434 B4	6406 B3	7409 B3	9174 A2	9415 A4
1403 A4	2412 B1	3410 A3	3422 A1	3435 B3	6407 B2	7410 A3	9401 A4	9416 B4
2400 A1	2413 A2	3411 B2	3423 A2	3436 A4	6409 A2	7411 A3	9402 A4	9417 A4
2402 A3	2415 A4	3412 A4	3424 A1	3437 A4	6412 B4	7412 B4	9403 A4	9419 A4
2403 A3	2416 B4	3413 A4	3425 A1	3438 A4	6413 B4	7413 A1	9404 A1	9420 A3
2404 A2	2417 B3	3414 A4	3426 B1	3439 A4	7401 A2	7414 B1	9405 A1	
2405 A3	2420 B3	3415 A2	3427 B2	3440 A4	7402 A2	7415 B1	9406 A4	
2406 B2	3403 A1	3416 A3	3428 B2	6400 A2	7403 A1	7417 A1	9410 A2	
2407 B2	3404 A2	3417 A3	3430 A2	6401 A2	7405 A3	7419 A4	9411 A4	



REGULATOR BOARD - COPPER SIDE VIEW

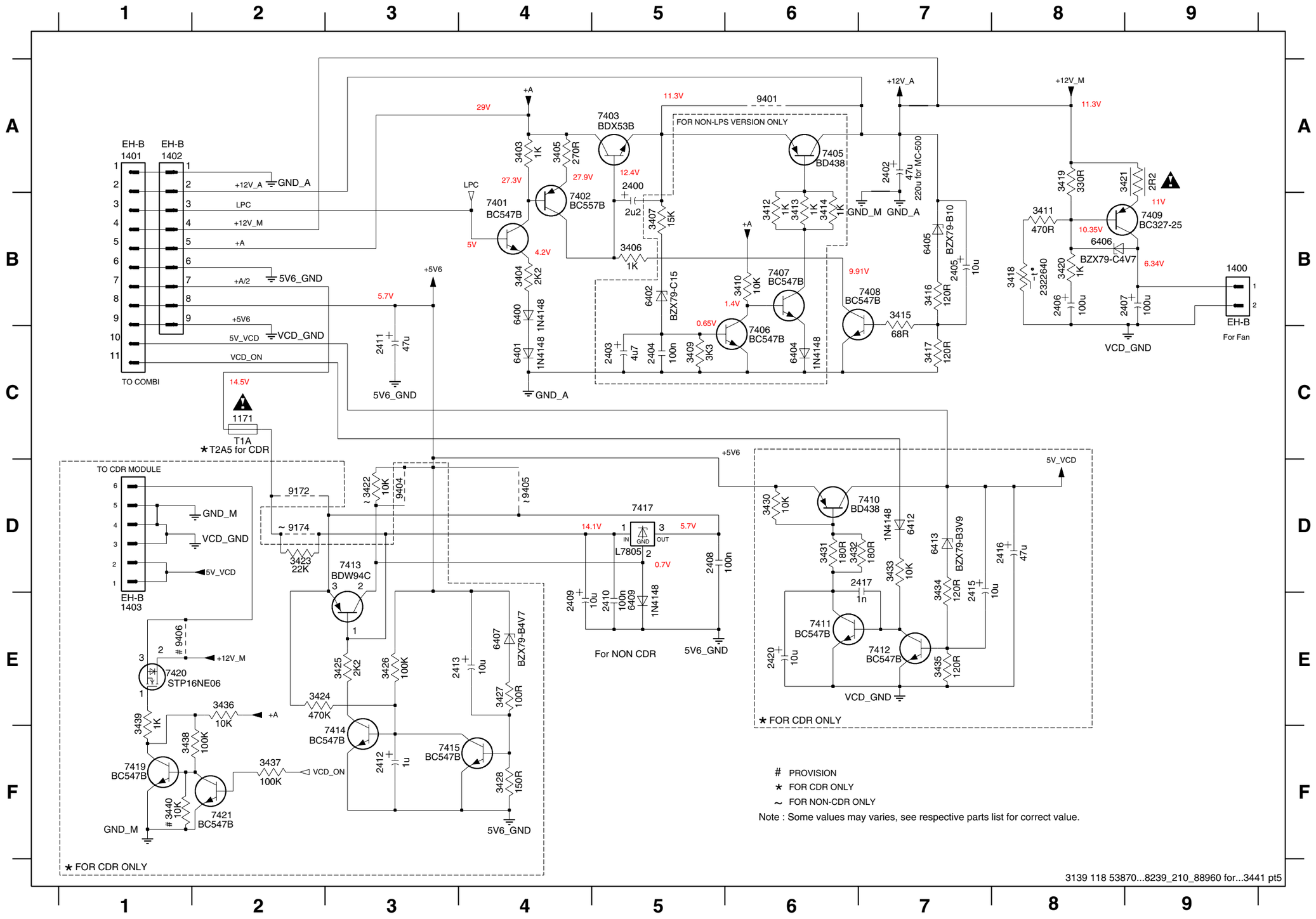
1171 A2	2409 B3	3406 A3	3419 B2	3432 B3	6404 A3	7407 A2	7421 A1	9413 B2
1400 B2	2410 A3	3407 A2	3420 B3	3433 B1	6405 A2	7408 A2	9172 A3	9414 A2
1401 A1	2411 A1	3409 A3	3421 B2	3434 B1	6406 B2	7409 B2	9174 A3	9415 A1
1402 A1	2412 B3	3410 A2	3422 A4	3435 B2	6407 B3	7410 A3	9401 A1	9416 B1
2400 A4	2413 A3	3411 B3	3423 A3	3436 A1	6409 A3	7411 B2	9402 A1	9417 A1
2402 A1	2415 B1	3412 A2	3424 A4	3437 A1	6412 B1	7412 B1	9403 A1	9419 A1
2403 A2	2416 B1	3413 A1	3425 A4	3438 A1	6413 B1	7413 A4	9404 A4	9420 A2
2404 A3	2417 B2	3414 A1	3426 B3	3439 A1	7401 A3	7414 B4	9405 A4	
2405 A2	2420 B2	3415 A2	3427 B3	3440 A1	7402 A3	7415 B4	9406 A1	
2406 B3	3403 A4	3416 A2	3428 B3	6400 A3	7403 A4	7417 A4	9410 A3	
2407 B2	3404 A3	3417 A2	3430 A3	6401 A3	7405 A1	7419 A1	9411 A1	
2408 A4	3405 A4	3418 A4	3431 B3	6402 A3	7406 A2	7420 A1	9412 A3	



9-3

REGULATOR BOARD - CIRCUIT DIAGRAM

1171 C2	1403 E1	2404 C5	2408 D5	2412 F3	2417 D7	3405 A4	3410 B6	3414 B6	3418 B8	3422 D3	3426 E3	3431 D6	3435 E7	3439 E1	6402 B5	6407 E4	7401 B4	7406 C6	7410 D7	7414 F3	7420 E1	9401 A6
1400 B9	2400 A5	2405 B7	2409 E4	2413 E4	2420 E6	3406 B5	3411 B8	3415 B7	3419 A8	3423 D2	3427 E4	3432 D6	3436 E2	3440 F1	6404 C6	6409 E5	7402 A4	7407 B6	7411 E6	7415 F4	7421 F2	9404 D3
1401 A1	2402 A7	2406 B8	2410 E5	2415 D7	3403 A4	3407 B5	3412 B6	3416 B7	3420 B8	3424 E2	3428 F4	3433 D7	3437 F2	6400 B4	6405 B7	6412 D7	7403 A5	7408 B7	7412 E7	7417 D5	9172 D2	9405 D4
1402 A1	2403 C5	2407 B9	2411 C3	2416 D8	3404 B4	3409 C5	3413 B6	3417 C7	3421 A9	3425 E3	3430 D6	3434 D7	3438 F1	6401 C4	6406 B8	6413 D7	7405 A6	7409 B9	7413 D3	7419 F1	9174 D2	9406 E1

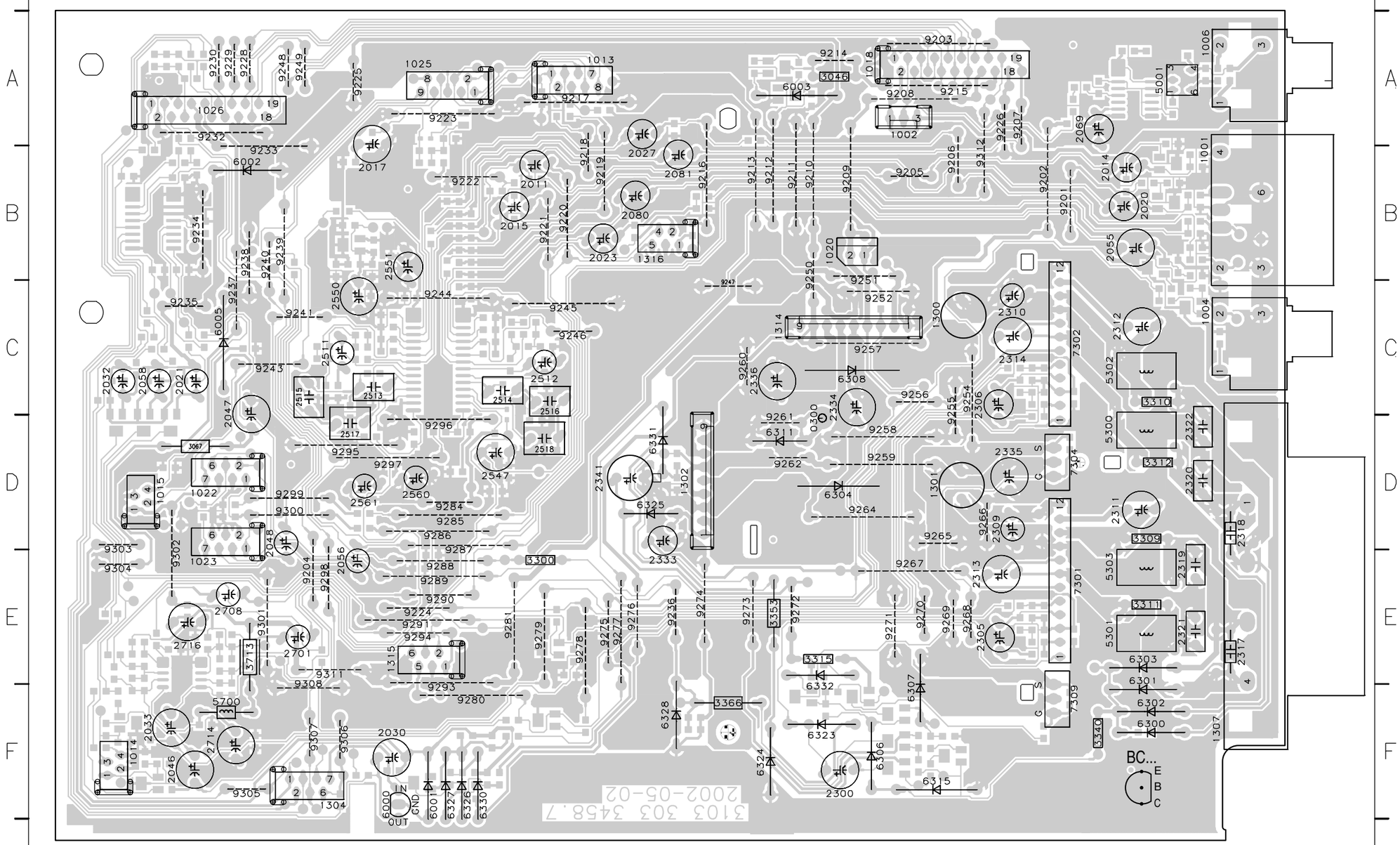


9-4

COMBI BOARD

0300 D6	1022 D1	1315 E3	2030 F3	2080 B5	2314 C7	2336 C6	2547 D4	3067 D1	3713 E2	6003 A6	6311 D6	6332 F6	9206 B7	9216 B5	9226 A7	9238 B2	9249 A2	9260 C5	9271 E7	9281 E4	9294 E3	9304 E1
1001 B9	1023 E1	1316 B5	2032 C1	2081 B5	2317 E9	2341 D4	2550 C2	3300 E4	5001 A9	6005 C2	7301 E8	9207 A8	9217 A4	9228 A2	9239 B2	9250 B6	9261 D6	9272 E6	9284 D3	9295 D3	9305 F2
1002 A7	1025 A3	2011 B4	2033 F1	2300 F6	2318 D9	2511 C2	2551 D3	3309 D8	5300 D8	6300 F9	7302 C8	9208 A7	9218 B4	9229 A2	9240 B2	9251 C6	9262 D6	9273 E5	9285 D3	9296 D3	9306 F3
1004 C9	1026 A2	2014 B8	2046 F1	2305 E7	2319 E9	2512 C4	2560 D3	3310 C9	5301 E8	6301 E8	7304 D8	9209 B6	9219 B4	9230 A2	9241 C2	9252 C6	9264 D6	9274 E5	9286 D3	9297 D3	9307 F2
1006 A9	1300 C7	2015 B4	2047 C2	2306 C7	2320 D9	2513 C3	2561 D3	3311 E8	5302 C8	6302 F9	7309 F8	9210 B6	9220 B4	9232 A2	9243 C2	9254 C7	9265 D7	9275 E4	9287 E3	9298 E2	9308 E2
1013 A4	1301 D7	2017 B3	2048 D2	2309 D7	2321 E9	2514 C4	2708 E2	3312 D9	5303 E8	6303 E8	9201 B8	9211 B6	9221 B4	9233 B2	9244 C3	9255 C7	9266 D7	9276 E5	9288 E3	9299 D2	9311 E2
1014 F1	1302 D5	2020 B8	2055 B8	2310 C7	2322 D9	2515 C2	2714 F2	3315 E6	5700 F2	6304 D6	9202 B8	9212 B6	9222 B3	9234 B1	9245 C4	9256 C7	9267 E7	9277 E5	9289 E3	9300 D2	9312 B7
1015 D1	1304 F2	2021 C1	2056 E2	2311 D8	2322 D9	2516 C4	2716 E1	3340 F8	6000 F3	6306 F6	9203 A7	9213 B6	9223 A3	9235 C1	9246 C4	9257 C6	9268 E7	9278 E4	9290 E3	9301 E2		
1018 A6	1307 F9	2023 B4	2058 C1	2312 C8	2323 E9	2517 D3	3046 A6	3353 E6	6001 F3	6307 F7	9204 E2	9214 A6	9224 E3	9236 C5	9247 C4	9258 D7	9269 E7	9279 E4	9291 E3	9302 E1		
1020 B6	1314 C6	2027 B5	2069 A8	2313 E7	2335 D7	2518 D4	3066 A6	3366 F5	6002 B2	6308 C6	9205 B7	9215 A7	9225 A3	9237 C2	9248 A2	9259 D6	9270 E7	9280 F3	9293 F3	9303 D1		

Hole mounted components seen from copperside



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

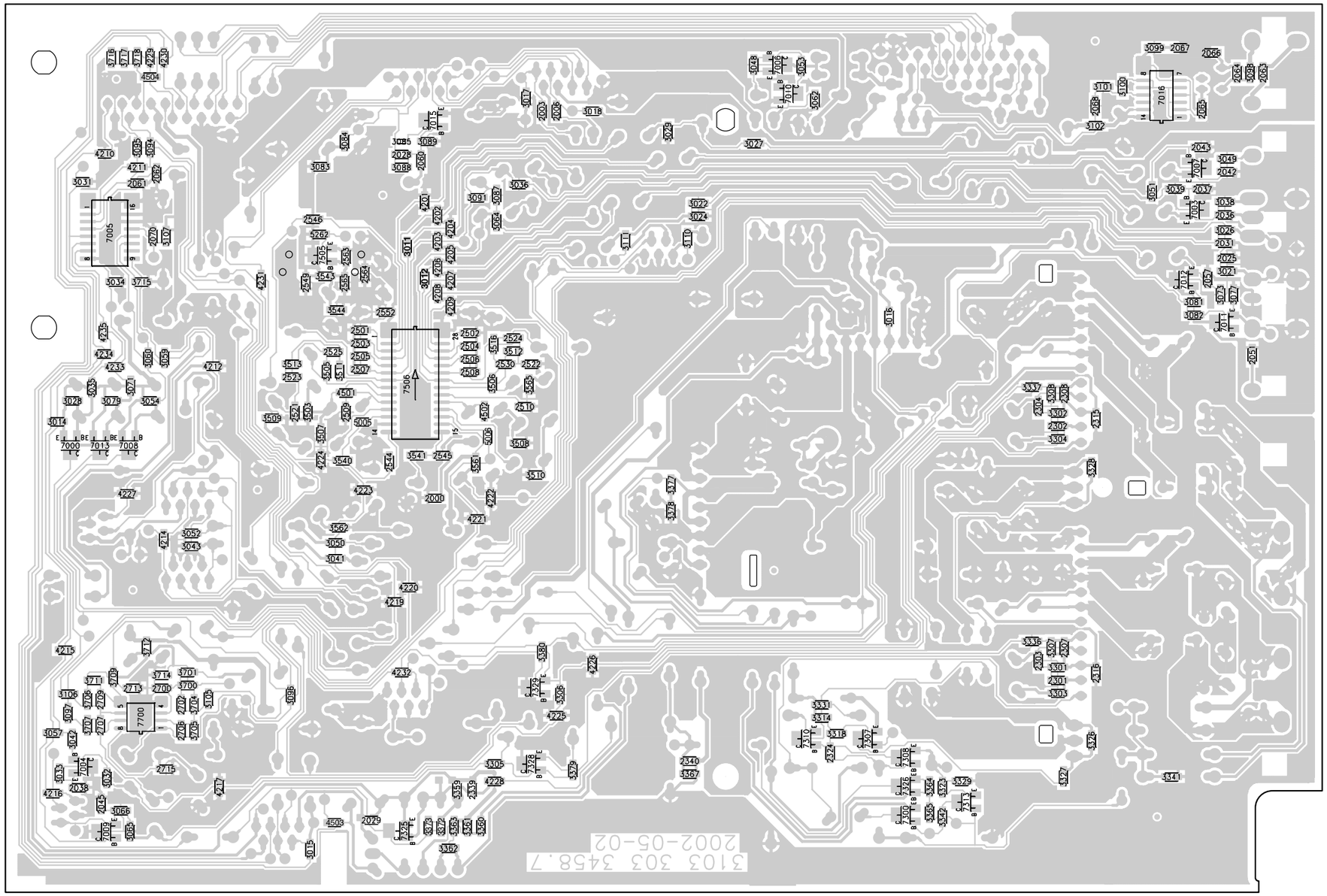
Combi Board stage.7 2002 12 06

9-5

COMBI BOARD

2000 D3
2003 A4
2006 A4
2025 B9
2028 B3
2029 F3
2031 B9
2036 B9
2037 B9
2038 F1
2042 B9
2043 A9
2045 F1
2051 C9
2057 B9
2060 B3
2061 B1
2062 B1
2063 A9
2064 A9
2065 A9
2066 A9
2067 A9
2068 A8
2070 B1
2301 E8
2302 C8
2303 E8
2304 C8
2307 E8
2308 C8
2315 C8
2316 E8
2324 F6
2339 F4
2340 F5
2501 C3
2503 C3
2504 C4
2505 C3
2506 C4
2507 C3
2508 C4
2509 C3
2510 C4
2521 C2
2522 C4
2523 C2
2524 C4
2525 C3
2530 C4
2544 D3
2545 D3
2546 B2
2549 B2
2552 C3
2563 B3
2564 B3
2565 B3
2700 E1
2702 E2
2706 F2
2707 F1
2709 E1
2713 E1
2715 F1
3011 B3
3012 B3
3014 C1
3015 F2
3016 C6
3017 A4
3018 A4
3021 B9
3022 B5
3024 B5
3026 B9
3027 A6
3028 C1
3029 A5
3031 B1
3032 F1
3033 F1
3034 B1
3035 C1
3036 B4
3038 B9
3039 B8
3041 D3
3042 F1
3043 D2
3048 A6
3049 B9
3050 D3
3051 B8
3052 D2
3053 A6
3054 C1
3057 F1
3059 C1
3060 C1
3062 A6
3064 B4
3065 F1
3066 F1
3071 C1
3073 C9
3077 C9
3079 C1
3081 C9
3082 C9
3083 B3
3084 A3
3085 A3
3087 B4
3088 B3
3089 A3
3091 B4
3094 A1
3095 A1
3096 E2
3097 E1
3098 A9
3099 A8
3100 A8
3101 A8
3102 A8
3103 E2
3105 E2
3106 E1
3107 B1
3110 B5
3111 B5
3301 E8
3302 C8
3303 E8
3304 D8
3305 F4
3306 E4
3307 E8
3308 C8
3314 E6
3318 F6
3322 F7
3323 F7
3326 F8
3327 F8
3328 D8
3329 F7
3331 E6
3336 E7
3337 C7
3341 F8
3342 F7
3359 F3
3360 F4
3361 F3
3362 F3
3363 F3
3364 F7
3365 F7
3367 F5
3372 F3
3373 F3
3377 D5
3378 D5
3379 F4
3380 E4
3503 C2
3505 C3
3506 C4
3507 C3
3508 D4
3509 C2
3510 D4
3511 C3
3512 C4
3513 C2
3516 C4
3540 D3
3541 D3
3543 B3
3544 C3
3561 D4
3562 D3
3565 C4
3700 E2
3701 E2
3704 E2
3705 F2
3706 E1
3707 F1
3709 E1
3711 E1
3712 E1
3714 E1
3715 B1
3716 A1
3717 A1
3718 A1
4201 B3
4202 B3
4203 B3
4204 B3
4205 B3
4206 B3
4207 B3
4208 C3
4209 C3
4210 B1
4211 B1
4212 C2
4214 D1
4215 E1
4216 F1
4217 F2
4219 E3
4220 E3
4221 D4
4222 D4
4223 D3
4224 D3
4225 E4
4226 E4
4227 D1
4228 F4
4229 A1
4230 A1
4231 B2
4232 E3
4233 C1
4234 C1
4235 C1
4501 C3
4502 C4
4503 F3
4504 A1
5005 C3
5006 D4
5262 B3
7000 D1
7003 B9
7004 F1
7005 B1
7006 A6
7007 B9
7008 D1
7009 F1
7010 A6
7011 C9
7012 B9
7013 D1
7015 A3
7016 A8
7300 F7
7307 F6
7308 F7
7310 F6
7313 F7
7325 F3
7326 F7
7328 F4
7329 E4
7505 B3
7506 C3
7700 E1

Copperside view

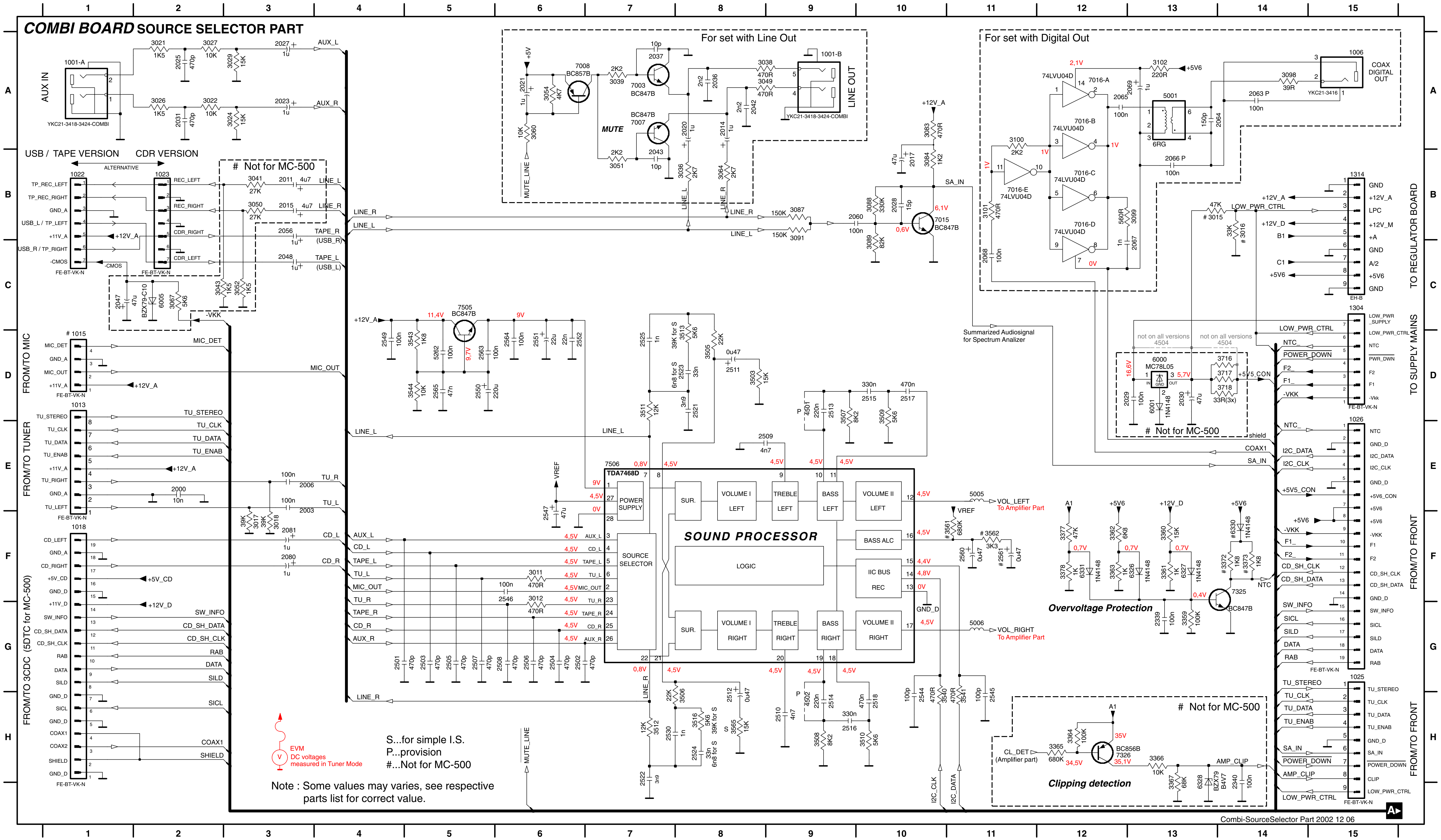


This assembly drawing shows a summary of all possible versions.
For components used in a specific version see schematic diagram respectively partslist.

Combi Board stage.7 2002 12 06

COMBI CIRCUIT - SOURCE SELECTOR PART

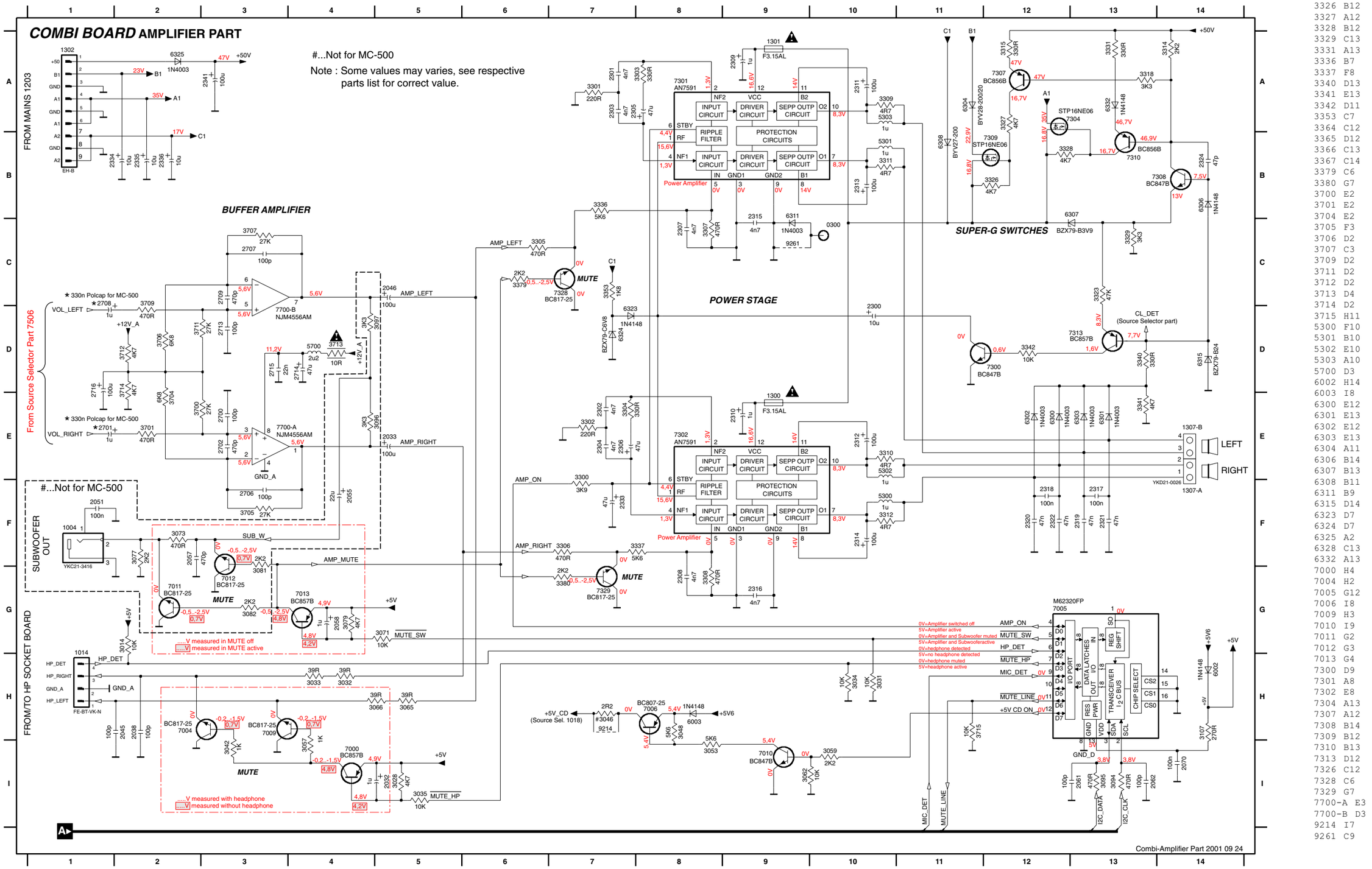
1001-A A1	1025 G15	2015 B3	2031 A2	2064 A13	2502 G6	2512 H8	2524 H8	2552 D6	3021 A2	3043 A2	3084 B9	3102 A13	3503 D8	3516 H8	3718 E14	6326 G13	7016-D B12
1001-B A9	1026 E15	2017 B9	2036 A8	2065 A12	2503 G5	2513 D9	2525 D7	2560 D11	3022 A3	3049 A8	3085 B10	3110 A3	3505 D8	3540 H10	4501 D9	6327 G13	7016-E B11
1002 A15	1304 C15	2020 A8	2037 A7	2066 B13	2504 G6	2514 H9	2530 H7	2561 D11	3024 A3	3050 B3	3087 B9	3111 A3	3506 H8	3541 H11	4502 H9	6331 G12	7016-F A11
1006 A15	1314 B15	2021 A6	2042 A8	2067 C13	2505 G5	2515 D10	2544 H10	2563 D5	3026 A2	3051 B7	3088 B10	3359 G13	3507 D9	3543 D5	4503 D13	7003 A7	7325 G14
1013 D1	1316 A4	2023 A3	2043 B7	2068 C11	2506 G6	2516 H9	2545 H11	2564 D6	3027 A3	3052 B3	3089 C10	3360 F13	3508 H9	3544 D5	4504 D14	7007 A7	7505 C5
1015 D1	2000 E2	2025 A2	2047 C1	2069 A13	2507 G5	2517 D10	2546 F6	2565 D5	3029 A3	3054 A6	3091 C9	3361 G13	3509 D10	3561 D10	5001 A13	7008 A6	7506 E7
1018 F1	2003 E3	2027 A3	2048 C3	2080 F3	2508 G6	2518 H10	2547 E6	3015 D14	3036 B8	3060 A6	3098 A14	3362 F13	3510 H10	3562 D11	5262 D5	7015 B10	
1020 H13	2006 E3	2028 B10	2056 B3	2081 F3	2509 E8	2521 D8	2549 D4	3016 D14	3038 A8	3064 B8	3099 B13	3363 G12	3511 D7	3565 H8	6000 D13	7016-A A12	
1022 B1	2011 B3	2029 D13	2060 B9	2339 G13	2510 H9	2522 H7	2550 D5	3017 E3	3039 A7	3067 C2	3100 A11	3377 G12	3512 H7	3716 D14	6001 D13	7016-B A12	
1023 B2	2014 A8	2030 D13	2063 A14	2501 G4	2511 D8	2523 D8	2551 D6	3018 E3	3041 B3	3083 B9	3101 B11	3378 G12	3513 D8	3717 E14	6005 C2	7016-C B12	



9-7

COMBI CIRCUIT - AMPLIFIER PART

0300 C10
1004 F1
1014 G1
1300 E9
1301 A9
1302 A1
1307-A F14
1307-B E14
1315 B1
2032 I5
2033 E5
2038 H2
2045 H2
2046 C5
2051 F1
2055 F4
2057 F2
2058 G4
2061 I13
2062 I13
2070 I14
2300 D9
2301 A7
2302 E7
2303 A7
2304 E7
2305 A7
2306 E7
2307 C8
2308 G8
2309 A9
2310 E9
2311 A10
2312 E10
2313 B10
2314 F10
2315 B9
2316 G9
2317 F13
2318 F12
2319 F13
2320 F12
2321 F13
2322 F12
2323 B14
2324 B14
2333 F7
2334 B1
2335 B2
2336 B2
2340 C14
2341 A3
2700 E3
2701 E1
2702 E3
2706 F3
2707 C3
2708 D1
2709 C3
2713 D3
2714 E3
2715 D4
2716 D1
3014 G2
3028 I5
3031 H10
3032 H4
3033 H4
3034 H10
3035 I5
3042 H3
3046 I7
3048 I8
3053 I8
3057 H4
3059 I10
3062 I9
3065 H5
3066 H5
3071 G4
3073 F2
3077 F2
3079 G4
3081 G3
3082 G3
3094 I13
3095 I13
3096 E4
3105 C2
3106 C2
3107 H14
3300 F7
3301 A7
3302 E7
3303 A8
3304 A10
3305 C6
3306 F7
3307 C8
3308 G8
3309 A10
3310 E10
3311 B10
3312 F10
3314 A14
3315 A12
3318 A13
3323 C13
3326 B12
3327 A12
3328 B12
3329 C13
3331 A13
3336 B7
3337 F8
3340 D13
3341 E13
3342 D11
3353 C7
3364 C12
3365 D12
3366 C13
3367 C14
3379 C6
3380 G7
3700 E2
3701 E2
3704 E2
3705 F3
3706 D2
3707 C3
3709 D2
3711 D2
3712 D2
3713 D4
3714 D2
3715 H11
5300 F10
5301 B10
5302 E10
5303 A10
5700 D3
6002 H14
6003 I8
6300 E12
6301 E13
6302 E12
6303 E13
6304 A11
6306 B14
6307 B13
6308 B11
6311 B9
6315 D14
6323 D7
6324 D7
6325 A2
6328 C13
6332 A13
7000 H4
7004 H2
7005 G12
7006 I8
7009 H3
7010 I9
7011 G2
7012 G3
7013 G4
7300 D9
7301 A8
7302 E8
7304 A13
7307 A12
7308 B14
7309 B12
7310 B13
7313 D12
7326 C12
7328 C6
7329 G7
7700-A E3
7700-B D3
9214 I7
9261 C9



MECHANICAL PARTS LIST

0202	4822 492 11735	SPRING TRANS

ELECTRICAL PARTS LIST - REGULATOR BOARD

MISCELLANEOUS

1171	4822 071 51002	⚠ Fuse RAD LT 1A	

CAPACITORS

2402	2022 020 00625	220uF 20% 16V	
2403	4822 124 22726	4,7uF 35V	/30/37
2404	2020 561 90365	100nF +80/-20% 50V	/30/37
2405	4822 124 11947	10uF 20% 16V	
2406	4822 124 41643	100uF 20% 16V	
2407	4822 124 41643	100uF 20% 16V	
2408	2020 561 90365	100nF +80/-20% 50V	
2409	4822 124 40248	10uF 20% 63V	
2410	2020 561 90365	100nF +80/-20% 50V	
2411	4822 124 12233	47uF 20% 25V	

RESISTORS

3403	4822 050 11002	1k 1% 0,4W	
3404	4822 116 52256	2k2 5% 0,5W	
3405	4822 116 83876	270R 5% 0,5W	
3406	4822 050 11002	1k 1% 0,4W	
3407	4822 116 52244	15k 5% 0,5W	/30/37
3409	4822 116 52269	3k3 5% 0,5W	/30/37
3410	4822 050 21003	10k 1% 0,6W	/30/37
3411	4822 116 83883	470R 5% 0,5W	
3412	4822 050 11002	1k 1% 0,4W	/30/37
3413	4822 050 11002	1k 1% 0,4W	/30/37
3414	4822 050 11002	1k 1% 0,4W	/30/37
3415	4822 116 52199	68R 5% 0,5W	
3416	4822 116 52206	120R 5% 0,5W	
3417	4822 116 52206	120R 5% 0,5W	
3418	4822 117 12063	NTC DC 5W 10k 5%	
3419	4822 116 52219	330R 5% 0,5W	
3420	4822 050 11002	1k 1% 0,4W	
3421	4822 052 10568	⚠ 5R6 5% 0,33W	
3422	4822 050 21003	10k 1% 0,6W	

DIODES

6400	4822 130 30621	1N4148	
6401	4822 130 30621	1N4148	
6402	4822 130 34281	BZX79-C15	/30/37
6404	4822 130 30621	1N4148	/30/37
6405	4822 130 61219	BZX79-B10	
6406	4822 130 34174	BZX79-C4V7	/22/25
6406	4822 130 31981	BZX79-C3V9	/30/37
6409	4822 130 30621	1N4148	

TRANSISTORS & INTEGRATED CIRCUITS

7401	4822 130 40959	BC547B	
7402	4822 130 44568	BC557B	
7403	9322 139 23687	BDX53BFP	
7405	4822 130 40995	BD438	/30/37
7406	4822 130 40959	BC547B	/30/37
7407	4822 130 40959	BC547B	/30/37
7408	4822 130 40959	BC547B	
7409	4822 130 41246	BC327-25	
7417	4822 209 31841	L7805CP	

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

9-8

ELECTRICAL PARTS LIST - COMBI BOARD

MISCELLANEOUS

1001	4822 265 20553	Cinch Socket - Aux in	
1013	4822 265 11515	Flex Connector 8P	
1014	4822 267 10733	Flex Connector 4P	
1018	4822 265 10981	Flex Connector 15P	
1022	4822 267 10953	Flex Connector 7P	
1025	2422 025 14518	Flex Connector 9P	
1026	4822 265 11553	Flex Connector 19P	
1300	4822 252 11225	⚠ Fuse RAD LF 3,15A	
1301	4822 252 11225	⚠ Fuse RAD LF 3,15A	
1304	4822 267 10953	Flex Connector 7P	
1307	4822 267 31176	Speaker Terminal	

CAPACITORS

2000	5322 126 11583	10nF 10% 50V	
2003	2238 586 59812	100nF 50V	
2006	2238 586 59812	100nF 50V	
2017	4822 124 81286	47uF 20% 16V	
2023	2022 020 00734	1uF 20% 50V	
2025	4822 126 13881	470pF 5% 50V	
2027	2022 020 00734	1uF 20% 50V	
2028	4822 122 33752	15pF 5% 50V	
2031	4822 126 13881	470pF 5% 50V	
2032	4822 124 22651	1uF 20% 50V	
2033	4822 124 23052	100uF 20% 16V	
2038	2020 552 94427	100pF 5% 50V	
2045	2020 552 94427	100pF 5% 50V	
2046	4822 124 23052	100uF 20% 16V	
2048	2022 020 00734	1uF 20% 50V	
2056	2022 020 00734	1uF 20% 50V	
2058	4822 124 22651	1uF 20% 50V	
2060	2238 586 59812	100nF 50V	
2061	2020 552 94427	100pF 5% 50V	
2062	2020 552 94427	100pF 5% 50V	
2070	2238 586 59812	100nF 50V	
2080	2022 020 00734	1uF 20% 50V	
2081	2022 020 00734	1uF 20% 50V	
2300	4822 124 12255	10uF 20% 50V	
2301	4822 126 13193	4,7nF 10% 63V	
2302	4822 126 13193	4,7nF 10% 63V	
2303	4822 126 13193	4,7nF 10% 63V	
2304	4822 126 13193	4,7nF 10% 63V	
2305	4822 124 40433	47uF 20% 25V	
2306	4822 124 40433	47uF 20% 25V	
2307	4822 126 13193	4,7nF 10% 63V	
2308	4822 126 13193	4,7nF 10% 63V	
2309	4822 124 22651	1uF 20% 50V	
2310	4822 124 22651	1uF 20% 50V	
2311	4822 124 40207	100uF 20% 25V	
2312	4822 124 40207	100uF 20% 25V	
2313	4822 124 40207	100uF 20% 25V	
2314	4822 124 40207	100uF 20% 25V	
2315	4822 126 13193	4,7nF 10% 63V	
2316	4822 126 13193	4,7nF 10% 63V	
2317	2020 561 90365	100nF +80/-20% 50V	
2318	2020 561 90365	100nF +80/-20% 50V	
2319	4822 121 43526	47nF 5% 250V	
2320	4822 121 43526	47nF 5% 250V	
2321	4822 121 43526	47nF 5% 250V	
2322	4822 121 43526	47nF 5% 250V	
2324	4822 126 11785	47pF 5% 50V	
2333	4822 124 40433	47uF 20% 25V	
2334	4822 124 12255	10uF 20% 50V	
2335	4822 124 12255	10uF 20% 50V	
2336	4822 124 12255	10uF 20% 50V	
2339	2238 586 59812	100nF 50V	
2341	2020 012 93664	100uF 20% 50V	
2501	4822 126 13881	470pF 5% 50V	
2502	4822 126 13881	470pF 5% 50V	
2503	4822 126 13881	470pF 5% 50V	
2504	4822 126 13881	470pF 5% 50V	
2505	4822 126 13881	470pF 5% 50V	
2506	4822 126 13881	470pF 5% 50V	
2507	4822 126 13881	470pF 5% 50V	
2508	4822 126 13881	470pF 5% 50V	
2509	4822 126 13193	4,7nF 10% 63V	
2510	4822 126 13193	4,7nF 10% 63V	
2511	5322 124 41948	470nF 20% 50V	
2512	5322 124 41948	470nF 20% 50V	
2513	4822 121 42408	220nF 5% 63V	
2514	4822 121 42408	220nF 5% 63V	
2515	4822 121 51252	470nF 5% 63V	
2516	4822 121 51252	470nF 5% 63V	
2517	4822 121 51252	470nF 5% 63V	
2518	4822 121 51252	470nF 5% 63V	
2521	5322 126 11579	3,3nF 10% 63V	
2522	5322 126 11579	3,3nF 10% 63V	
2523	4822 126 14549	33nF 16V	
2524	4822 126 14549	33nF 16V	
2525	3198 016 31020	1nF 25V	
2530	3198 016 31020	1nF 25V	
2544	2020 552 94427	100pF 5% 50V	
2545	2020 552 94427	100pF 5% 50V	
2546	4822 126 14585	100nF 10% 50V	
2547	4822 124 81286	47uF 20% 16V	
2549	2238 586 59812	100nF 50V	
2550	4822 124 40433	47uF 20% 25V	
2551	4822 124 81151	22uF 50V	
2552	4822 126 14494	22nF 10% 25V	
2560	5322 124 41948	470nF 20% 50V	
2563	2238 586 59812	100nF 50V	
2700	2020 552 94427	100pF 5% 50V	
2701	5322 121 42661	330nF 5% 63V	
2702	4822 126 13881	470pF 5% 50V	
2706	2020 552 94427	100pF 5% 50V	

ELECTRICAL PARTS LIST - COMBI BOARD

CAPACITORS

2707	2020 552 94427	100pF 5% 50V
2708	5322 121 42661	330nF 5% 63V
2709	4822 126 13881	470pF 5% 50V
2713	2020 552 94427	100pF 5% 50V
2714	4822 124 81286	47uF 20% 16V
2715	3198 017 42230	22nF 50V
2716	4822 124 23052	100uF 20% 16V

RESISTORS

3011	4822 051 20471	470R 5% 0,1W
3012	4822 051 20471	470R 5% 0,1W
3014	4822 051 30103	10k 5% 0,062W
3015	4822 117 12925	47k 1% 0,063W
3016	4822 051 30333	33k 5% 0,062W
3017	4822 051 30393	39k 5% 0,062W
3018	4822 051 30393	39k 5% 0,062W
3021	4822 051 30152	1k5 5% 0,062W
3022	4822 051 30103	10k 5% 0,062W
3024	4822 051 30153	15k 5% 0,062W
3026	4822 051 30152	1k5 5% 0,062W
3027	4822 051 30103	10k 5% 0,062W
3028	4822 051 30472	4k7 5% 0,062W
3029	4822 051 30153	15k 5% 0,062W
3031	4822 051 30103	10k 5% 0,062W
3032	2120 108 91909	RST SM 0603 ERJ3G 39R 5%
3033	2120 108 91909	RST SM 0603 ERJ3G 39R 5%
3034	4822 051 30103	10k 5% 0,062W
3035	4822 051 30103	10k 5% 0,062W
3042	4822 051 30102	1k 5% 0,062W
3048	4822 051 30562	5k6 5% 0,063W
3053	4822 051 30562	5k6 5% 0,063W
3057	4822 051 30102	1k 5% 0,062W
3059	4822 051 30222	2k2 5% 0,062W
3062	4822 051 30103	10k 5% 0,062W
3065	2120 108 91909	RST SM 0603 ERJ3G 39R 5%
3066	2120 108 91909	RST SM 0603 ERJ3G 39R 5%
3071	4822 051 30103	10k 5% 0,062W
3079	4822 051 30472	4k7 5% 0,062W
3083	4822 051 30471	470R 5% 0,062W
3084	4822 117 11817	1k2 1% 1/16W
3085	4822 051 30008	0R Jumper 0603
3088	4822 051 30334	330k 5% 0,062W
3089	4822 117 12864	82k 5% 0,6W
3091	4822 051 30154	150k 5% 0,062W
3094	4822 051 30471	470R 5% 0,062W
3095	4822 051 30471	470R 5% 0,062W
3107	4822 051 30271	270R 5% 0,062W
3300	4822 116 52276	3k9 5% 0,5W
3301	4822 051 30221	220R 5% 0,062W
3302	4822 051 30221	220R 5% 0,062W
3303	4822 051 30331	330R 5% 0,062W
3304	4822 051 30331	330R 5% 0,062W
3305	4822 051 30471	470R 5% 0,062W
3306	4822 051 30471	470R 5% 0,062W
3307	4822 051 30471	470R 5% 0,062W
3308	4822 051 30471	470R 5% 0,062W
3309	4822 050 24708	4R7 1% 0,6W
3310	4822 050 24708	4R7 1% 0,6W
3311	4822 050 24708	4R7 1% 0,6W
3312	4822 050 24708	4R7 1% 0,6W
3314	4822 051 30222	2k2 5% 0,062W
3315	4822 116 52219	330R 5% 0,5W
3318	4822 051 30332	3k3 5% 0,062W
3323	4822 117 12925	47k 1% 0,063W
3326	4822 051 30472	4k7 5% 0,062W
3327	4822 051 30472	4k7 5% 0,062W
3328	4822 051 30472	4k7 5% 0,062W
3329	4822 051 30332	3k3 5% 0,062W
3331	4822 051 30331	330R 5% 0,062W
3336	4822 051 30562	5k6 5% 0,063W
3337	4822 051 30562	5k6 5% 0,063W
3340	4822 116 52219	330R 5% 0,5W
3341	4822 051 30472	4k7 5% 0,062W
3342	4822 051 30103	10k 5% 0,062W
3353	4822 116 52249	1k8 5% 0,5W
3359	4822 117 13632	100k 1% 0,62W
3360	4822 051 30153	15k 5% 0,062W
3361	4822 051 30102	1k 5% 0,062W
3362	4822 051 30682	6k8 5% 0,062W
3363	4822 051 30102	1k 5% 0,062W
3377	4822 117 12925	47k 1% 0,063W
3378	4822 051 30102	1k 5% 0,062W
3379	4822 051 30222	2k2 5% 0,062W
3380	4822 051 30222	2k2 5% 0,062W
3503	4822 051 30153	15k 5% 0,062W
3505	4822 051 30223	22k 5% 0,062W
3506	4822 051 30223	22k 5% 0,062W
3507	4822 117 12902	8k2 1% 0,063W
3508	4822 117 12902	8k2 1% 0,063W
3509	4822 051 30562	5k6 5% 0,063W
3510	4822 051 30562	5k6 5% 0,063W
3511	4822 051 30123	12k 5% 0,062W
3512	4822 051 30123	12k 5% 0,062W
3513	4822 051 30562	5k6 5% 0,063W
3516	4822 051 30562	5k6 5% 0,063W
3540	4822 051 30471	470R 5% 0,062W
3541	4822 051 30471	470R 5% 0,062W
3543	4822 117 12903	1k8 1% 0,063W
3544	4822 051 30103	10k 5% 0,062W
3565	4822 051 30153	15k 5% 0,062W
3700	4822 051 30273	27k 5% 0,062W
3701	4822 051 30471	470R 5% 0,062W
3704	4822 051 30682	6k8 5% 0,062W
3705	4822 051 30273	27k 5% 0,062W

ELECTRICAL PARTS LIST - COMBI BOARD

RESISTORS

3706	4822 051 30682	6k8 5% 0,062W
3707	4822 051 30273	27k 5% 0,062W
3709	4822 051 30471	470R 5% 0,062W
3711	4822 051 30273	27k 5% 0,062W
3712	4822 051 30472	4k7 5% 0,062W
3713	4822 052 10109	⚠ 10R 5% 0,33W
3714	4822 051 30472	4k7 5% 0,062W
3715	4822 051 30103	10k 5% 0,062W
4201	4822 051 30008	0R Jumper 0603
4202	4822 051 30008	0R Jumper 0603
4203	4822 051 30008	0R Jumper 0603
4204	4822 051 30008	0R Jumper 0603
4205	4822 051 30008	0R Jumper 0603
4206	4822 051 30008	0R Jumper 0603
4207	4822 051 30008	0R Jumper 0603
4208	4822 051 30008	0R Jumper 0603
4209	4822 051 30008	0R Jumper 0603
4210	4822 051 30008	0R Jumper 0603
4211	4822 051 30008	0R Jumper 0603
4212	4822 051 30008	0R Jumper 0603
4214	4822 051 30008	0R Jumper 0603
4215	4822 051 30008	0R Jumper 0603
4216	4822 051 30008	0R Jumper 0603
4217	4822 051 30008	0R Jumper 0603
4219	4822 051 30008	0R Jumper 0603
4220	4822 051 30008	0R Jumper 0603
4221	4822 051 30008	0R Jumper 0603
4222	4822 051 30008	0R Jumper 0603
4223	4822 051 30008	0R Jumper 0603
4224	4822 051 30008	0R Jumper 0603
4225	4822 051 30008	0R Jumper 0603
4226	4822 051 30008	0R Jumper 0603
4227	4822 051 30008	0R Jumper 0603
4228	4822 051 30008	0R Jumper 0603
4229	4822 051 30008	0R Jumper 0603
4230	4822 051 30008	0R Jumper 0603
4231	4822 051 30008	0R Jumper 0603
4232	4822 051 30008	0R Jumper 0603
4233	4822 051 30008	0R Jumper 0603
4234	4822 051 30008	0R Jumper 0603
4235	4822 051 30008	0R Jumper 0603
4503	4822 051 30008	0R Jumper 0603
4504	4822 051 30008	0R Jumper 0603

COILS & FILTERS

5005	2422 549 44608	INDFXD 0603 EMI 100MHz 1k
5006	2422 549 44608	INDFXD 0603 EMI 100MHz 1k
5262	2238 586 59812	100nF 50V
5300	4822 157 62255	Coil 18,5 Turns
5301	4822 157 62255	Coil 18,5 Turns
5302	4822 157 62255	Coil 18,5 Turns
5303	4822 157 62255	Coil 18,5 Turns
5700	4822 157 62552	Coil 2,2uH 5%

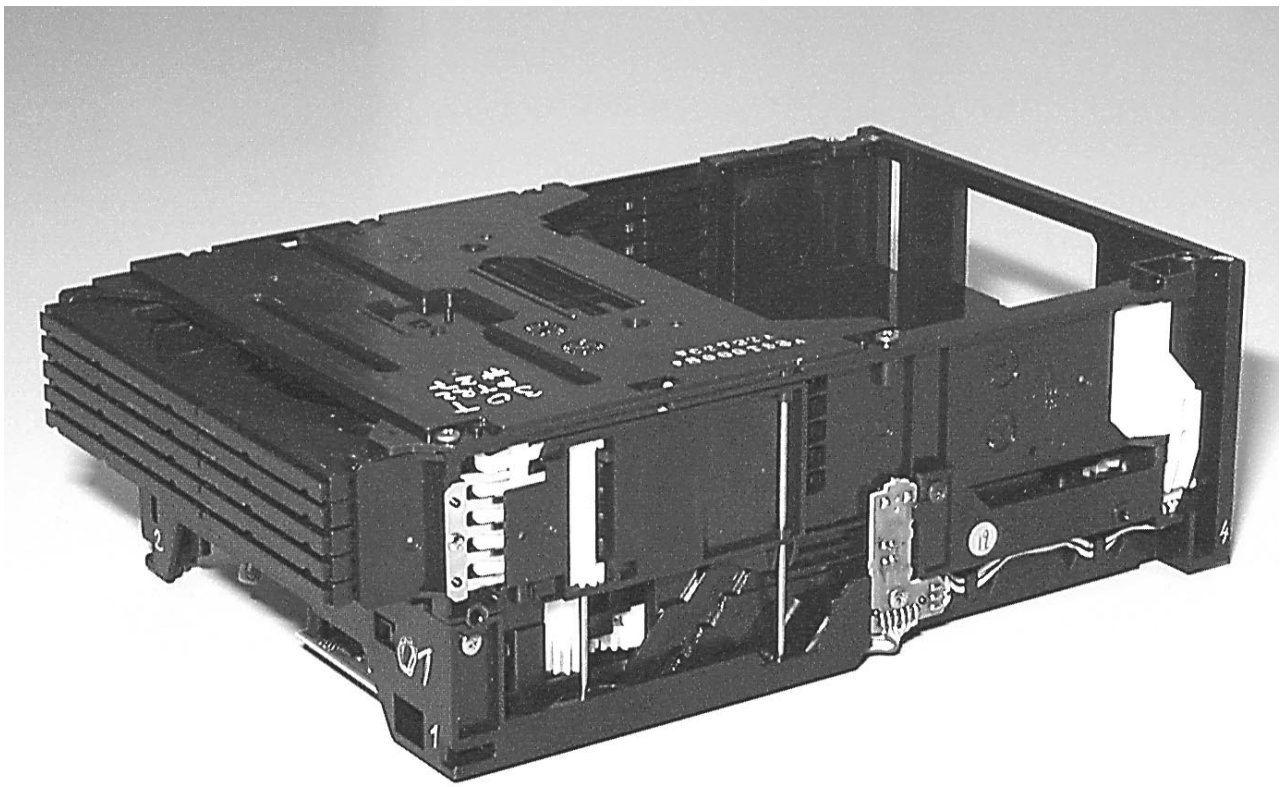
DIODES

6002	4822 130 30621	1N4148
6003	4822 130 30621	1N4148
6301	4822 130 31878	1N4003G
6302	4822 130 31878	1N4003G
6303	4822 130 31878	1N4003G
6304	9322 163 82682	BYV98-200
6306	4822 130 30621	1N4148
6307	3198 010 53980	BZX79-B3V9
6308	5322 130 31938	BYV27-200
6315	4822 130 34398	BZX79-B24
6323	4822 130 30621	1N4148
6324	4822 130 34278	BZX79-C6V8
6325	4822 130 31878	1N4003G
6326	4822 130 30621	1N4148
6327	4822 130 30621	1N4148
6331	4822 130 30621	1N4148
6332	4822 130 30621	1N4148

TRANSISTORS & INTEGRATED CIRCUITS

7000	4822 130 60373	BC857B
7004	4822 130 42804	BC817-25
7005	4822 209 17345	M62320FP
7006	5322 130 60845	BC807-25
7009	4822 130 42804	BC817-25
7010	5322 130 60159	BC847B
7013	4822 130 60373	BC857B
7015	5322 130 60159	BC847B
7300	5322 130 60159	BC847B
7301	9322 153 02682	AN7591
7302	9322 153 02682	AN7591
7304	4822 130 11578	STP16NE06
7307	4822 130 60373	BC856B
7308	5322 130 60159	BC847B
7309	4822 130 11336	STP16NE06FP
7310	4822 130 60373	BC856B
7313	4822 130 60373	BC857B
7325	5322 130 60159	BC847B
7328	4822 130 42804	BC817-25
7329	4822 130 42804	BC817-25
7505	5322 130 60159	BC847B
7506	9322 150 74668	TDA7468D
7700	4822 209 31378	NJM4556AM

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



5DTC Module

(Basic version)

Layout stage .4

TABLE OF CONTENTS

Service Hints

In case of symptom „skipping tracks“ perform following actions:

1. VERIFY THE COMPLAINT

PLAYABILITY CHECK

Use CDDA SBC 444A: 4822 397 30245
TR 14 (600µ black dot) maximum at 01:15
TR 19 (fingerprint)
TR 10 (1000µ wedge)

Use CD-RW Printed Audio Disk 7104 099 96611
TR 3 (Fingerprint)
TR 8 (600µ black dot) maximum at 01:00

- playback of all these tracks without audible disturbance
- jump forward/backward within a reasonable time

2. CLEAN THE LENS

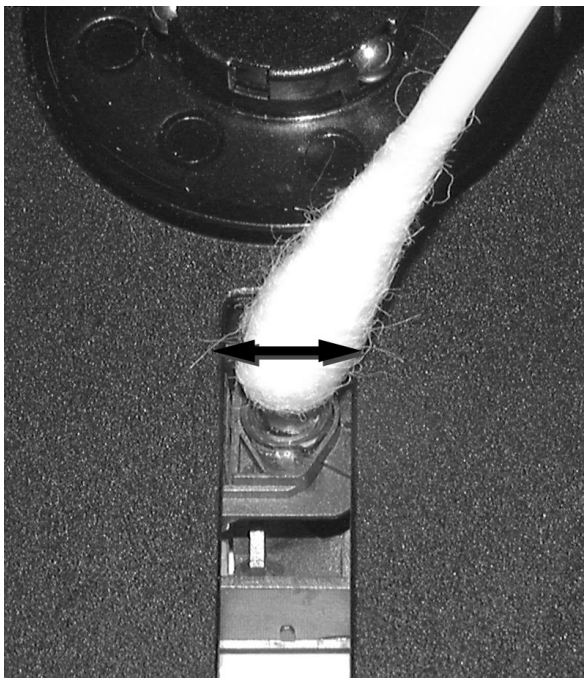
CD DRIVE – LENS CLEANING

Before touching the lens it is advised to clean the surface of the lens by blowing clean air over it in order to avoid that little particles make scratches on the lens.

Because the material of the lens is synthetic and coated with a special anti-reflectivity layer, cleaning must be done with a non-aggressive cleaning fluid. It is advised to use “KODAK LENS CLEANER CAT 176 71 36”, available in normal photo shops.

The actuator is a very precise mechanical component and may not be damaged in order to guarantee its full function. It is advised to clean the lens gently (don’t press too hard) with a soft and clean cotton bud moistened with the special lens cleaner.

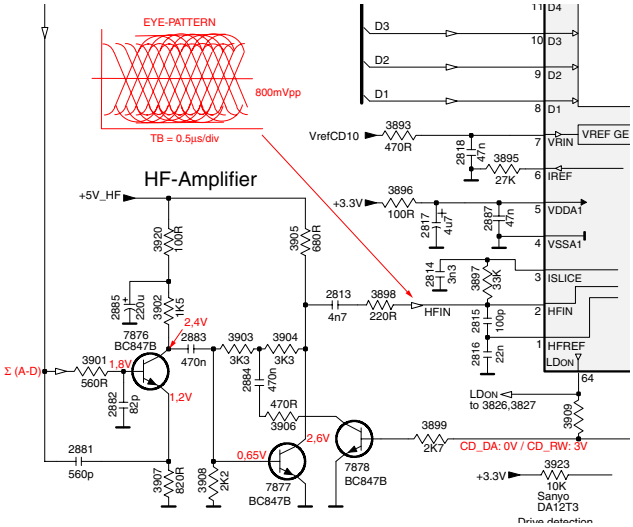
The direction of cleaning must be in the way as indicated in the picture below.



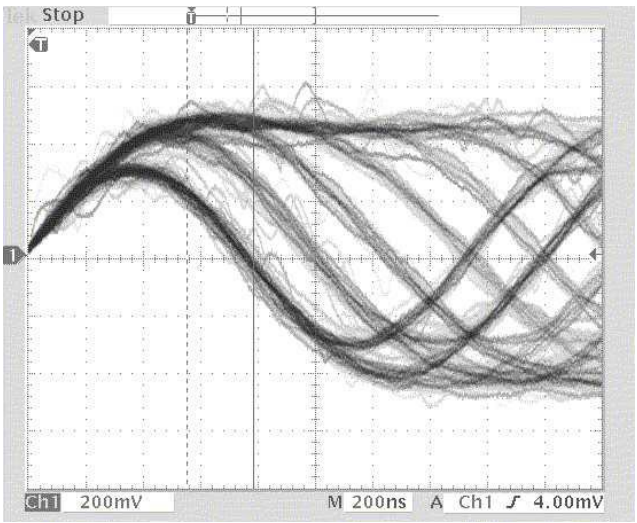
3. MEASURE THE EYE-PATTERN SIGNAL

EYE-PATTERN SIGNAL – JITTER MEASUREMENT

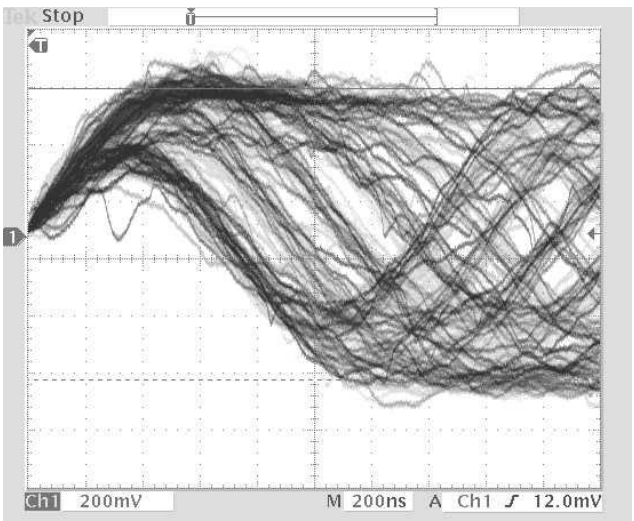
Measure the signal direct on resistor 3898 using an oscilloscope (see also chapter 10-9).



See below examples of the signal. Amplitude should read at least 700mVpp using SBC444A.



good



bad

If the oscilloscope shows a signal like the ‘bad’ one, and/or the amplitude decreases within 1minute - the CD drive has to be replaced.

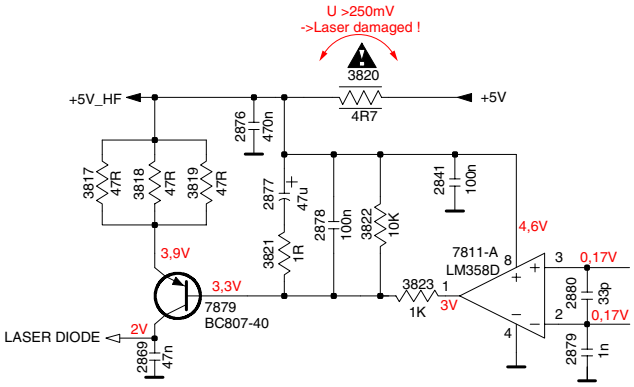
Service Hints

4. MEASURE THE LASER CURRENT

CD DRIVE – LASER CURRENT MEASUREMENT

The laser current can be measured as a voltage drop on resistor 3820. Typical value 170 - 190mV for CD-DA respectively 200 - 220mV for CD-RW.

Laser power control



5. MEASURE THE OFFSETS OF THE CD-DRIVE

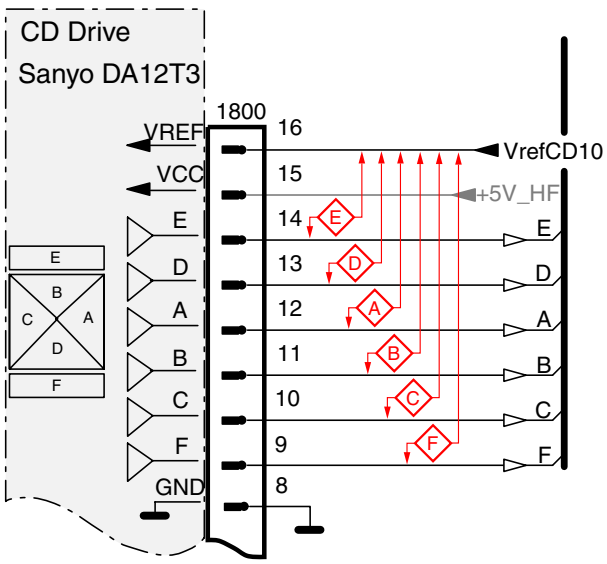
CD DRIVE – OFFSET MEASUREMENT

Each photodiode of the CD-drive may have an offset. This offset has to be compensated by the signal processor. A high offset of the CD-drive leads to poor playability of some CDs (skipping tracks).

Start the **Service Test Program** - section „Focus Test“ without a CD. Focus sensitivity = CD-RW.

Use a DC Millivoltmeter for measurement. The offsets can be measured direct on the connector. See drawing below.

The values from diode A-D should read 0±10mV. Diodes E and F are less critical.



If one of the offsets is higher than ±10mV the CD drive has to be replaced.

6. MEASURE THE OFFSETS OF THE CD10

SIGNAL PROCESSOR – OFFSET MEASUREMENT

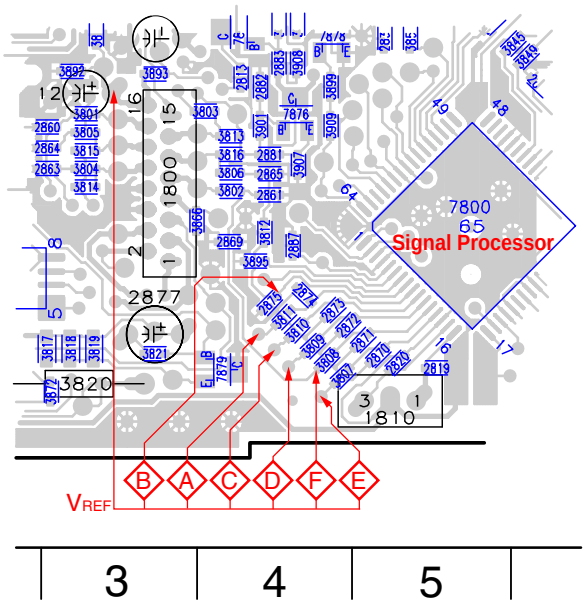
Each ADC input of the CD10 may have an offset too. Also this offset leads (together with the offsets of the CD Drive) to poor playability of some CDs (skipping tracks).

Start the **Service Test Program** - section „Focus Test“ using a CD-RW disc.

Use a DC Millivoltmeter for measurement. The offsets can be measured on capacitors near the signal processor. See drawing below.

The value should read 0mV±10mV.

CD Board side A view



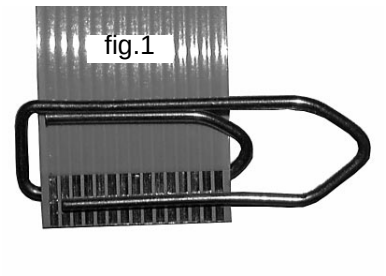
If one of the offsets is higher than ±10mV the signal processor has to be replaced.

If none of the measured offsets is higher than ±10mV - replace the part with the higher value.

WARNING

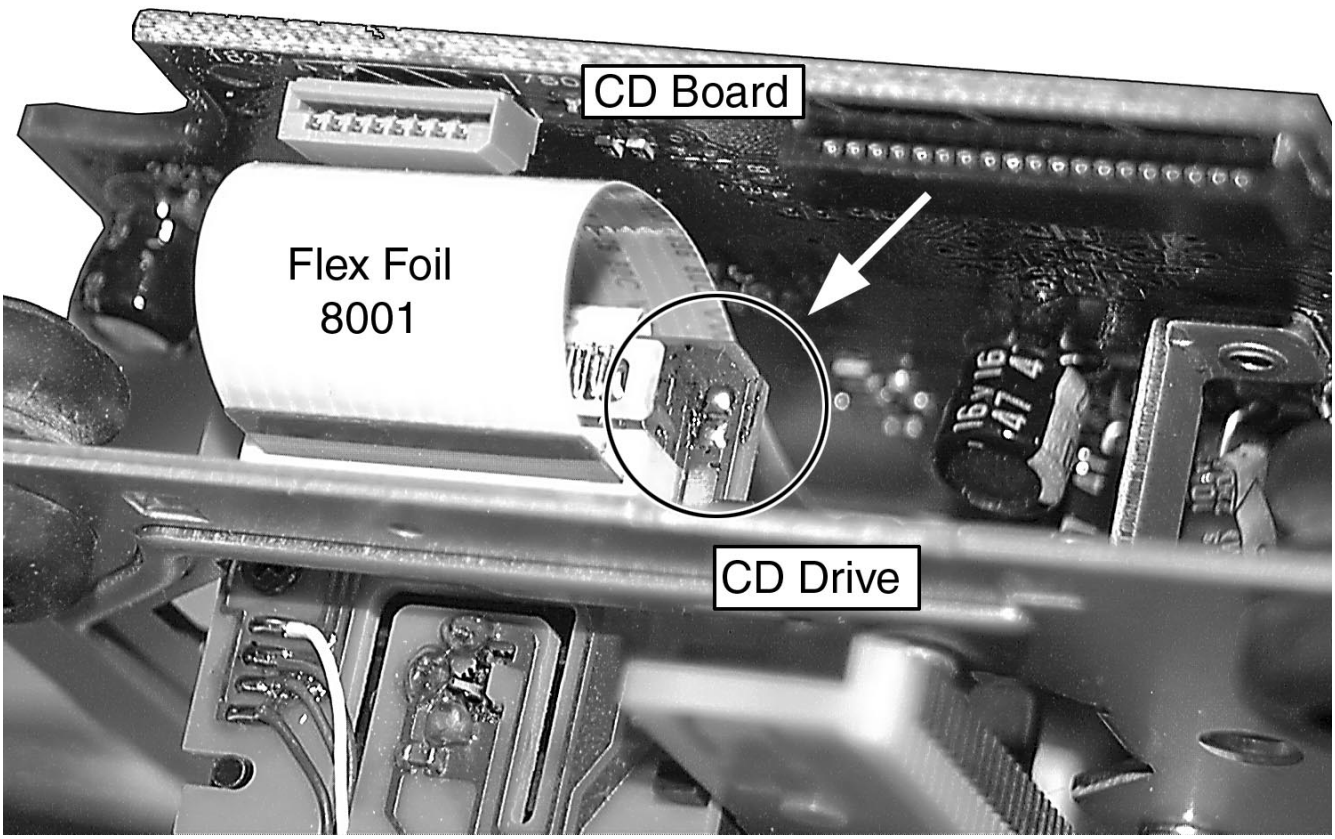
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CDM MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
• SWITCH OFF POWER SUPPLY
• ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

The CD drive forms a compact building block with the CD Board.

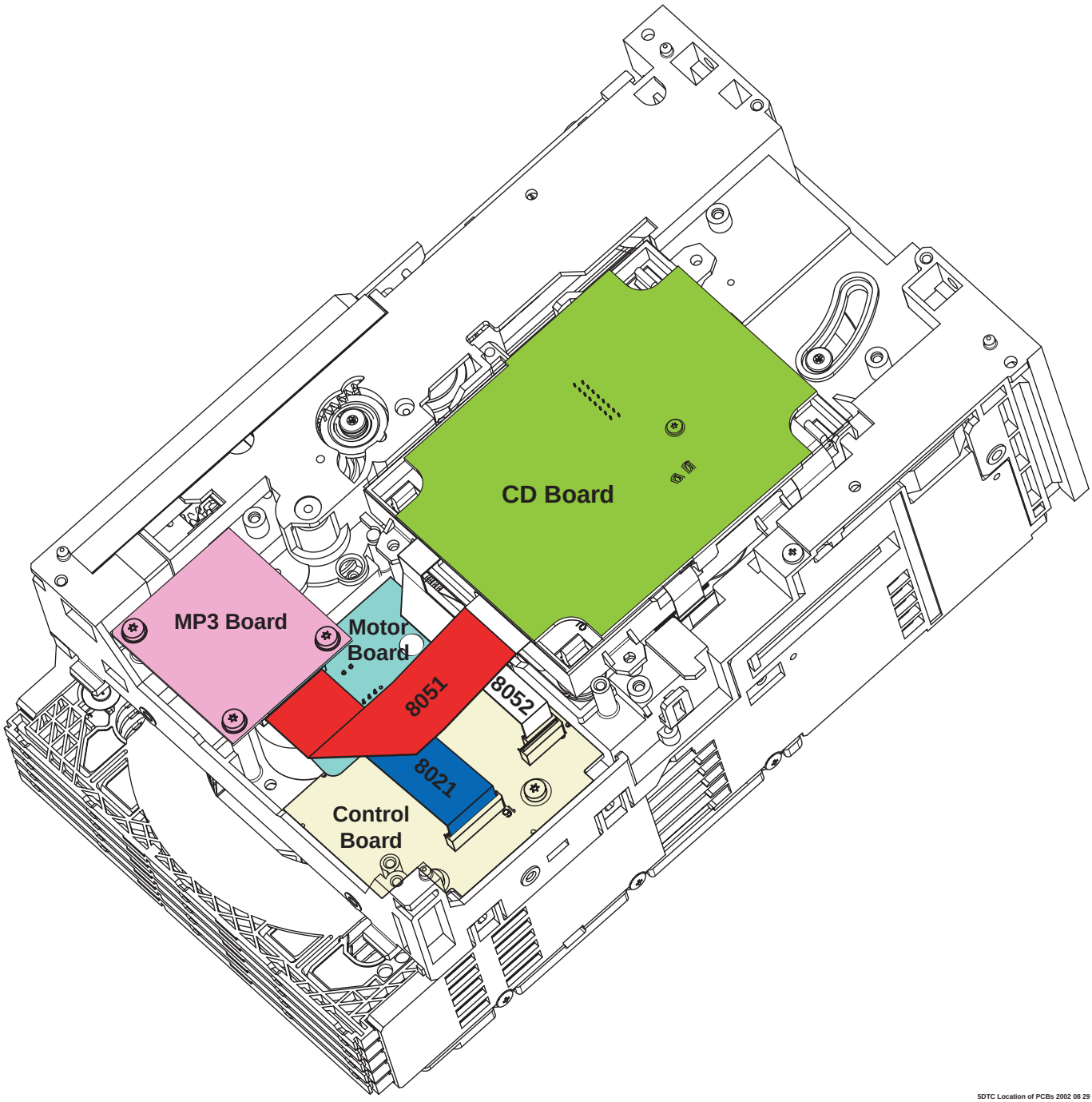


<u>The following steps have to be done when replacing the CD mechanism:</u>
1. Desolder disc and slide motor
2. Loosen 2x screw
1. Disconnect flexfoil from old CD drive
2. Put a paperclip over contacts of flexfoil to short-circuit the contacts (fig.1)
3. Remove old CD drive
4. Mount new CD drive to CD board
5. Solder disc and slide motor **after** fixing the drive to the board
5. Move slide outside
6. Remove paperclip from flexfoil
7. Connect flexfoil to new CD drive
8. Remove ESD-protection (solder joint) from laserunit (see picture below)

Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laserdiode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connection the drive to the set.

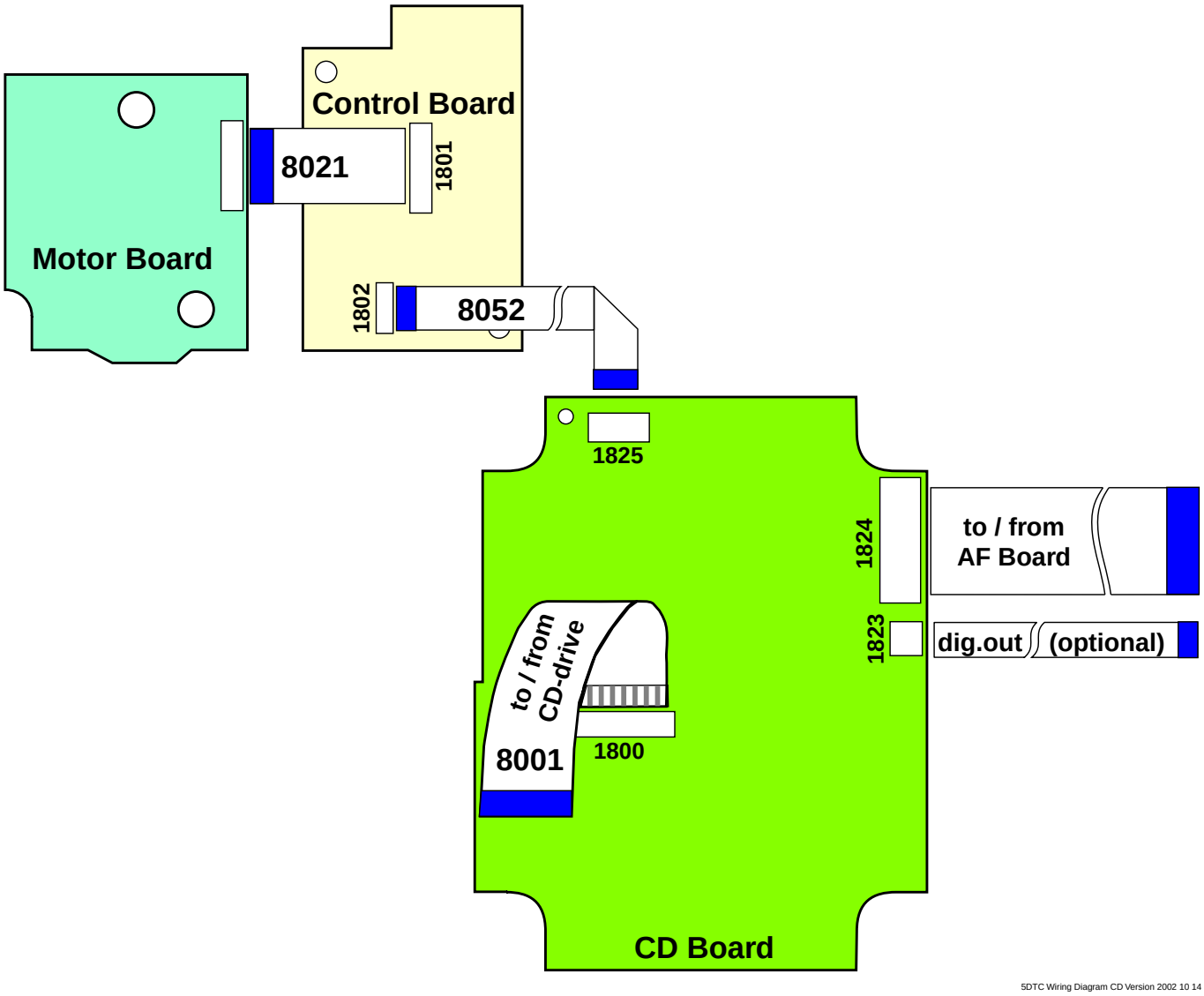


Location of Printed Circuit Boards



MP3 Board and flexfoil cable 8051 not stuffed.

Wiring Diagram 5DTC Module

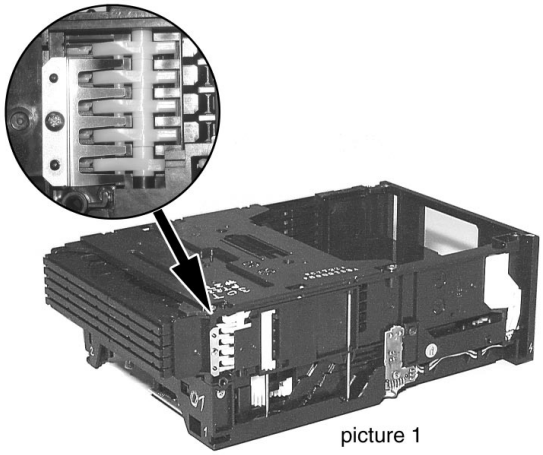


The FFC-Cables are available as sparepart.

8001	3103 308 93090	FFC CABLE 16Pin 80mm BD	Connection from CD Board to CD Drive
8052	3103 308 93120	FFC CABLE 8Pin 80mm BD	Connection from CD Board to Control Board
8021	3103 308 93110	FFC-CABLE 16Pin 60mm AD	Connection from Control Board to Motor Board

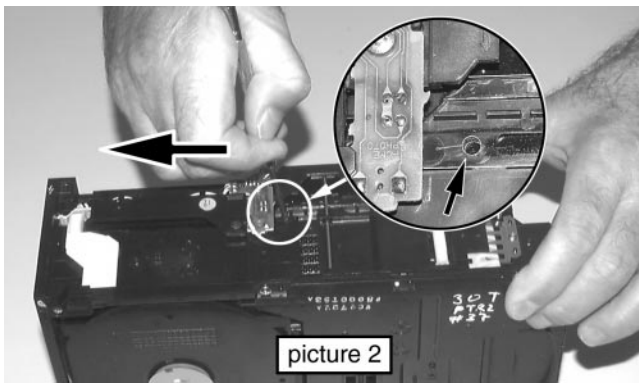
Emergency opening of the trays

The trays of the 5DTC are mechanically locked.

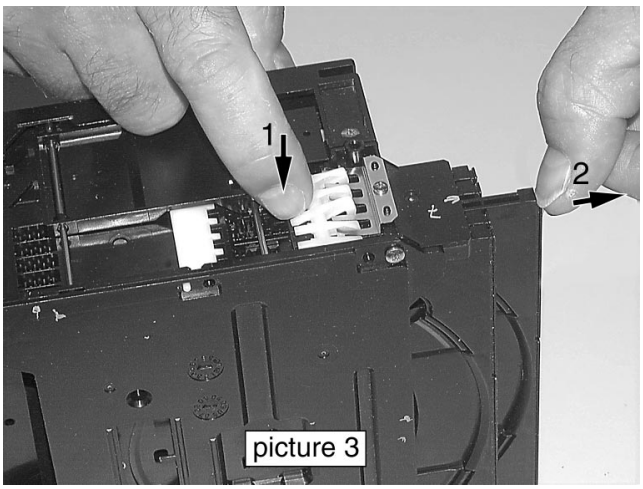


picture 1

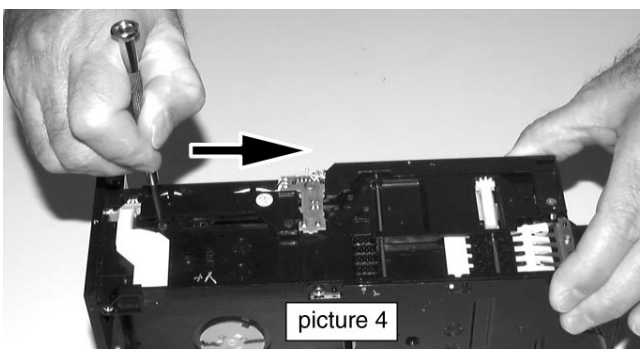
To open tray 1, 2 and 3 move lever (pos 29) backwards (e.g. with a screwdriver - see picture 2) to its endposition.



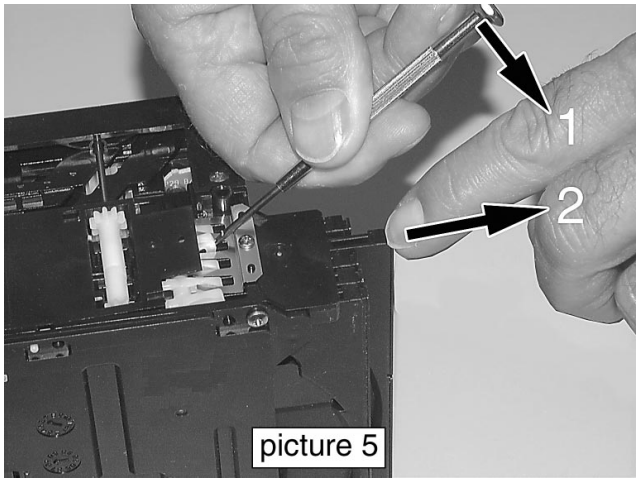
Release the locking mechanism and pull out the tray (see picture 3).



To open tray 4 and 5 move lever (pos 29) forward to its endposition (see picture 4).

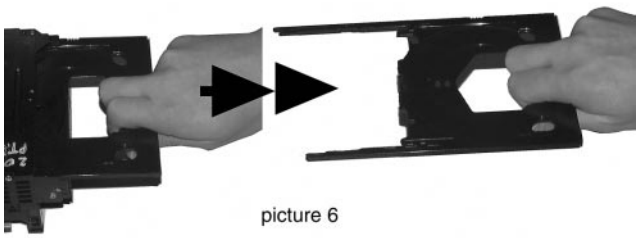


Release snap as shown in picture 5 and pull tray out.



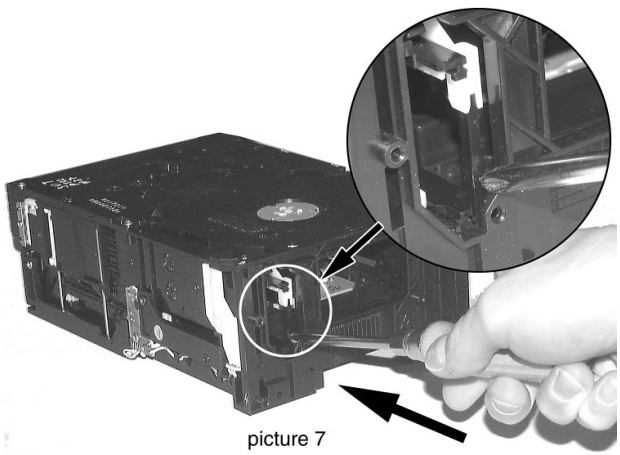
To remove a CD from Play Position perform following steps:

1. Open tray 1 as described before.
2. Tear the tray out with speed (see picture 6). The tray can be inserted aftewards without any alignment.



picture 6

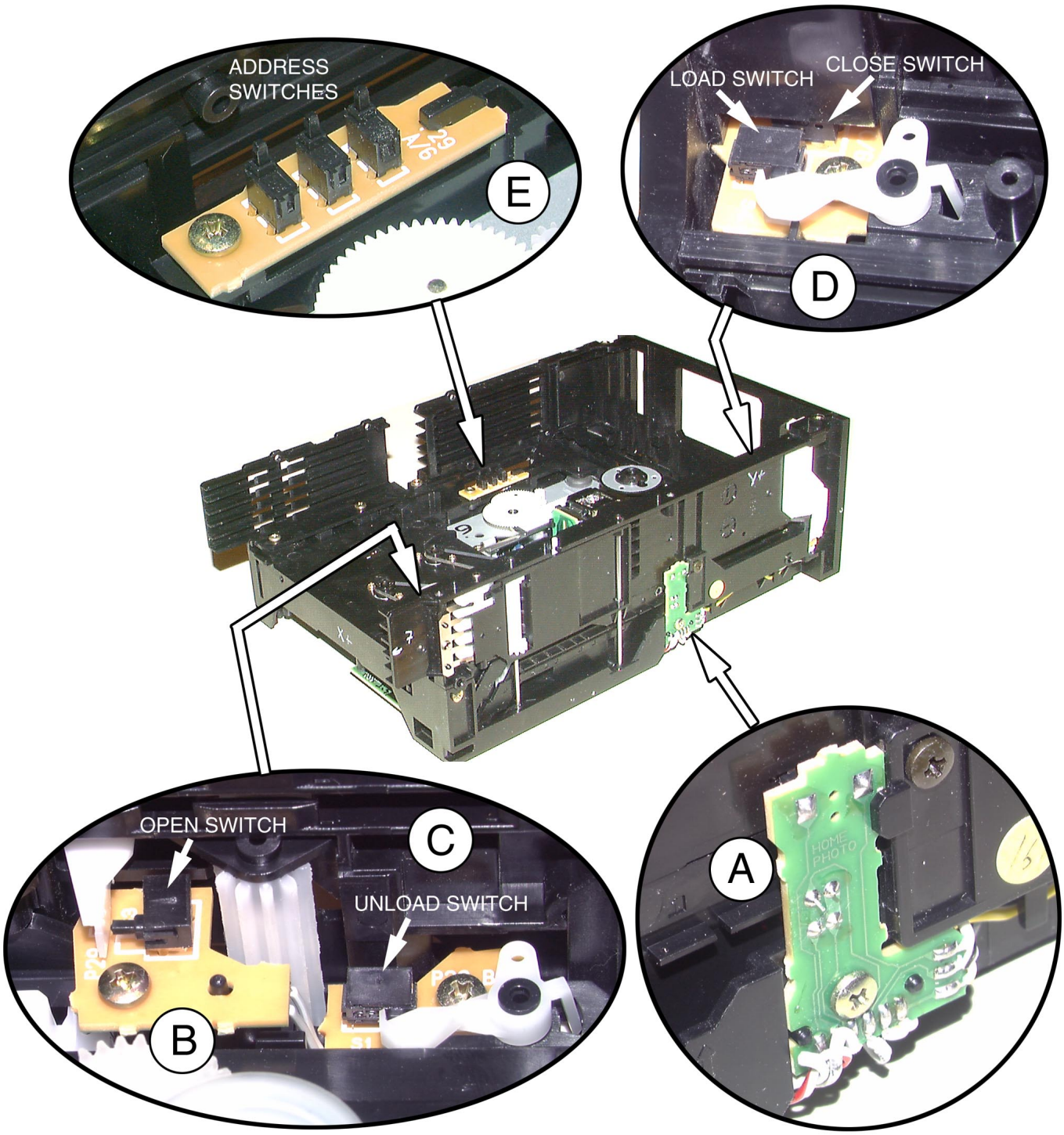
3. Move lever (pos 29) forward to its endposition (see picture 4).
4. Push lever (pos 31) forward (see picture 7).



picture 7

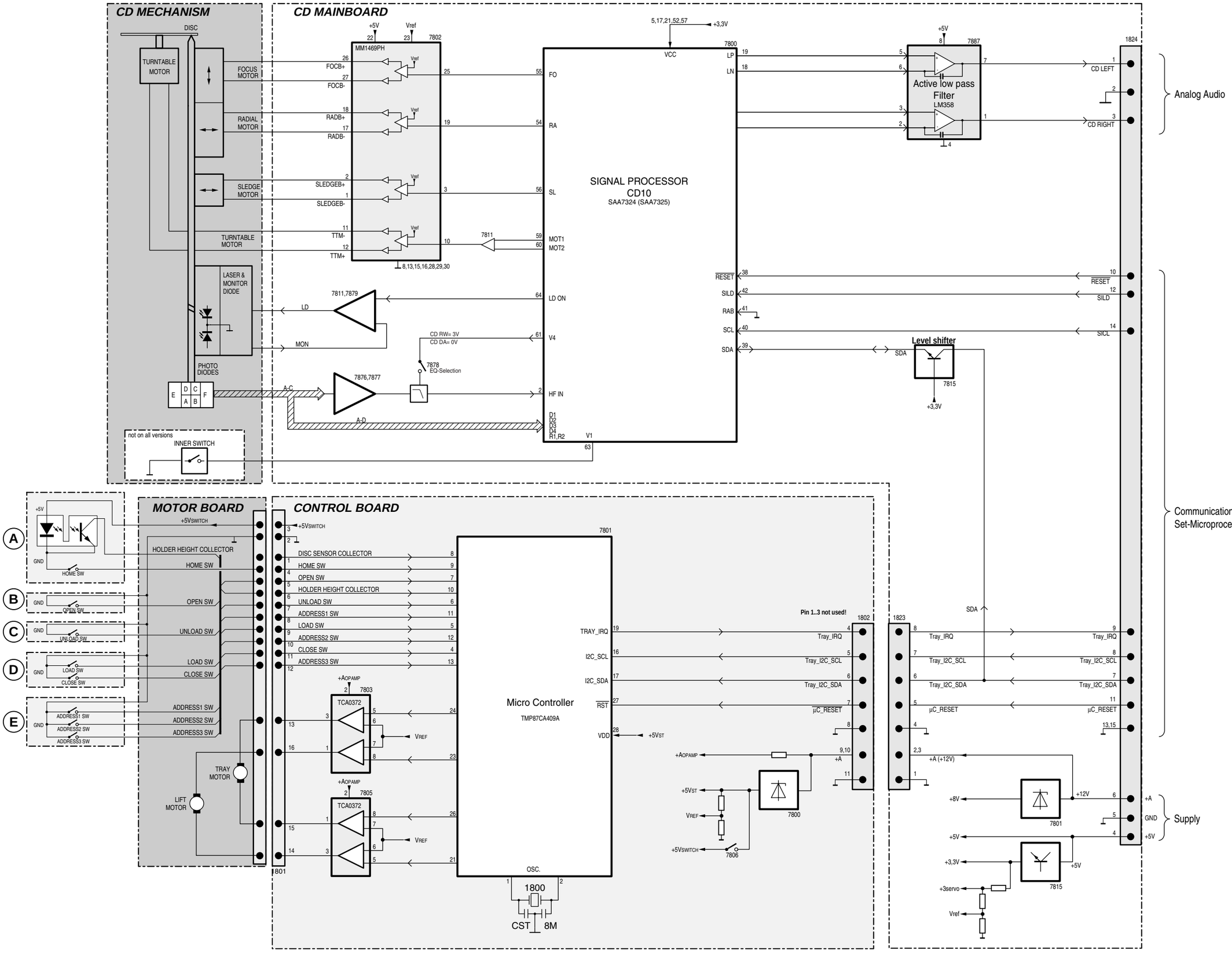
5. Remove CD.

Location of switches



10-9

BLOCK DIAGRAM 5DTC CD Version



10-10

5DTC CD BOARD

PHOTODIODES A..F

Laser power control

U >250mV
->Laser damaged !

CD Drive
Sanyo DA12T3

Active Low Pass

LEFT CHANNEL

RIGHT CHANNEL

Signal Processor

SAA7325
7800

Motor Driver

HF-Amplifier

EYE-PATTERN

800mVpp

TB = 0.5µs/div

ESD sensitive lines!

Focus search

3V-5V log. Level Transformer

to / from 5DTC Control Board

to / from Audio / Combi Board

Inner switch detection

Mitsumi MCD2

Sanyo DA12T3 Drive detection

During speed up

During brake

accelerates disc

brakes disc

...V DC voltages measured in PLAY MODE with following conditions:
"+A" = 12V
"+5V" = 5V

EVM

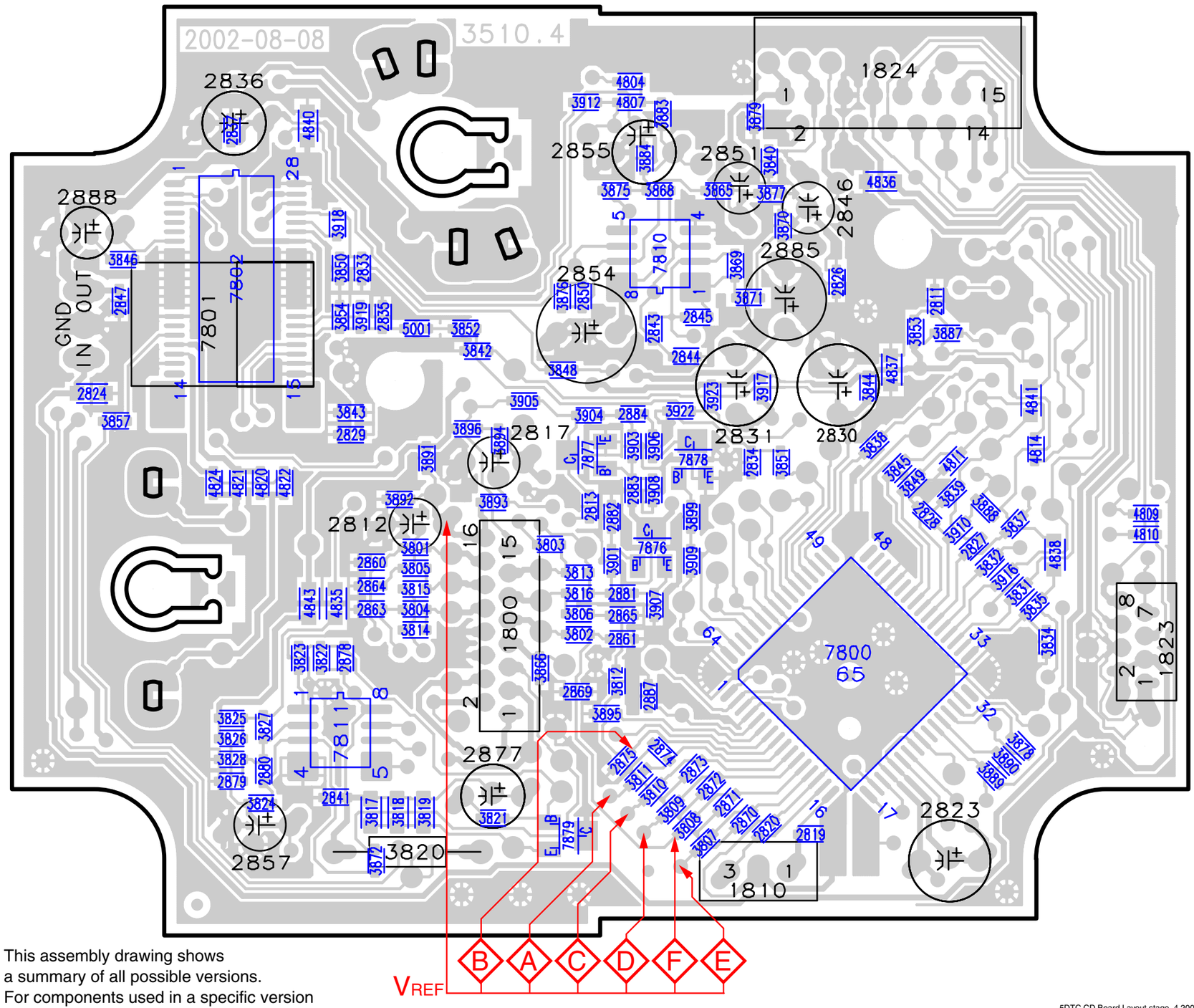
5DTC CD Board CD Version 2002 09 18

10-11

Mapping for Circuit Diagram

1800	E1	3834	D13
1810	D9	3835	D13
1823	F15	3836	I6
1824	H15	3837	E14
2187	F9	3839	E14
2812	J10	3840	B14
2813	G8	3841	I6
2814	G9	3842	J9
2815	G9	3843	J9
2816	G9	3844	J10
2817	F9	3845	F14
2818	F9	3846	J1
2821	C9	3847	H5
2822	C10	3848	H5
2823	C10	3849	F14
2824	I12	3850	H4
2825	C11	3851	H5
2826	A15	3852	H5
2827	E13	3853	D14
2828	E13	3854	H4
2829	J9	3855	J4
2830	J10	3856	I5
2831	H11	3859	I6
2832	H5	3860	I6
2833	H4	3861	J6
2834	H5	3862	I5
2836	G3	3864	B11
2837	G3	3865	A14
2838	I4	3866	F2
2839	I5	3867	B11
2840	J4	3868	B12
2841	F4	3869	B13
2843	B12	3870	B14
2844	B12	3871	B14
2845	B13	3872	G2
2846	B14	3873	A11
2847	I11	3874	A11
2848	A12	3875	A12
2849	A11	3876	A13
2850	A13	3877	A14
2851	A14	3879	A14
2852	I5	3880	I12
2853	H4	3881	J12
2853	J11	3883	A12
2854	A12	3884	B12
2855	B11	3887	E15
2860	A6	3891	J10
2861	A6	3892	J10
2863	B6	3893	F8
2864	C6	3895	F9
2865	C6	3896	F8
2866	B6	3897	G9
2869	F2	3898	G8
2870	A7	3899	H8
2871	A7	3900	E15
2872	B7	3901	G6
2873	B7	3902	G7
2874	C7	3903	G7
2875	C7	3904	G8
2876	E3	3905	F8
2877	F3	3906	H8
2878	F3	3907	H7
2879	F5	3908	H7
2880	F5	3909	H9
2881	H6	3910	E14
2882	G6	3912	A11
2884	G7	3917	H11
2885	G6	3918	H4
2886	G11	3919	H4
2893	G7	3920	F7
3801	A6	3922	H10
3802	A6	3923	H9
3803	B6	3925	A11
3804	B6	3926	A11
3805	C6	3927	B11
3806	C6	3928	B11
3807	A7	5001	H5
3808	A7	5002	H11
3809	B7	6877	J11
3810	B7	7800	D11
3811	C7	7801	I11
3812	C7	7802	G2
3813	D6	7804	E15
3814	D6	7810-A	B13
3815	E6	7810-B	A13
3816	E6	7811-A	F4
3817	F2	7811-B	I4
3818	F2	7875	I11
3819	F3	7876	G7
3820	E4	7877	H8
3821	F3	7878	H8
3822	F4	7879	F3
3823	F4		
3824	F5		
3825	F5		
3826	F5		
3827	F5		
3828	G5		
3829	C10		
3833	C9		

5DTC CD Board Side A



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

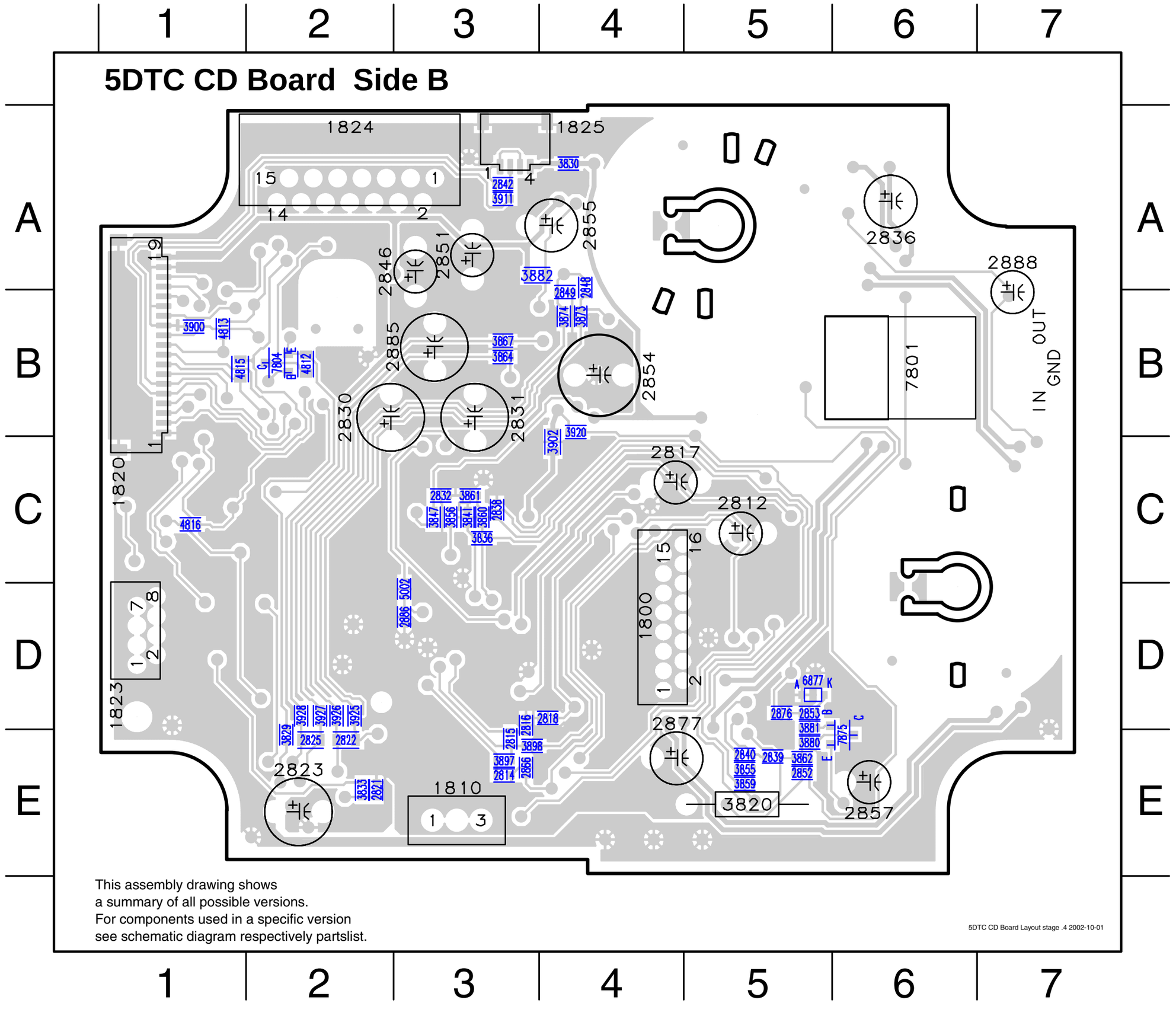
5DTC CD Board Layout stage .4 2002-10-01

Mapping for Component Layout

1800	D3	3851	C5
1810	E5	3852	B3
1823	D7	3853	B6
1824	A5	3854	B2
2811	B6	3857	C1
2812	C3	3865	A4
2813	C4	3866	D3
2817	C3	3868	A4
2819	E5	3869	B5
2820	E5	3870	A5
2823	E6	3871	B5
2824	B1	3872	E3
2826	B5	3875	A4
2827	C6	3876	B4
2828	C6	3877	A5
2829	C2	3878	D6
2830	B5	3879	A5
2831	B5	3883	A4
2833	B2	3884	A4
2834	C5	3887	B6
2835	B3	3888	C6
2836	A2	3889	E6
2837	A2	3890	E6
2841	E2	3891	C3
2843	B4	3892	C3
2844	B4	3893	C3
2845	B4	3894	C3
2846	A5	3895	D4
2847	B1	3896	C3
2850	B4	3899	C4
2851	A5	3901	C4
2854	B4	3903	C4
2855	A4	3904	C4
2857	E2	3905	B3
2860	C3	3906	C4
2861	D4	3907	D4
2863	D3	3908	C4
2864	D3	3909	C4
2865	D4	3910	C6
2869	D4	3912	A4
2870	E5	3916	C6
2871	E5	3917	B5
2872	E4	3918	A2
2873	E4	3919	B2
2874	D4	3922	C4
2875	E4	3923	B4
2877	D3	4804	A4
2878	D2	4807	A4
2879	E2	4809	C7
2880	E2	4810	C7
2881	D4	4811	C6
2882	C4	4814	C6
2883	C4	4820	C2
2884	C4	4821	C2
2885	B5	4822	C2
2887	D4	4824	C2
2888	A1	4835	D2
3801	C3	4836	A5
3802	D4	4837	B5
3803	C4	4838	C6
3804	D3	4840	A2
3805	C3	4841	B6
3806	D4	4843	D2
3807	E4	5001	B3
3808	E4	7800	C6
3809	E4	7801	B2
3810	E4	7802	B2
3811	E4	7810	B4
3812	D4	7811	D2
3813	C4	7876	C4
3814	D3	7877	C4
3815	D3	7878	C4
3816	D4	7879	E4
3817	E3		
3818	E3		
3819	E3		
3820	E3		
3821	E3		
3822	D2		
3823	D2		
3824	E2		
3825	D2		
3826	D2		
3827	D2		
3828	D2		
3831	D6		
3832	C6		
3834	D6		
3835	D6		
3837	C6		
3838	C5		
3839	C6		
3840	A5		
3842	B3		
3843	C2		
3844	B5		
3845	C6		
3846	B1		
3848	B4		
3849	C6		
3850	B2		

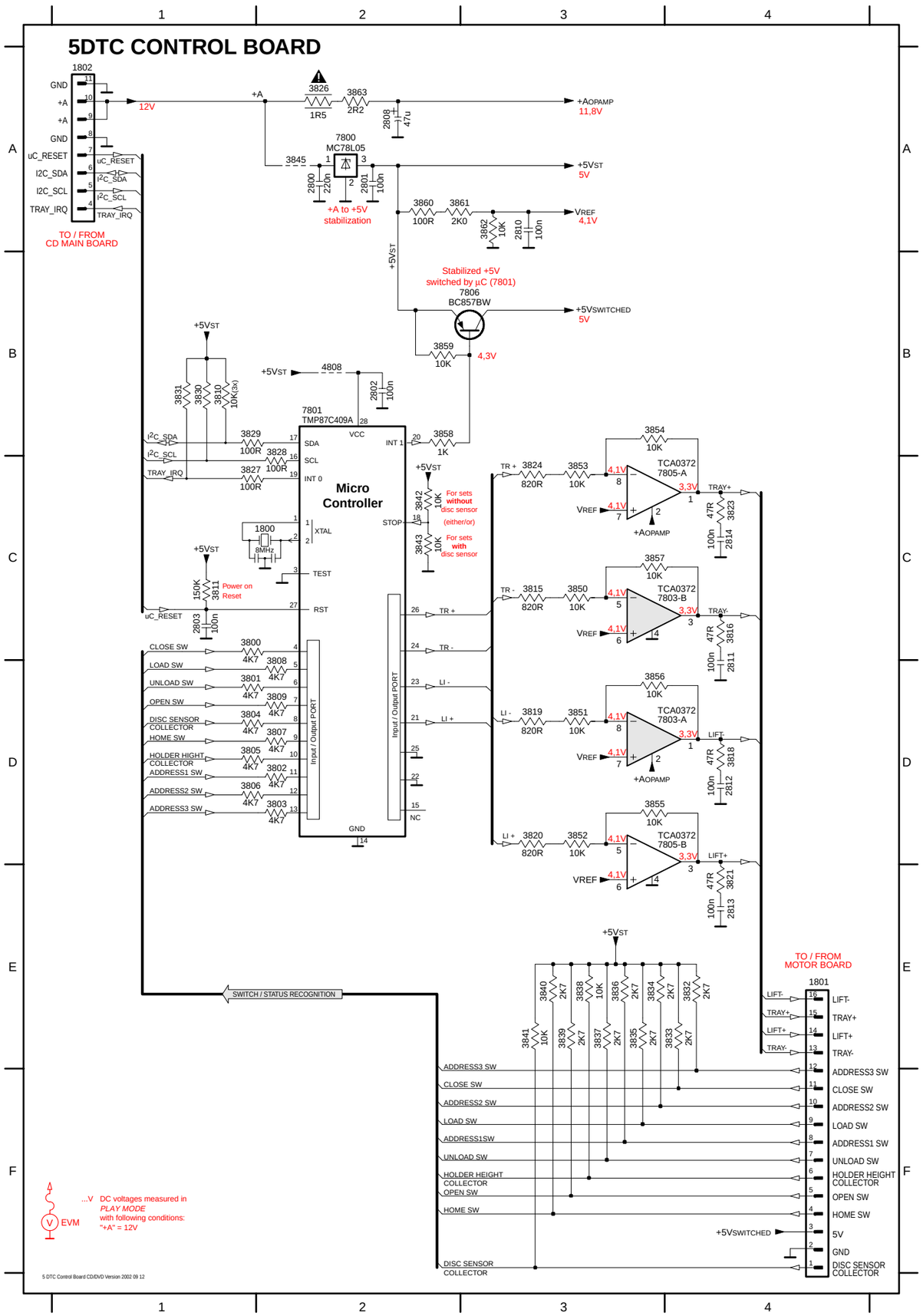
10-12

5DTC CD Board Side B



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

5DTC CD Board Layout stage .4 2002-10-01



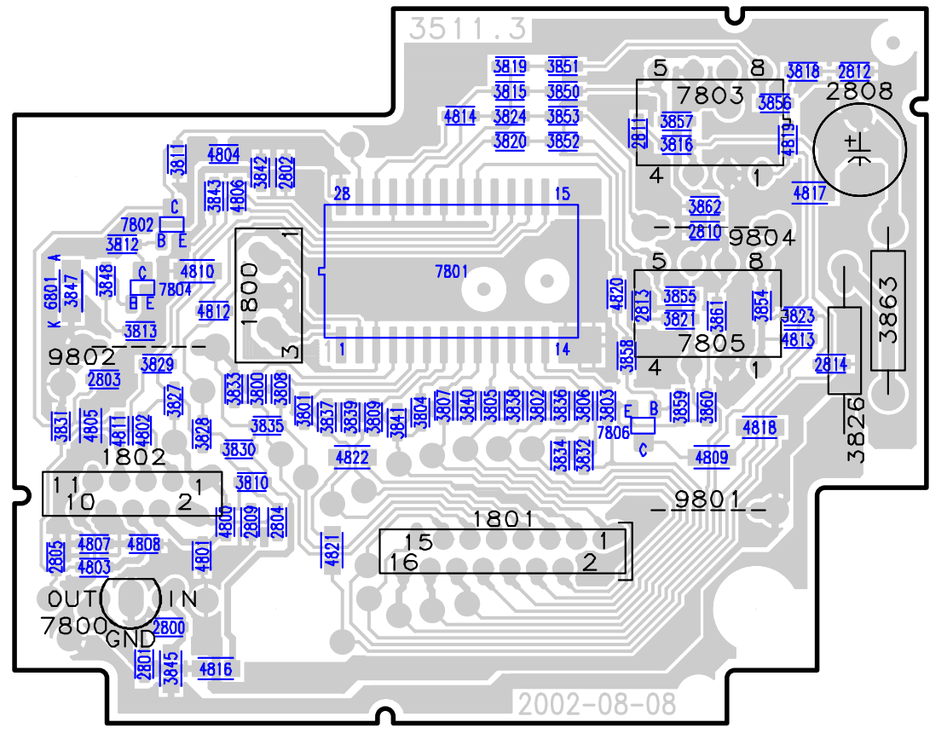
Mapping for Circuit Diagram

1800	C2	2810	A3	3804	D1	3811	C1	3824	C3	3833	E4	3841	E3	3854	B3	3862	A3	7805-B	D3
1801	E4	2811	D4	3805	D1	3815	C3	3826	A2	3834	E3	3842	C2	3855	D3	3863	A2	7806	B3
1802	A1	2812	D4	3806	D1	3816	C4	3827	C1	3835	E3	3843	C2	3856	D3	4808	B2		
2800	A2	2813	E4	3807	D2	3818	D4	3828	C2	3836	E3	3845	A2	3857	C3	7800	A2		
2801	A2	2814	C4	3808	D1	3819	D3	3829	B1	3837	E3	3850	C3	3858	B2	7801	B2		
2802	B2	3800	C1	3808	D2	3820	D3	3830	B1	3838	E3	3851	D3	3859	B3	7803-A	D3		
2803	C1	3802	D2	3809	D2	3821	E4	3831	B1	3839	E3	3852	D3	3860	A2	7803-B	C3		
2808	A2	3803	D2	3810	B1	3823	C4	3832	E4	3840	E3	3853	C3	3861	A2	7805-A	C3		

Mapping for Component Layout

1800	B2	2810	A5	3806	C4	3819	A4	3832	C4	3843	A2	3857	A5	4804	A2	4816	D2	7803	A5
1801	C4	2811	A5	3807	C3	3820	A4	3833	B2	3845	D2	3858	B5	4805	C1	4817	A6	7804	B2
1802	C2	2812	A6	3808	B2	3821	B5	3834	C4	3847	B1	3859	C5	4806	A2	4818	C5	7806	C5
2800	D2	2813	B5	3809	C3	3823	B6	3835	C2	3848	B1	3860	C5	4807	C1	4819	A6	9801	C5
2801	D2	2814	B6	3810	C2	3824	A4	3836	C4	3850	A4	3861	B5	4808	C2	4820	B5	9802	B2
2802	A2	3800	B2	3811	A2	3826	B6	3837	C3	3851	A4	3862	A5	4809	C5	4821	C3	9804	A5
2803	B1	3801	C3	3812	A1	3827	B2	3838	C4	3852	A4	3863	B6	4810	B2	4822	C3		
2804	C2	3802	C4	3813	B2	3828	C2	3839	C3	3853	A4	4800	C2	4811	C1	6801	B1		
2805	C1	3803	C4	3815	A4	3829	B2	3840	C4	3854	B5	4801	C2	4812	B2	7800	D2		
2808	A6	3804	C3	3816	A5	3830	C2	3841	C3	3855	B5	4802	C2	4813	B6	7801	B4		
2809	C2	3805	C4	3818	A6	3831	C1	3842	A2	3856	A6	4803	D1	4814	A4	7802	A2		

5DTC Control 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.

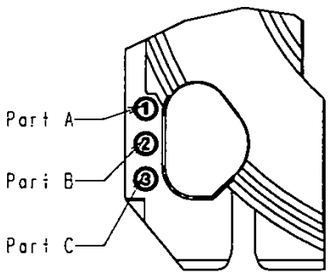
5DTC Control Board Layout stage .3 2002-09-25

10-14

Exploded view 5DTC mechanic - for orientation only

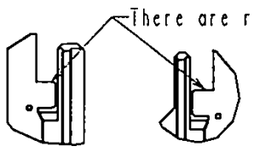
Sketch-1

TRAY(SUB)	③	⑬	⑭	⑮	⑯
TRAY No.	TRAY 1	TRAY 2	TRAY 3	TRAY 4	TRAY 5
Part A	①	HOLE	①	HOLE	①
Part B	②	②	HOLE	HOLE	②
Part C	③	③	③	③	HOLE

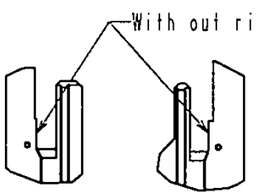


Sketch-2

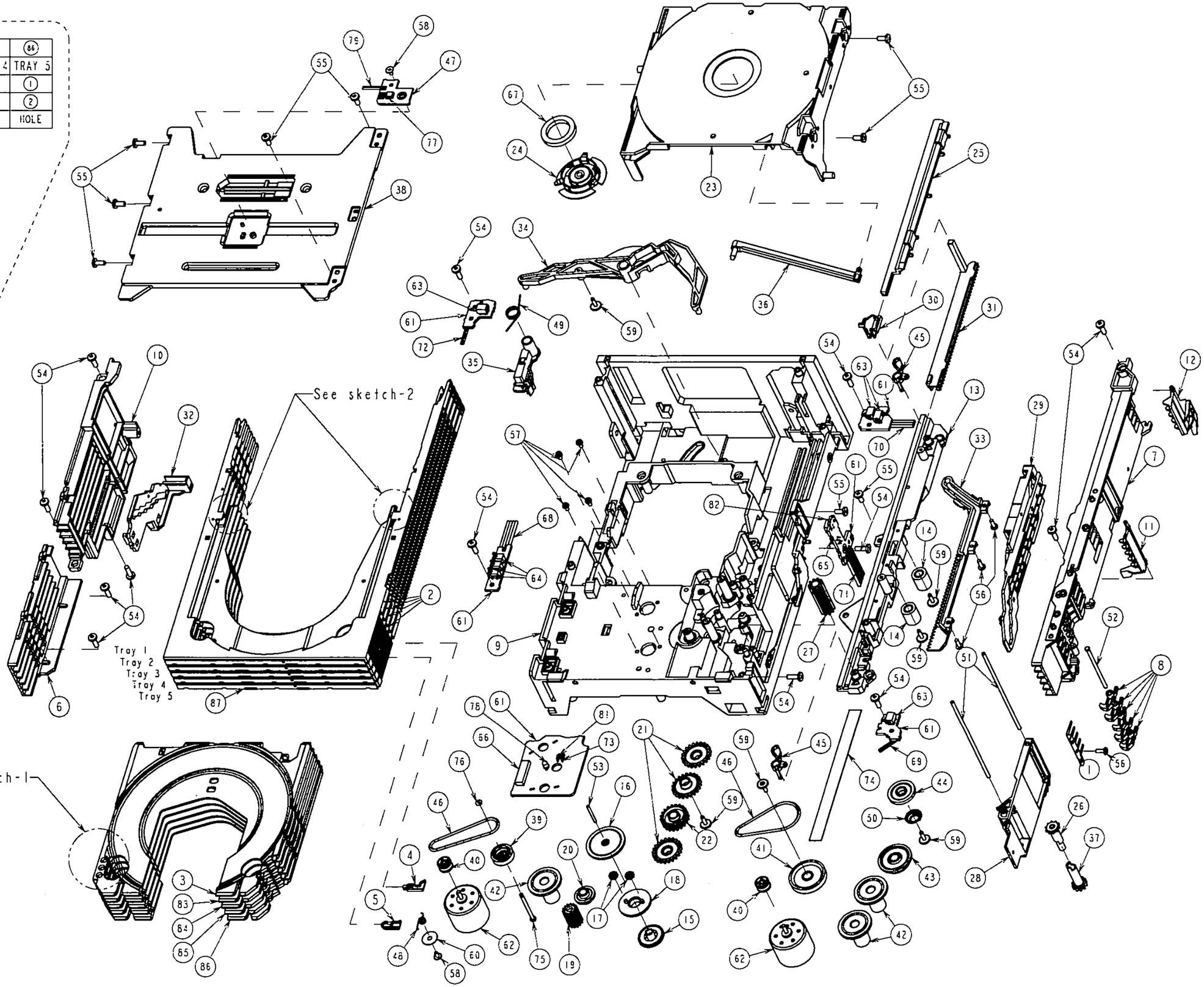
TRAY(MAIN)



② TRAY 1~4



⑧⑦ TRAY 5



ELECTRICAL PARTSLIST 5DTC MODULE Basic Version CD Board

MECHANICAL PARTS

	3103 308 54710	**5DTC Module** (mechanic w/o electronic)
0201	3103 309 05390	CD DRIVE DA12T3
0252	4822 529 10387	Rubber damper CD drive, front
0253	4822 529 10386	Rubber damper CD drive, rear

MISCELLANEOUS

1800	4822 267 11028	FFC-CONNECTOR, 16P, side entry
1823	2422 025 16371	FFC-CONNECTOR 8P, side entry
1824	4822 265 10979	FFC-CONNECTOR, 15P, side entry
8001	3103 308 93090	FFC CABLE 16Pin 80mm BD
8052	3103 308 93120	FFC CABLE 8Pin 80mm BD

CAPACITORS

2812	4822 124 11947	10µF	20%	16V
2813 ©	4822 126 13193	4,7nF	10%	63V
2814 ©	5322 126 11579	3,3nF	10%	63V
2815 ©	2020 552 94427	100pF	5%	50V
2816 ©	3198 017 42230	22nF	10%	50V
2817	4822 124 22726	4,7µF	20%	35V
2818 ©	3198 024 44730	47nF	5%	50V
2821 ©	2238 586 59812	100nF	10%	50V
2822 ©	4822 126 13344	1,5nF	5%	63V
2823	4822 124 42383	220µF	20%	4V
2824 ©	4822 126 14043	1µF	20%	16V
2825 ©	4822 126 13344	1,5nF	5%	63V
2826 ©	3198 017 34730	47nF	10%	16V
2827 ©	5322 126 11578	1nF	10%	63V
2828 ©	4822 126 11669	27pF	10%	50V
2829 ©	3198 017 34730	47nF	10%	16V
2830	4822 124 81286	47µF	20%	16V
2831	4822 124 81286	47µF	20%	16V
2832 ©	3198 017 31530	15nF	10%	50V
2833 ©	5322 126 11583	10nF	10%	63V
2834 ©	3198 017 31530	15nF	10%	50V
2835 ©	5322 126 11583	10nF	10%	63V
2836	4822 124 40433	47µF	20%	25V
2837 ©	3198 017 34730	47nF	10%	16V
2838 ©	3198 017 44740	470nF	20%	10V
2839 ©	2238 586 59812	100nF	10%	50V
2840 ©	4822 126 14549	33nF	10%	16V
2841 ©	2238 586 59812	100nF	10%	50V
2843 ©	2020 552 94427	100pF	5%	50V
2844 ©	5322 122 33861	120pF	5%	NP0
2845 ©	5322 122 33861	120pF	5%	NP0
2846	4822 124 40248	10µF	20%	63V
2847 ©	3198 017 41050	1µF	20%	10V
2848 ©	2020 552 94427	100pF	5%	50V
2849 ©	5322 122 33861	120pF	5%	NP0
2850 ©	5322 122 33861	120pF	5%	NP0
2851	4822 124 40248	10µF	20%	63V
2852 ©	4822 126 14549	33nF	10%	16V
2853 ©	5322 126 11583	10nF	10%	63V
2854	4822 124 12245	220µF	20%	16V
2855	4822 124 11912	220µF	20%	6,3V
2860 ©	4822 122 33753	150pF	5%	50V
2861 ©	4822 122 33753	150pF	5%	50V
2863 ©	4822 126 14508	180pF	5%	50V
2864 ©	4822 126 14508	180pF	5%	50V
2865 ©	4822 126 14508	180pF	5%	50V
2866 ©	4822 126 14508	180pF	5%	50V
2869 ©	3198 017 34730	47nF	10%	16V
2870 ©	4822 126 13883	220pF	5%	50V
2871 ©	4822 126 13883	220pF	5%	50V

CAPACITORS

2872 ©	4822 126 13883	220pF	5%	50V
2873 ©	4822 126 13883	220pF	5%	50V
2874 ©	4822 126 13883	220pF	5%	50V
2875 ©	4822 126 13883	220pF	5%	50V
2876 ©	3198 017 44740	470nF	20%	10V
2877	4822 124 40433	47µF	20%	25V
2878 ©	2238 586 59812	100nF	10%	50V
2879 ©	5322 126 11578	1nF	10%	63V
2880 ©	2222 867 15339	33pF	5%	50V
2881 ©	4822 126 14249	560pF	10%	50V
2882 ©	4822 126 14226	82pF		50V
2883 ©	3198 017 44740	470nF	20%	10V
2884 ©	3198 017 44740	470nF	20%	10V
2885	4822 124 40196	220µF	20%	16V
2886 ©	2238 586 59812	100nF	10%	50V
2887 ©	3198 017 34730	47nF	10%	16V

RESISTORS

3801 ©	4822 051 30563	56kΩ	5%	0,06W
3802 ©	4822 051 30563	56kΩ	5%	0,06W
3803 ©	4822 117 12925	47kΩ	1%	0,06W
3804 ©	4822 117 12925	47kΩ	1%	0,06W
3805 ©	4822 117 12925	47kΩ	1%	0,06W
3806 ©	4822 117 12925	47kΩ	1%	0,06W
3807 ©	4822 051 30103	10kΩ	5%	0,06W
3808 ©	4822 051 30103	10kΩ	5%	0,06W
3809 ©	4822 051 30103	10kΩ	5%	0,06W
3810 ©	4822 051 30103	10kΩ	5%	0,06W
3811 ©	4822 051 30103	10kΩ	5%	0,06W
3812 ©	4822 051 30103	10kΩ	5%	0,06W
3813 ©	4822 051 30222	2,2kΩ	5%	0,06W
3814 ©	4822 051 30222	2,2kΩ	5%	0,06W
3815 ©	4822 051 30222	2,2kΩ	5%	0,06W
3816 ©	4822 051 30222	2,2kΩ	5%	0,06W
3817 ©	4822 051 30479	47Ω	5%	0,06W
3818 ©	4822 051 30479	47Ω	5%	0,06W
3819 ©	4822 051 30479	47Ω	5%	0,06W
3820	4822 052 10478	4,7Ω	5%	NFR25
3821 ©	4822 117 12917	1Ω	5%	0,06W
3822 ©	4822 051 30103	10kΩ	5%	0,06W
3823 ©	4822 051 30102	1kΩ	5%	0,06W
3824 ©	4822 051 30474	470kΩ	5%	0,06W
3825 ©	5322 117 13029	47kΩ	1%	0,06W
3826 ©	4822 117 12891	220kΩ	1%	0,06W
3827 ©	5322 117 13056	8,2kΩ	1%	0,06W
3828 ©	5322 117 13052	2,7kΩ	1%	0.06W
3829 ©	4822 051 30121	120Ω	5%	0,06W
3831 ©	4822 051 30471	470Ω	5%	0,06W
3832 ©	4822 051 30471	470Ω	5%	0,06W
3833 ©	4822 051 30121	120Ω	5%	0,06W
3834 ©	4822 051 30472	4,7kΩ	5%	0,06W
3836 ©	4822 117 13632	100kΩ	1%	0,06W
3837 ©	4822 051 30471	470Ω	5%	0,06W
3839 ©	4822 051 30471	470Ω	5%	0,06W
3840 ©	4822 051 30223	22kΩ	5%	0,06W
3841 ©	4822 051 30153	15kΩ	5%	0,06W
3842 ©	4822 051 30102	1kΩ	5%	0,06W
3843 ©	4822 051 30102	1kΩ	5%	0,06W
3844 ©	4822 051 30101	100Ω	5%	0,06W
3845 ©	4822 051 30471	470Ω	5%	0,06W
3846 ©	4822 051 30102	1kΩ	5%	0,06W
3847 ©	4822 117 12968	820Ω	5%	0,06W

ELECTRICAL PARTSLIST 5DTC MODULE Basic Version CD Board

RESISTORS

3848 ©	4822 051 30221	220Ω	5%	0,06W	
3849 ©	4822 051 30471	470Ω	5%	0,06W	
3850 ©	4822 117 12925	47kΩ	1%	0,06W	
3851 ©	4822 117 12968	820Ω	5%	0,06W	
3852 ©	4822 051 30221	220Ω	5%	0,06W	
3853 ©	4822 051 30103	10kΩ	5%	0,06W	
3854 ©	4822 117 12925	47kΩ	1%	0,06W	
3855 ©	4822 051 30393	39kΩ	5%	0,06W	
3856 ©	4822 051 30472	4,7kΩ	5%	0,06W	
3857 ©	4822 051 30008	CHIP JUMPER 0603			
3858 ©	4822 117 12903	1,8kΩ	1%	0,06W	
3859 ©	4822 117 13632	100kΩ	1%	0,06W	
3860 ©	4822 051 30123	12kΩ	5%	0,06W	
3861 ©	4822 051 30153	15kΩ	5%	0,06W	
3862 ©	4822 051 30393	39kΩ	5%	0,06W	
3864 ©	4822 051 30333	33kΩ	5%	0,06W	
3865 ©	4822 051 30181	180Ω	5%	0,06W	
3866 ©	4822 117 13608	4,7Ω	5%	0,06W	
3867 ©	4822 051 30333	33kΩ	5%	0,06W	
3868 ©	4822 051 30183	18kΩ	5%	0,06W	
3869 ©	4822 051 30183	18kΩ	5%	0,06W	
3870 ©	4822 051 30681	680Ω	5%	0,06W	
3871 ©	4822 051 30181	180Ω	5%	0,06W	
3872 ©	4822 051 30272	2,7kΩ	5%	0,06W	
3873 ©	4822 051 30333	33kΩ	5%	0,06W	
3874 ©	4822 051 30333	33kΩ	5%	0,06W	
3875 ©	4822 051 30183	18kΩ	5%	0,06W	
3876 ©	4822 051 30183	18kΩ	5%	0,06W	
3877 ©	4822 051 30681	680Ω	5%	0,06W	
3878 ©	4822 051 30471	470Ω	5%	0,06W	
3879 ©	4822 051 30223	22kΩ	5%	0,06W	
3880 ©	4822 051 30339	33Ω	5%	0,06W	
3881 ©	4822 051 30151	150Ω	5%	0,06W	
3883 ©	4822 051 30472	4,7kΩ	5%	0,06W	
3884 ©	4822 051 30472	4,7kΩ	5%	0,06W	
3887 ©	4822 051 30103	10kΩ	5%	0,06W	
3889 ©	4822 051 30471	470Ω	5%	0,06W	
3890 ©	4822 051 30471	470Ω	5%	0,06W	
3891 ©	4822 051 30102	1kΩ	5%	0,06W	
3892 ©	4822 051 30102	1kΩ	5%	0,06W	
3893 ©	4822 051 30471	470Ω	5%	0,06W	
3896 ©	4822 051 30101	100Ω	5%	0,06W	
3897 ©	4822 051 30333	33kΩ	5%	0,06W	
3898 ©	4822 051 30221	220Ω	5%	0,06W	
3899 ©	4822 051 30272	2,7kΩ	5%	0,06W	
3900 ©	4822 117 13632	100kΩ	1%	0,06W	
3901 ©	4822 051 30561	560Ω	5%	0,06W	
3902 ©	4822 117 11139	1,5kΩ	1%	0,1W	
3903 ©	4822 051 30332	3,3kΩ	5%	0,06W	
3904 ©	4822 051 30332	3,3kΩ	5%	0,06W	
3905 ©	4822 051 30681	680Ω	5%	0,06W	
3906 ©	4822 051 30471	470Ω	5%	0,06W	
3907 ©	4822 117 12968	820Ω	5%	0,06W	
3908 ©	4822 051 30222	2,2kΩ	5%	0,06W	
3909 ©	4822 117 13632	100kΩ	1%	0,06W	
3910 ©	4822 051 30471	470Ω	5%	0,06W	
3912 ©	4822 051 30221	220Ω	5%	0,06W	
3916 ©	4822 051 30471	470Ω	5%	0,06W	
3917 ©	4822 117 13608	4,7Ω	5%	0,06W	
3918 ©	4822 051 30103	10kΩ	5%	0,06W	
3919 ©	4822 051 30153	15kΩ	5%	0,06W	
3920 ©	4822 051 30101	100Ω	5%	0,06W	

RESISTORS

3923 ©	4822 051 30103	10kΩ	5%	0,06W	
3925 ©	4822 051 30101	100Ω	5%	0,06W	
3926 ©	4822 051 30101	100Ω	5%	0,06W	
3927 ©	4822 051 30101	100Ω	5%	0,06W	
3928 ©	4822 051 30101	100Ω	5%	0,06W	
4807 ©	4822 051 30008	CHIP JUMPER 0603			
4810 ©	4822 051 30008	CHIP JUMPER 0603			
4811 ©	4822 051 30008	CHIP JUMPER 0603			
4813 ©	4822 051 30008	CHIP JUMPER 0603			
4815 ©	4822 051 20008	CHIP JUMPER 0805			
4816 ©	4822 051 30008	CHIP JUMPER 0603			
4820 ©	4822 051 30008	CHIP JUMPER 0603			
4824 ©	4822 051 30008	CHIP JUMPER 0603			
4835 ©	4822 051 20008	CHIP JUMPER 0805			
4836 ©	4822 051 20008	CHIP JUMPER 0805			
4837 ©	4822 051 20008	CHIP JUMPER 0805			
4838 ©	4822 051 20008	CHIP JUMPER 0805			
4840 ©	4822 051 20008	CHIP JUMPER 0805			
4841 ©	4822 051 20008	CHIP JUMPER 0805			
4843 ©	4822 051 20008	CHIP JUMPER 0805			

COILS

1810	2422 540 98519	RESONATOR 8,467MHz
5001 ©	2422 549 44607	FERRITE BEAD
5002 ©	2422 549 44607	FERRITE BEAD

DIODES

6877 ©	9322 129 34685	BZX284-C3V9

TRANSISTORS

7804 ©	5322 130 42755	BC847C
7875 ©	5322 130 42755	BC847C
7876 ©	5322 130 42755	BC847C
7877 ©	5322 130 42755	BC847C
7878 ©	5322 130 42755	BC847C
7879 ©	5322 130 60123	BC807-40

INTEGRATED CIRCUITS

7800 ©	9352 684 20557	SAA7325H/T/M2B, Signal Processor
7801	4822 209 72554	MC7808CT 8V Regulator
7802 ©	9322 181 79668	MM1469PH Motor Driver
7810 ©	5322 209 82941	LM358D, Dual Opamp
7811 ©	5322 209 82941	LM358D, Dual Opamp

ELECTRICAL PARTSLIST 5DTC MODULE Basic Version Control Board

MECHANICAL PARTS

	3103 308 54710	**5DTC Module** (mechanic w/o electronic)

MISCELLANEOUS

1801	2422 025 17065	FFC-CONNECTOR 16P, top entry
1802	2422 025 17788	FFC-CONNECTOR 8P, top entry
8021	3103 308 93110	FFC-CABLE 16Pin 60mm AD

CAPACITORS

2800 ©	4822 126 13879	220nF	20%	16V
2801 ©	2238 586 59812	100nF	10%	50V
2802 ©	2238 586 59812	100nF	10%	50V
2803 ©	2238 586 59812	100nF	10%	50V
2808	4822 124 40433	47µF	20%	25V
2810 ©	3198 017 34730	47nF	10%	16V
2811 ©	2238 586 59812	100nF	10%	50V
2812 ©	2238 586 59812	100nF	10%	50V
2813 ©	2238 586 59812	100nF	10%	50V
2814 ©	2238 586 59812	100nF	10%	50V

RESISTORS

3800 ©	4822 051 30472	4,7kΩ	5%	0,06W
3801 ©	4822 051 30472	4,7kΩ	5%	0,06W
3802 ©	4822 051 30472	4,7kΩ	5%	0,06W
3803 ©	4822 051 30472	4,7kΩ	5%	0,06W
3804 ©	4822 051 30472	4,7kΩ	5%	0,06W
3805 ©	4822 051 30472	4,7kΩ	5%	0,06W
3806 ©	4822 051 30472	4,7kΩ	5%	0,06W
3807 ©	4822 051 30472	4,7kΩ	5%	0,06W
3808 ©	4822 051 30472	4,7kΩ	5%	0,06W
3809 ©	4822 051 30472	4,7kΩ	5%	0,06W
3810 ©	4822 051 30103	10kΩ	5%	0,06W
3811 ©	4822 051 30154	150kΩ	5%	0,06W
3815 ©	5322 117 13057	820Ω	1%	0,06W
3816 ©	4822 051 30479	47Ω	5%	0,06W
3818 ©	4822 051 30479	47Ω	5%	0,06W
3819 ©	5322 117 13057	820Ω	1%	0,06W
3820 ©	5322 117 13057	820Ω	1%	0,06W
3821 ©	4822 051 30479	47Ω	5%	0,06W
3823 ©	4822 051 30479	47Ω	5%	0,06W
3824 ©	5322 117 13057	820Ω	1%	0,06W
3826 ⚠	4822 117 12148	1,5Ω	5%	0,33W
3827 ©	4822 051 30101	100Ω	5%	0,06W
3828 ©	4822 051 30101	100Ω	5%	0,06W
3829 ©	4822 051 30101	100Ω	5%	0,06W
3830 ©	4822 051 30103	10kΩ	5%	0,06W
3831 ©	4822 051 30103	10kΩ	5%	0,06W
3832 ©	4822 051 30272	2,7kΩ	5%	0,06W
3833 ©	4822 051 30272	2,7kΩ	5%	0,06W
3834 ©	4822 051 30272	2,7kΩ	5%	0,06W
3835 ©	4822 051 30272	2,7kΩ	5%	0,06W
3836 ©	4822 051 30272	2,7kΩ	5%	0,06W
3837 ©	4822 051 30272	2,7kΩ	5%	0,06W
3838 ©	4822 051 30103	10kΩ	5%	0,06W
3839 ©	4822 051 30272	2,7kΩ	5%	0,06W
3840 ©	4822 051 30272	2,7kΩ	5%	0,06W
3841 ©	4822 051 30103	10kΩ	5%	0,06W
3842 ©	4822 051 30103	10kΩ	5%	0,06W
3845 ©	4822 051 20159	15Ω	5%	0,1W
3850 ©	4822 117 12706	10kΩ	1%	0,06W
3851 ©	4822 117 12706	10kΩ	1%	0,06W
3852 ©	4822 117 12706	10kΩ	1%	0,06W
3853 ©	4822 117 12706	10kΩ	1%	0,06W
3854 ©	4822 117 12706	10kΩ	1%	0,06W

RESISTORS

3855 ©	4822 117 12706	10kΩ	1%	0,06W
3856 ©	4822 117 12706	10kΩ	1%	0,06W
3857 ©	4822 117 12706	10kΩ	1%	0,06W
3858 ©	4822 051 30102	1kΩ	5%	0,06W
3859 ©	4822 051 30103	10kΩ	5%	0,06W
3860 ©	5322 117 13017	100Ω	1%	0,06W
3861 ©	2322 704 62002	2kΩ	1%	0,06W
3862 ©	4822 117 12706	10kΩ	1%	0,06W
3863	4822 053 10228	2,2Ω	5%	1W
4800 ©	4822 051 30008	CHIP JUMPER 0603		
4802 ©	4822 051 30008	CHIP JUMPER 0603		
4803 ©	4822 051 30008	CHIP JUMPER 0603		
4804 ©	4822 051 30008	CHIP JUMPER 0603		
4805 ©	4822 051 20008	CHIP JUMPER 0805		
4806 ©	4822 051 30008	CHIP JUMPER 0603		
4807 ©	4822 051 30008	CHIP JUMPER 0603		
4808 ©	4822 051 30008	CHIP JUMPER 0603		
4809 ©	4822 051 20008	CHIP JUMPER 0805		
4810 ©	4822 051 20008	CHIP JUMPER 0805		
4811 ©	4822 051 30008	CHIP JUMPER 0603		
4812 ©	4822 051 30008	CHIP JUMPER 0603		
4813 ©	4822 051 30008	CHIP JUMPER 0603		
4814 ©	4822 051 30008	CHIP JUMPER 0603		
4816 ©	4822 051 20008	CHIP JUMPER 0805		
4817 ©	4822 051 20008	CHIP JUMPER 0805		
4818 ©	4822 051 20008	CHIP JUMPER 0805		
4819 ©	4822 051 30008	CHIP JUMPER 0603		
4820 ©	4822 051 30008	CHIP JUMPER 0603		
4821 ©	4822 051 20008	CHIP JUMPER 0805		
4822 ©	4822 051 20008	CHIP JUMPER 0805		

COILS

1800	4822 242 72066	CERAMIC FILTER 8,0MHz

TRANSISTORS

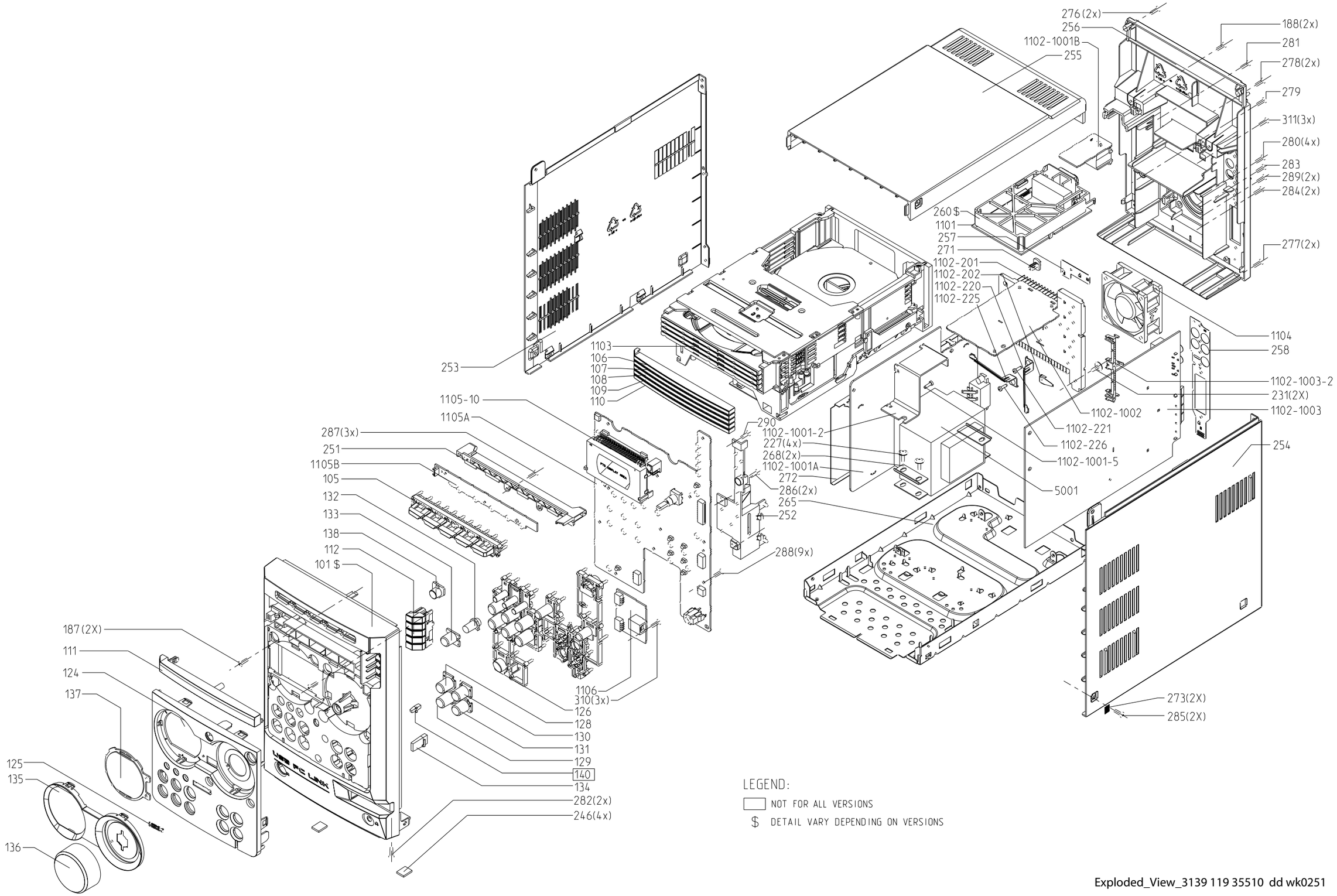
7806 ©	3198 010 42320	BC857BW

INTEGRATED CIRCUITS

7800	4822 209 72042	MC78L05ACP, STABILIZER
7801 ©	3103 307 01640	TMP87P809M Microcontroller
7803	4822 209 62059	TCA0372DP1, 2-FOLD OP-AMP.
7805	4822 209 62059	TCA0372DP1, 2-FOLD OP-AMP.

11-1

SET MECHANICAL EXPLODED VIEW



LEGEND:

NOT FOR ALL VERSIONS

$ DETAIL VARY DEPENDING ON VERSIONS

Exploded_View_3139 119 35510 dd wk0251

MECHANICAL & ACCESSORIES PARTS LIST - MAIN UNIT

0101	3139 257 51461	Cabinet Front	/22/25
0101	3139 118 19161	Cabinet Front	/30
0101	3139 118 19951	Cabinet Front	/37
0105	3139 118 19202	Button Set CD Play	
0106	3139 118 19181	Cover CD Tray 1	
0107	3139 118 19301	Cover CD Tray 2	
0108	3139 118 19311	Cover CD Tray 3	
0109	3139 118 19321	Cover CD Tray 4	
0110	3139 118 19331	Cover CD Tray 5	
0111	3139 118 19191	Cover CD Orn	
0112	3139 118 19211	Button Set CD Open/Close	
0124	3139 257 51521	Panel Cabinet Front	/22/25
0124	3139 118 19171	Panel Cabinet Front	/30/37
0125	4822 459 11086	Badge Assembly PHILIPS	
0126	3139 118 19221	Button Set Control/Pwr/Source	
0128	3139 118 19231	Cap Button CD	
0129	3139 118 19241	Cap Button AUX	
0130	3139 118 19251	Cap Button TUNER	
0131	3139 118 19261	Cap Button PC LINK	
0133	3139 118 19271	Cap Button MAX	
0135	3139 114 77361	Ring Volume & FTD	
0136	3139 118 19281	Knob Volume	
0137	3139 118 19291	Lens FTD	
0138	3139 114 77381	Lens IR	
0246	3139 113 27140	Foot Rubber 4mm	
0251	3139 114 77401	Bracket Top	
0252	3139 114 77411	Bracket Combi	
0253	3139 114 77242	Panel Left	/22/25/30
0253	3139 114 78691	Panel Left	/37
0254	3139 114 77232	Panel Right	/22/25/30
0254	3139 114 78701	Panel Right	/37
0255	3139 114 77631	Cover Top	/22/25/30
0255	3139 114 78711	Cover Top	/37
0256	3139 114 77251	Cabinet Rear	/22/25/30
0256	3139 114 78721	Cabinet Rear	/37
0271	3139 114 71010	Stopper Heatsink	
0345	3139 119 00501	L/R Loudspeaker Box	/22/25/30
0345	3139 119 00491	L/R Loudspeaker Box	/37
0351	4822 303 50063	FM Aerial	/22/25/30
0351	4822 320 11094	FM Antenna	/37
0352	4822 303 50082	Antenna AM Loop	
0353	3139 228 61361	Remote Control	
0356	2422 070 98151	⚠ Mains Cord	/22
0356	9965 000 07586	⚠ Mains Cord	/25
0356	2422 070 98248	⚠ Mains Cord	/30
0356	2422 070 98246	⚠ Mains Cord	/37
0364	2422 076 00523	Cable USB-A/USB-B 1M5 4P	
0369	3139 119 00891	CD-ROM USB PC LINK Installer SW	
0370	3139 115 22051	Instruction For Use	/22/25
0370	3139 115 22141	Instruction For Use	/30
0370	3139 115 22113	Instruction For Use	/37
1104	2822 031 01494	Fan 12VDC 0,8W 3100RPM	
1106	3103 308 66991	PBAS USB PC LINK	
5001	3103 308 30780	⚠ Mains Transformer	/22/25/30
5001	3103 308 30770	⚠ Mains Transformer	/37
8001	3139 110 35900	FFC Foil 07P/220/07P AD	
8003	3139 111 02551	FFC Foil 15P/480/15P BD Fold	
8004	3139 111 02541	FFC Foil 08P/280/08P AD Fold	
8005	4822 320 12752	FFC Foil 07P/180/07P AD	
8006	3139 111 02101	FFC Foil 08P/100/08P BD	
8007	3139 110 35250	FFC Foil 04P/120/04P AD	
8008	3139 111 02371	FFC Foil 19P/180/19P AD Fold	
8009	3139 110 35080	FFC Foil 09P/180/09P AD	

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

11-2

SCREW LISTS - MAIN UNIT

187	D3 x 10
188	D3 x 10
227	M3 x 6
231	M3 x 10
276	D3 x 12
277	M3 x 10
278	D3 x 10
279	D3 x 16
280	D3 x 10
281	D3 x 10
282	M3 x 6
283	D3 x 10
284	D3 x 10
285	M3 x 10
286	D3 x 10
287	D3 x 10
288	D3 x 10
289	D3 x 10
290	D3 x 12
310	D3 x 10
311	D3 x 10