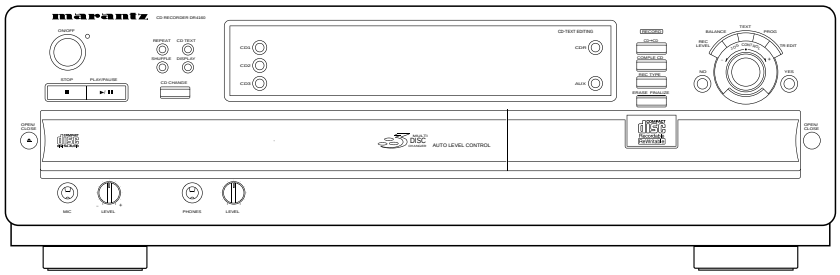
Service Manual

DR4160 /F1N, /U1B

CD Recorder



SERVICING

For servicing DR4160, the sets can be divided into two parts:
1. Except for the Power board (Switched Mode Power Supply) and the CD-R/W module the set has to be repaired on component level.
2. The **Power board** and the **CD-R/W module** will be **exchanged completely** in case of a failure. The defective CD-R/W module has to be returned for central repair.

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

TABLE OF CONTENTS

Please use this service manual with referring to the user guide (D.F.U) without fail.
修理の際は、必ず取り扱い説明書を準備し操作方法を確認の上作業を行ってください。

marantz®

DR4160

437W855010 SIG
First Issue:2000.12

TECHNICAL SPECIFICATION

General:

Mains voltage :

120V / 60Hz for DR4160/U1B
100V / 50-60Hz for DR4160/F1N

Power consumption : ≤ 16W
≤ 1W in stand by

Input / Output:

Analog in:
- input sensitivity : ≤500mV$_{rms}$
- max. input voltage : 2,8V$_{rms}$
- input impedance : 47kΩ

Analog out:
- output level : 2V$_{rms}$±2dB at no load
- output impedance : 200Ω

Microphone in:
- input sensitivity : ≤1mV$_{rms}$
- max. input voltage : 50mV$_{rms}$
- input impedance : 2kΩ

Digital in (acc. IEC958):
- input level : 0,5V$_{pp}$
- input impedance : 75Ω

Digital out (acc. IEC958):
- output level : 0,5V$_{pp}$
- output impedance : 75Ω

Headphone:
- output level : 4,4V$_{pp}$ at no load
- output impedance : 120Ω
- frequency response: 20 - 20.000 Hz ±3dB
- distortion : 0,01% at 1 kHz and -6dB output level at 120Ω
- channel difference : ≤ 3dB at 1 kHz
- channel crosstalk : -50dB at 1kHz

AUDIO PERFORMANCE

3CDC module: To be measured on ANALOG OUT socket.

frequency response : 20 - 20.000 Hz ±0,6dB
signal/noise ratio : ≥ 115dB (120dB A-weighted)
distortion : -88dB at 1 kHz (-91dB typ.)
channel difference : ≤ 0,5dB at 1 kHz
channel crosstalk : -115dB at 1kHz(-120dB typ.)
de emphasis : 0 or 15/50µs switched automatically by subcode on the disc

laser
- output power : 500µW
- wave length : 780 ±20nm

CD-RW module: To be measured on ANALOG OUT socket.

frequency response : 20 - 20.000 Hz ±0,3dB (±1dB recording)
signal/noise ratio : ≥ 95dB (98dB A-weighted)
distortion : -86dB at 1 kHz (-83dB recording)
channel difference : ≤ 0,5dB at 1 kHz
channel crosstalk : -86dB at 1kHz (-74dB recording)
de emphasis : 0 or 15/50µs switched automatically by subcode on the disc

laser (laser class 3B)
- output power : 1mW max. during reading
  20mW max. during writing
- wave length : 780 ±20nm

TECHNICAL SPECIFICATION

Remote Control: RC5 commands ***RC283521***

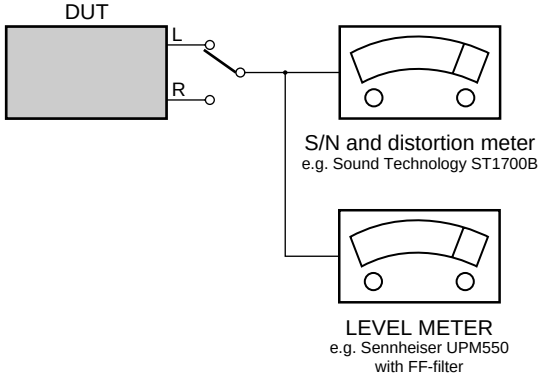
RC KEY	SYSTEM CODE		COMMAND CODE
	CD	CDR	
⏻ Standby	20	26	12
BRIGHTNESS	20	26	71
TRACK INCR.	-	26	114
CD TEXT	20	26	88
1	20	26	01
2	20	26	02
3	20	26	03
4	20	26	04
5	20	26	05
6	20	26	06
7	20	26	07
8	20	26	08
9	20	26	09
TEXT EDIT	20	26	82
0	20	26	00
PROGRAM	20	26	36
NO	20	26	49
YES	20	26	87
▶ PLAY	20	26	53
⏮	20	26	33
⏭	20	26	32
■ STOP	20	26	54
◀◀	20	26	50
▶▶	20	26	52
⏸ PAUSE	20	26	48
SHUFFLE	20	26	28
REPEAT	20	26	29
CD1	20	20	55
CD2	20	20	56
CD3	20	20	57
CDR	26	26	63

RC5 code RC283505, 130300

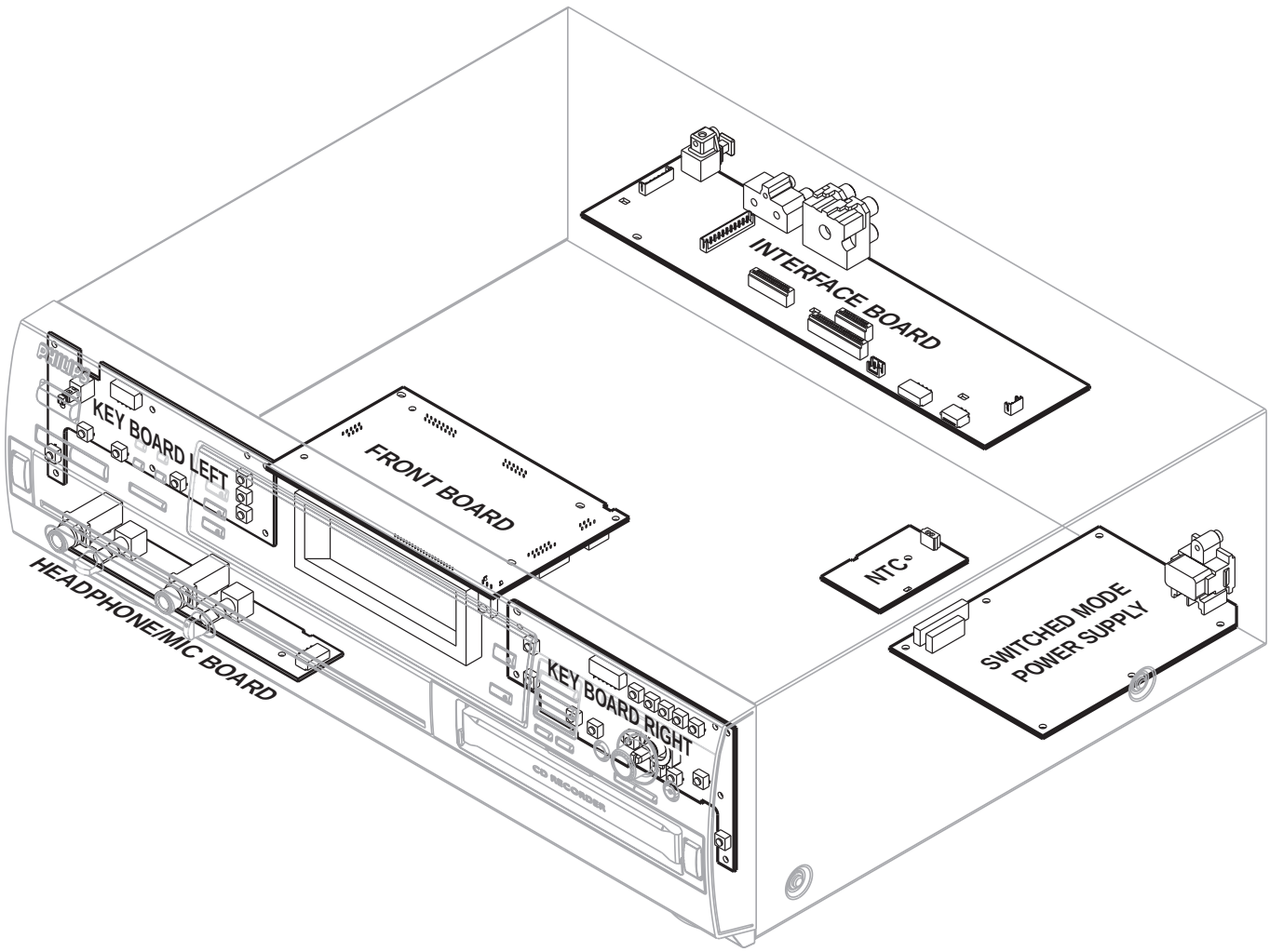
MEASUREMENT SETUP

CD

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



LOCATION OF PRINTED BOARDS



loccation of pcb´s, 240200

picture 1

WARNINGS & SAFETY

ESD

(GB) WARNING
All ICs and many other semiconductors 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 wristband with resistance. Keep components and tools at this potential.

(F) ATTENTION
Tous les IC et beaucoup d´autres semi-conducteurs sont sensibles aux décharges statiques (ESD). Leur longévite pourrait être considérablement écourtée par le fait qu´aucune précaution nést prise à leur manipulation.
Lors de réparations, s´assurer de bien être relié au même potentiel que la masse de l´appareil et enfileer 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 kann die Lebensdauer drastisch reduzieren.
Sorgen Sie dafür, daß Sie im Reparaturfall über ein Puls-armband mit Widerstand mit dem Massepotential des Gerätes verbunden sind.
Halten Sie Bauteile und Hilfsmittel ebenfalls auf diesem 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 vermindern. 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.

(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 riparationi occorre quindi essere collegato allo stesso potenziale che quello della massa delápparecchio tramite un braccialetto a resistenza.
Assicurarsi che i componenti e anche gli utensili con quali si lavora siano anche a questo potenziale.

(GB) AVAILABLE ESD PROTECTION EQUIPMENT :

anti-static table mat	large	1200x650x1.25mm	4822 466 10953
	small	600x650x1.25mm	4822 466 10958
anti-static wristband			4822 395 10223
connection box (3 press stud connections, 1MΩ)			4822 320 11307
extendible cable (2m, 2MΩ, to connect wristband to connection box)			4822 320 11305
connecting cable (3m, 2MΩ, to connect table mat to connection box)			4822 320 11306
earth cable (1MΩ, to connect any product to mat or to connection box)			4822 320 11308
KIT ESD3 (combining all 6 prior products - small table mat)			4822 310 10671
wristband tester			4822 344 13999

SAFETY

(GB)
Safety regulations require that the set be restored to its original condition and that parts which are identical with those specified be used.
Safety components are marked by the symbol ⚠

(F)
Les normes de sécurité exigent que l`appareil soit remis à l`état d`origine et que soient utilisées les pièces de rechange identiques à celles spécifiées.
Les composants de sécurité sont marqués ⚠

(D)
Bei jeder Reparatur sind die geltenden Sicherheitsvor-schriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Original-ersatzteile zu verwenden.
Sicherheitsbauteile sind durch das Symbol ⚠ markiert.

(NL)
Veiligheidsbepalingen vereisen, dat het apparaat in zijn oorspronkeliijke toestand wordt teruggebracht en dat onderdelen, identiek aan de gespecificeerde, worden toegepast.
De Veiligheidsonderdelen zijn aangeduid met het symbool ⚠

(I)
Le norme di sicurezza estigono che l´apparecchio venga rimesso nelle condizioni originali e che siano utilizzati i pezzi di ricambiago identici a quelli specificati.
Componenty di sicurezza sono marcati con ⚠

(GB) **DANGER**: Invisible laser radiation when open. AVOID DIRECT EXPOSURE TO BEAM.

CLASS 1
LASER PRODUCT

(S) Varning !
Osynlig laserstrålning när apparaten är öppnad och spärren är urkopplad. Betrakta ej strålen.

(DK) Advarsel !
Usynlig laserstråling ved åbning når sikkerhedsafbrydere er ude af funktion. Undgå udsaettelse for stråling.

(FIN) Varoitus !
Avatussa laitteessa ja suojalukituksen ohitettaessa olet alttiina näkymättömälle laserisäteilylle. Älä katso säteeseen !

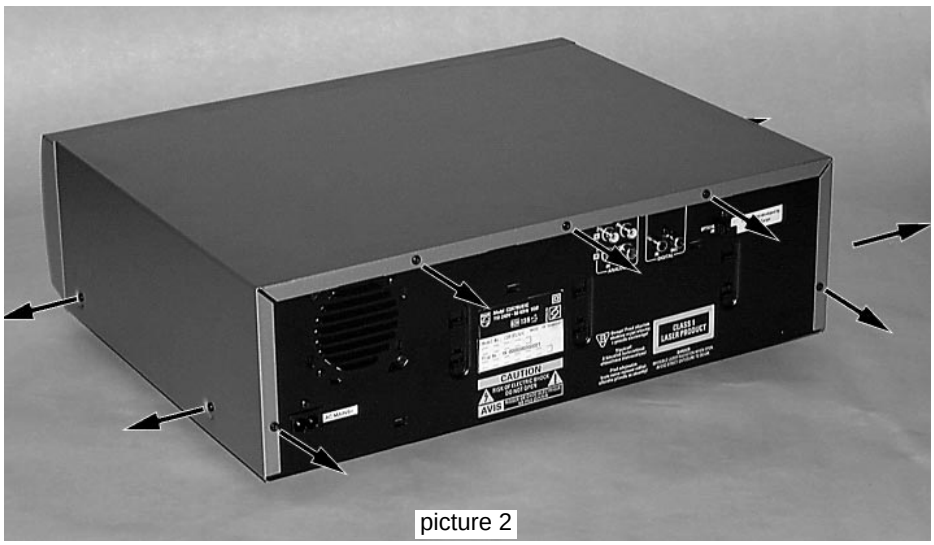
(GB)
After servicing and before returning the set to customer perform a leakage current measurement test from all exposed metal parts to earth ground, to assure no shock hazard exists.
The leakage current must not exceed 0.5mA.

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

DISMANTLING INSTRUCTIONS

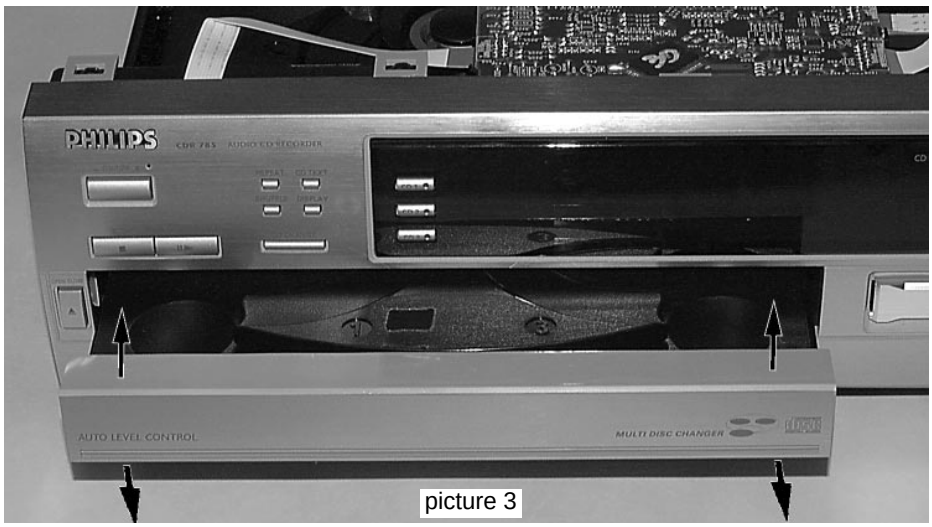
Dismantling the *Top Cover*

- Remove 9 screws as shown in picture 2.
- Raise top cover at the rear and pull it backwards.



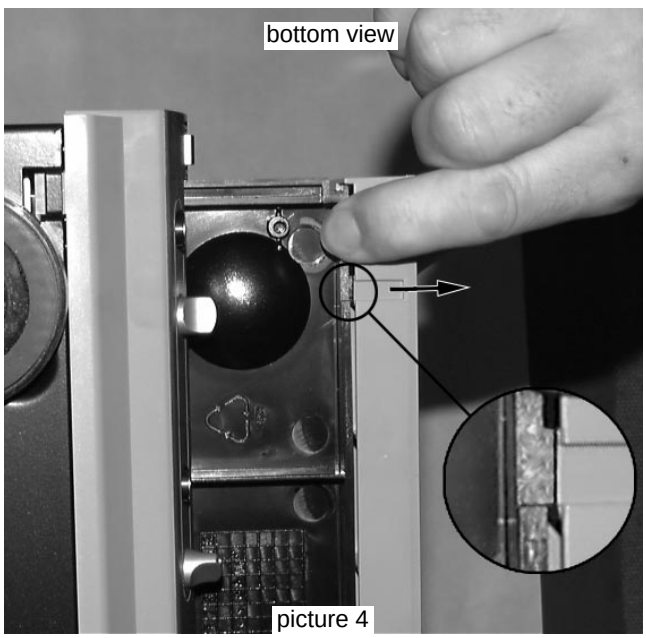
picture 2

Dismantling the *Tray Cover*



picture 3

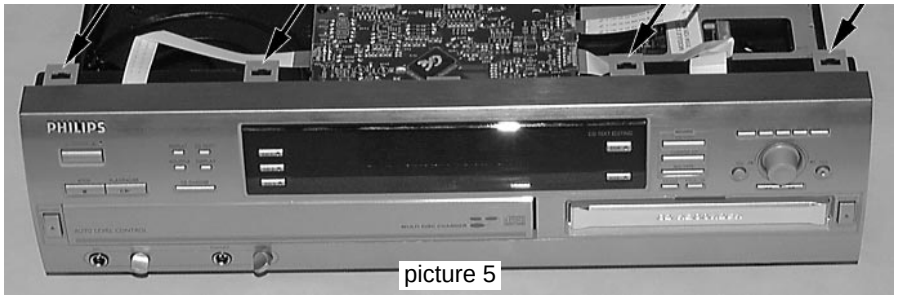
- To release the cover from the catch on the tray pull it frontwards on bottom side as shown in picture 4.
- Pull the cover up.



picture 4

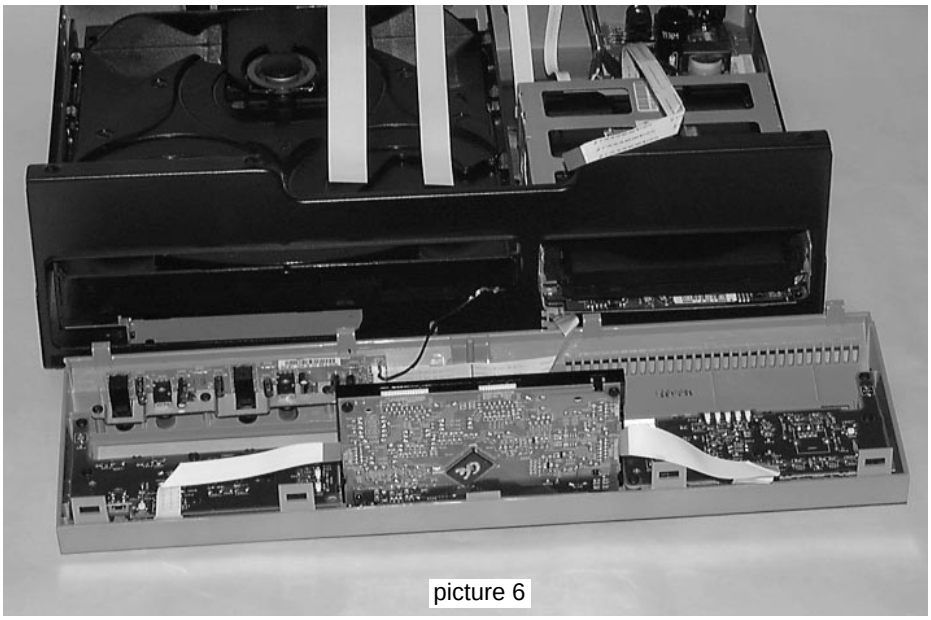
DISMANTLING INSTRUCTIONS

Dismantling the *Front Cabinet*



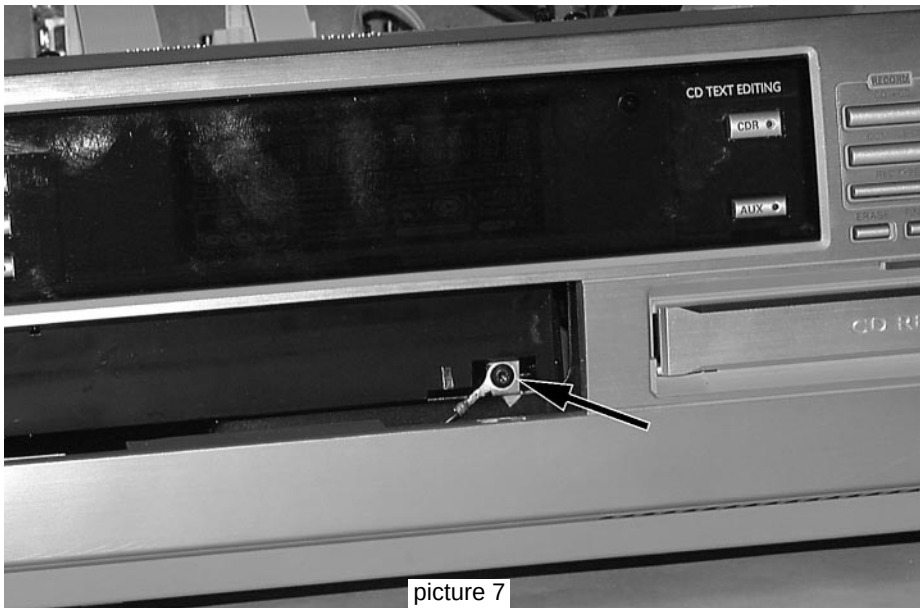
picture 5

- Remove tray cover first → see description before.
- Disconnect flexfoil cables to interface board and CDR module.
- Release catches on top as shown in picture 5 and turn front cabinet away.
  Take care of the flexfoil cables connecting the key boards!
- Place front cabinet as shown in picture 6.


picture 6

Dismantling the *3CDC module*

- Remove 2 screws on front side first → see pictures 7.

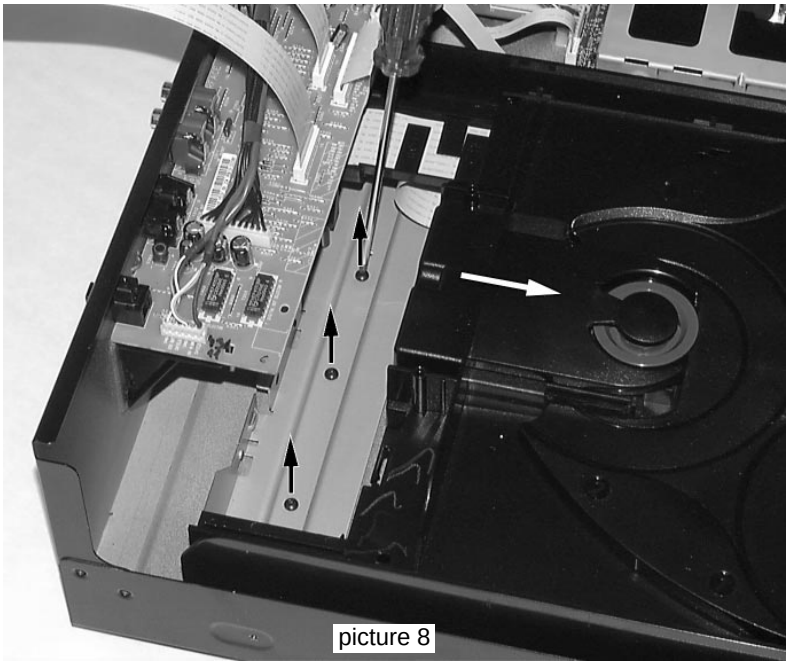


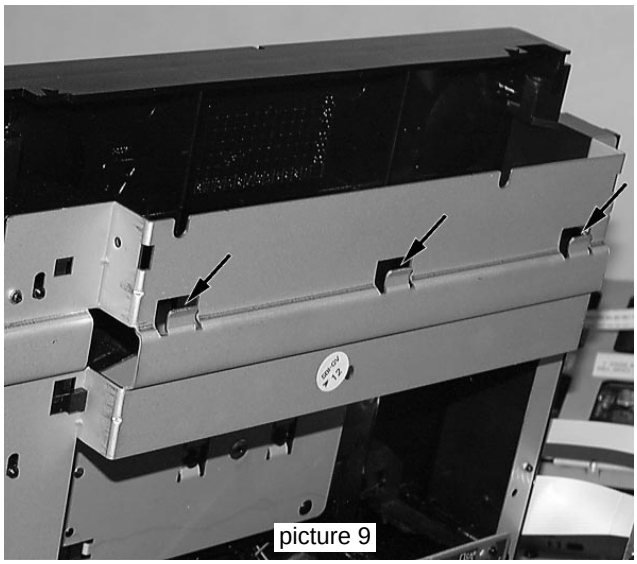
picture 7

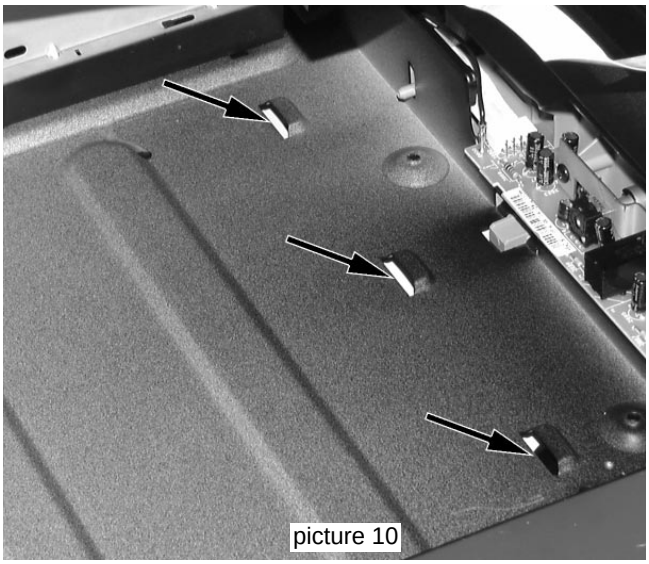
DISMANTLING INSTRUCTIONS

Dismantling the *CDC module*
continued

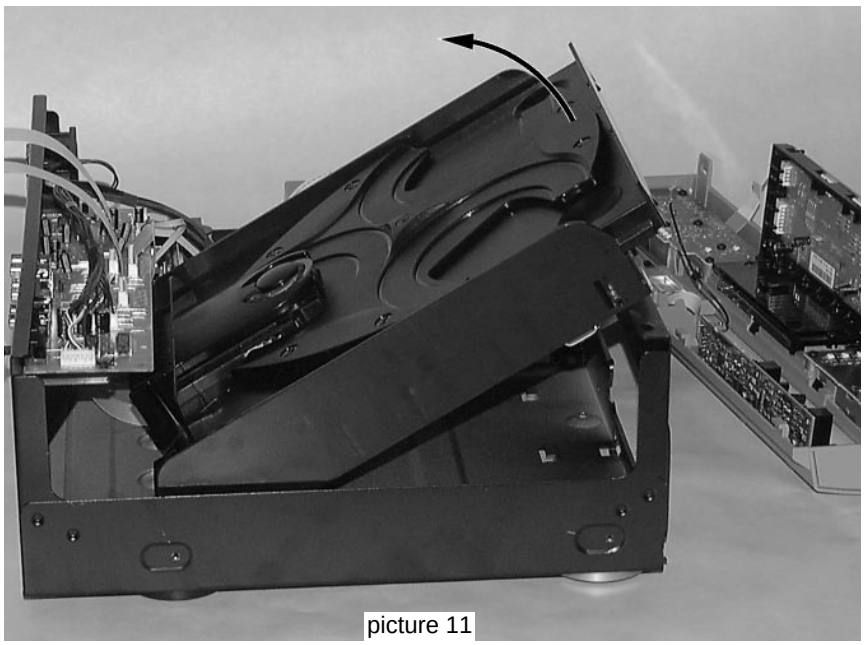
- Dismantle front cabinet as described before.
- Move the tray a few centimetres out to get access to the fastening screws at the rear.
- Remove the 3 screws as shown in picture 8.
- Put the tray back and move the complete module backwards to release catches on bottom cabinet.
  → for orientation see picture 9 and 10.


picture 8


picture 9

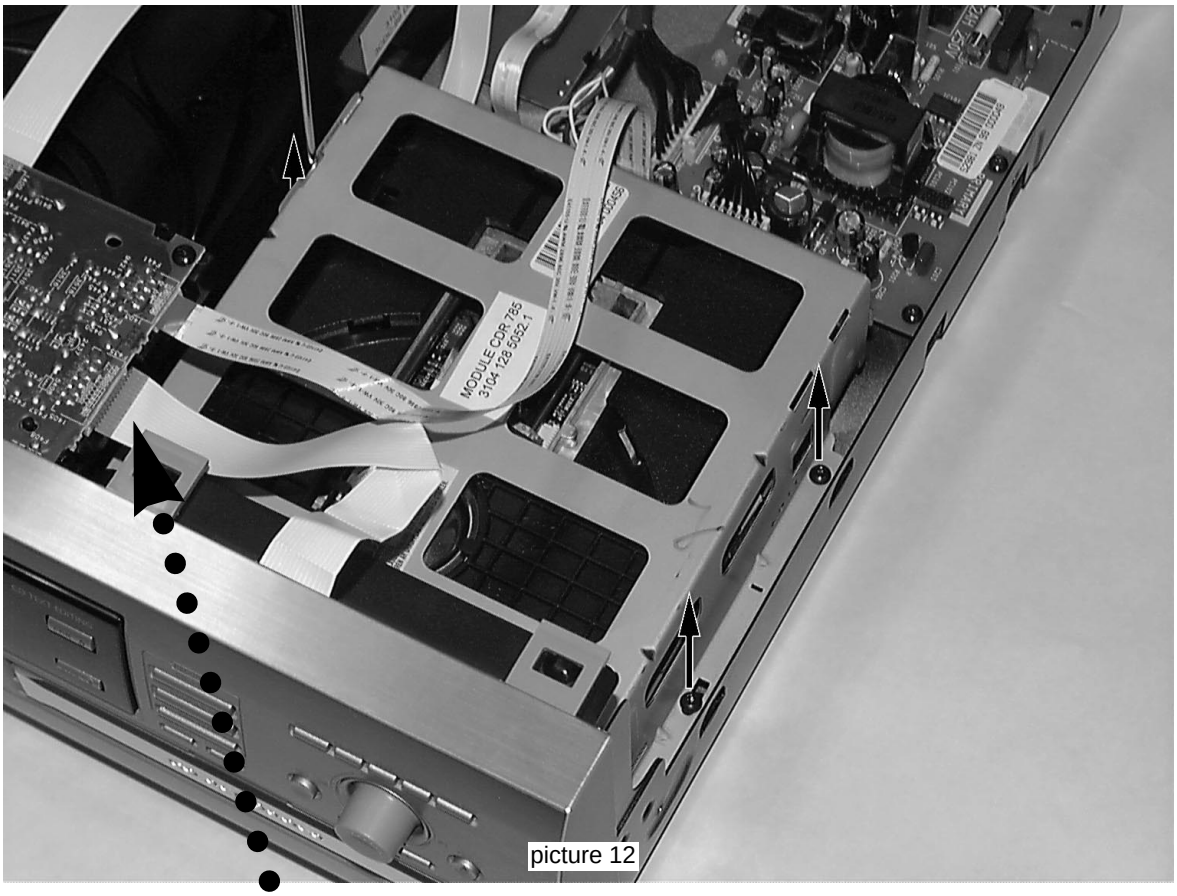

picture 10

- Pull the module on front side up and turn it out as shown in picture 11.
- Put the module to a proper service position.
  → see also chapter SERVICE HINTS
- To get the set operating mount front cabinet and connect flexfoil cables to front board again.


picture 11

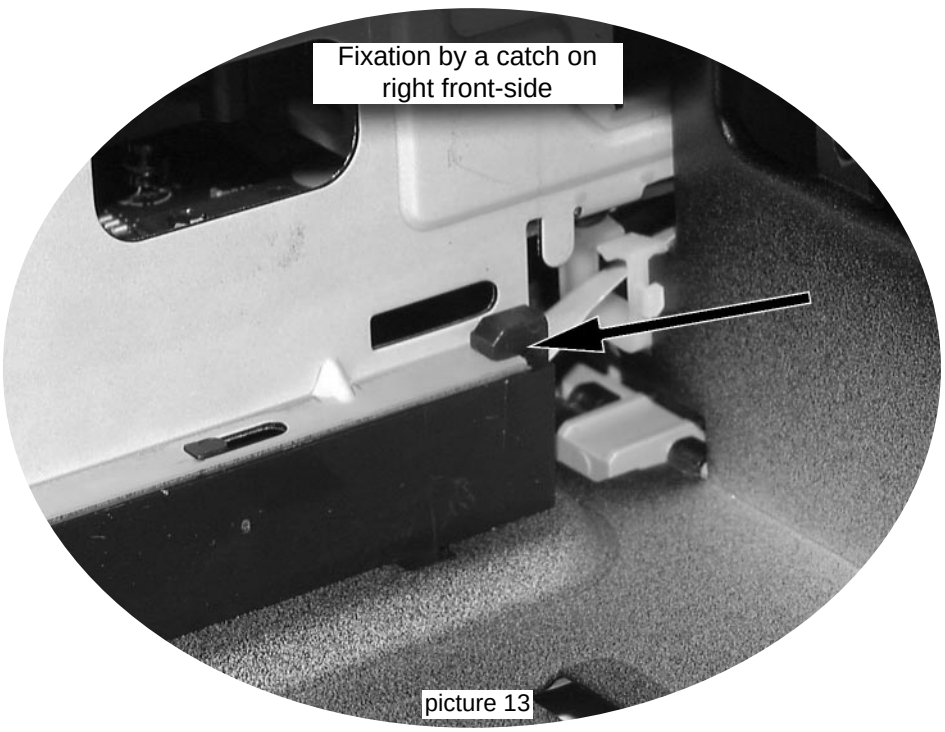
DISMANTLING INSTRUCTIONS

Dismantling the *CDR module*



picture 12

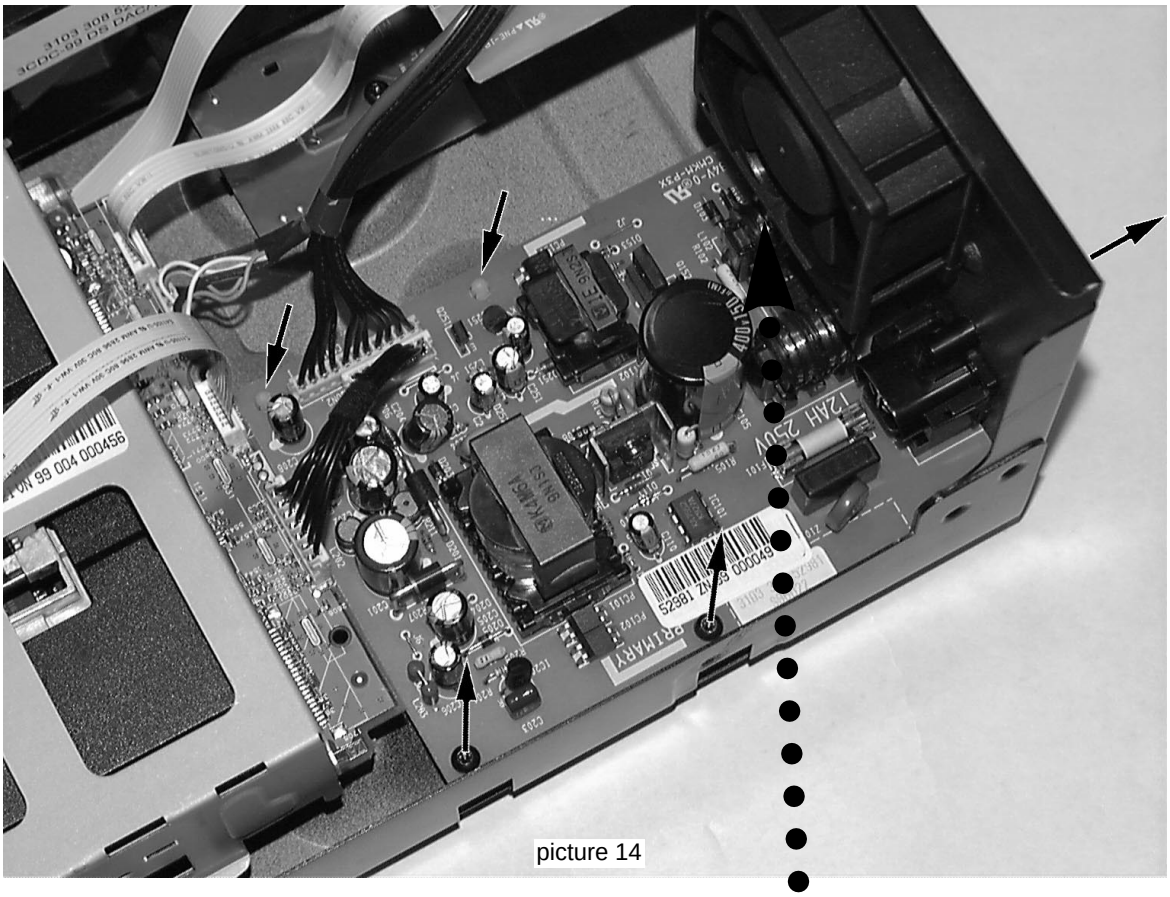
- Remove 3 screws as as indicated in picture 12.
- Disconnect all cables.
- Move the module backwards to release the catch on pos. 205 (see exploded view)
- Raise the module on the rear and turn it out.



picture 13

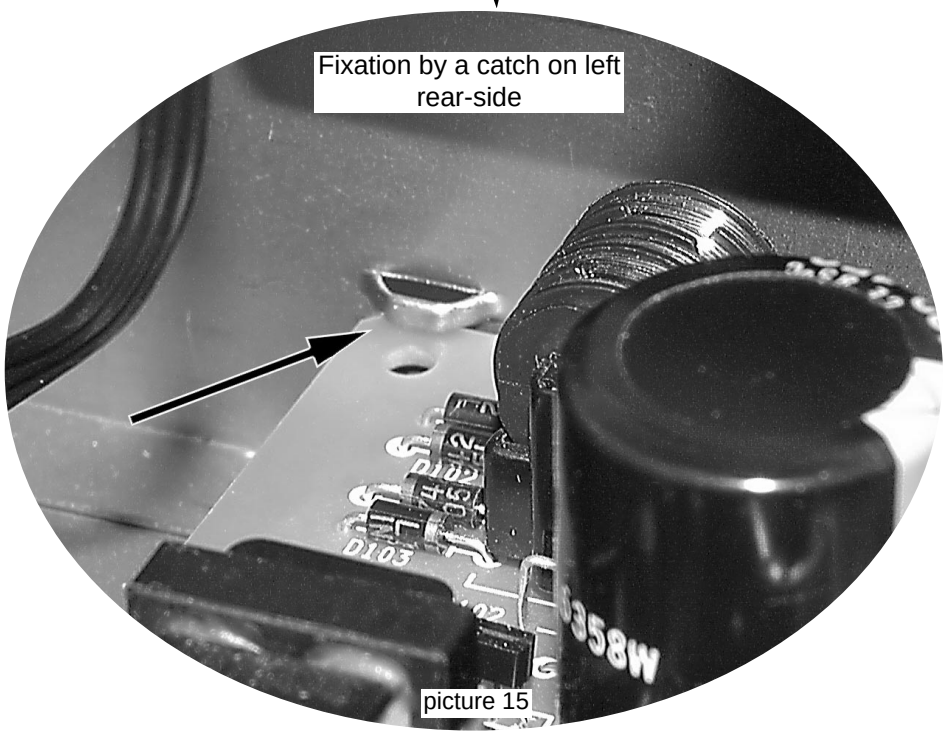
DISMANTLING INSTRUCTIONS

Dismantling the *Power board*



picture 14

- Disconnect all cables.
- Remove 3 screws as as indicated in picture 14.
- Release the catches on the plastic supports.
- Move the board backwards to release the catch on left front-side.
- Lift the module on the rear and turn it out.
  remark: space to CDR module will be very tight



picture 15

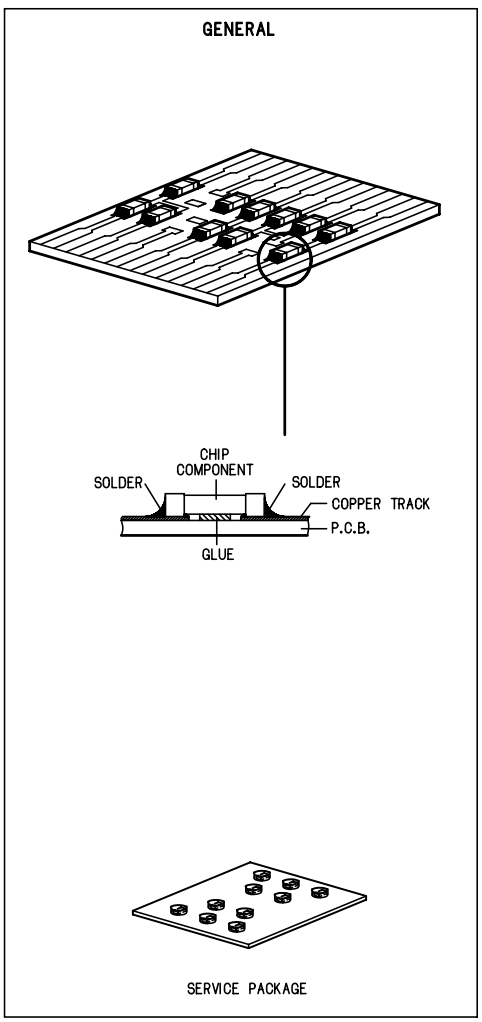
SERVICE HINTS

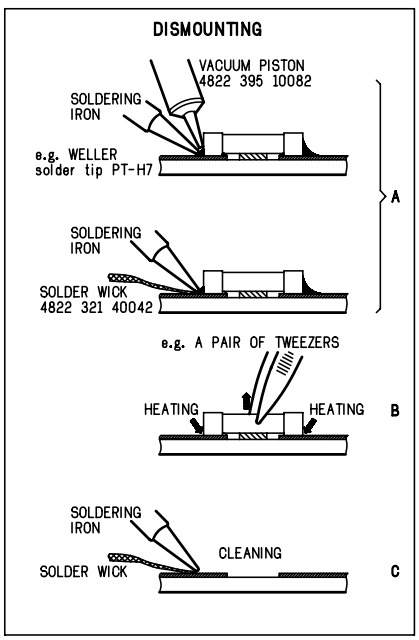
SERVICE TOOLS

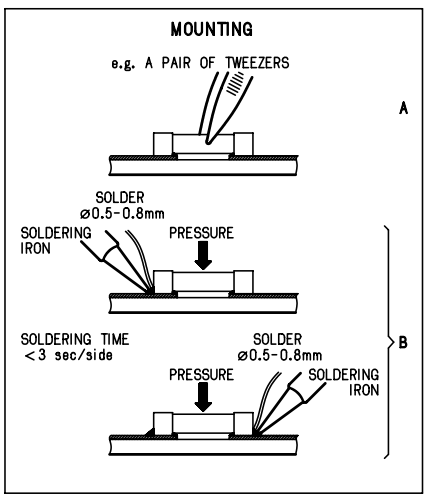
TORX T10 screwdriver with shaftlength 150mm 4822 395 50423
TORX screwdriver set SBC 163 .....4822 295 50145

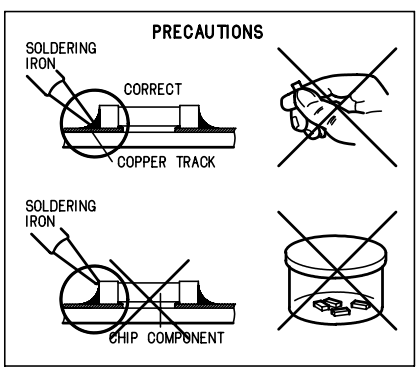
Audio signal disc SBC 429.....4822 397 30184
Playability test disc SBC444 .....4822 397 30245
Test disc 5 (disc without errors) +
Test disc 5A (disc with dropout errors, black spots and fingerprints)
SBC 426/426A 4822 397 30096
Burn in test disc (65 min. 1kHz signal at -30dB level without "pause") ...4822 397 30155

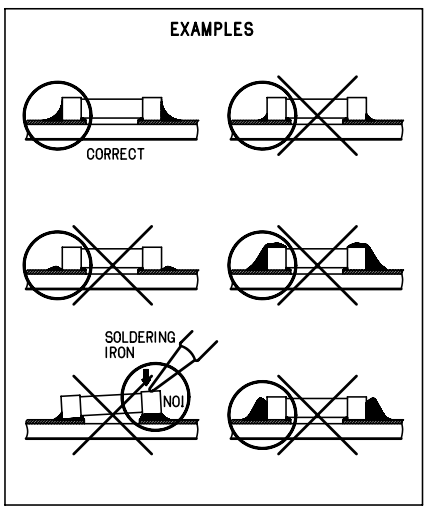
HANDLING CHIP COMPONENTS







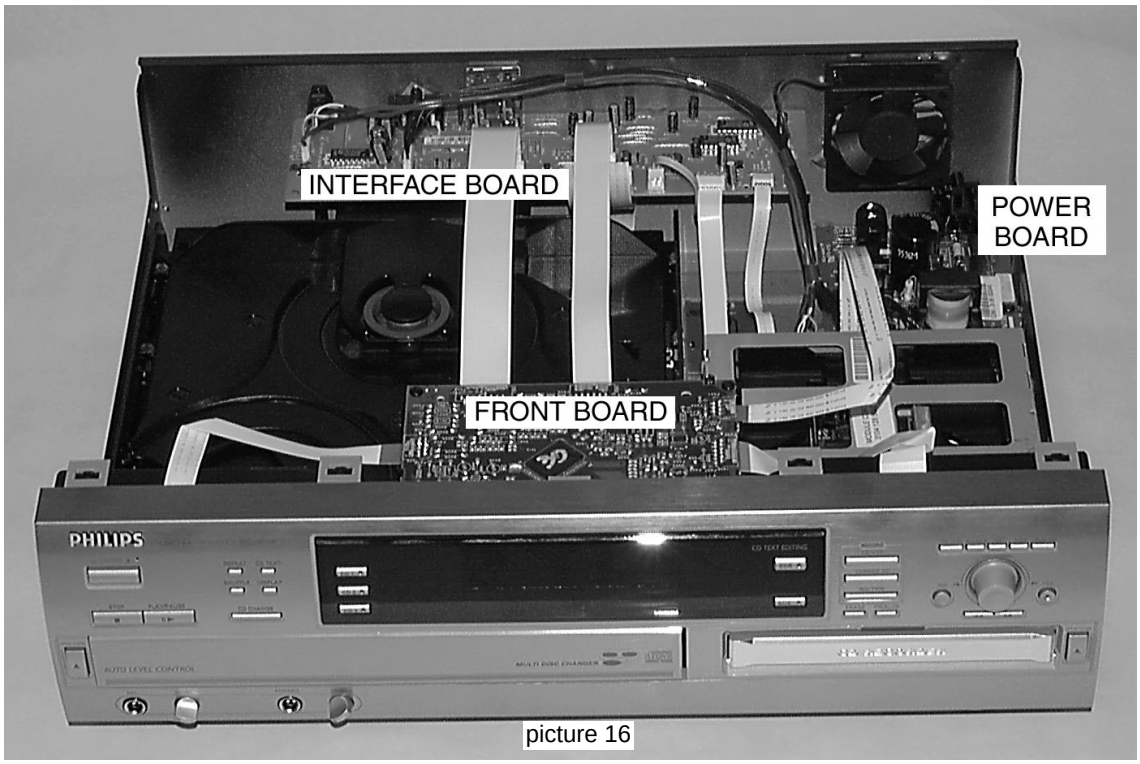




SERVICE HINTS

General Service position

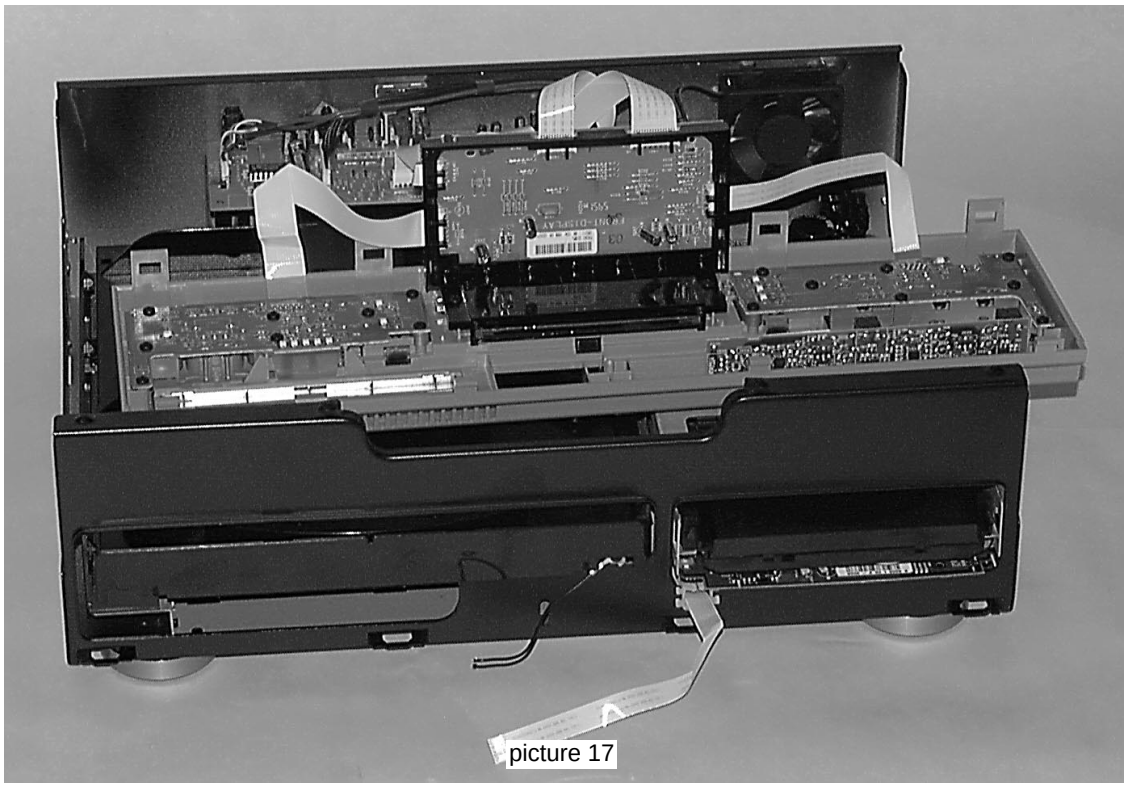
For repairs on: Front Board
Power Board
Interface Board



picture 16

Service position *Key Boards*

After dismantling the front cabinet as described in chapter 4-2 the front unit can be placed on 3CDC- and CDR module and be re-connected again.

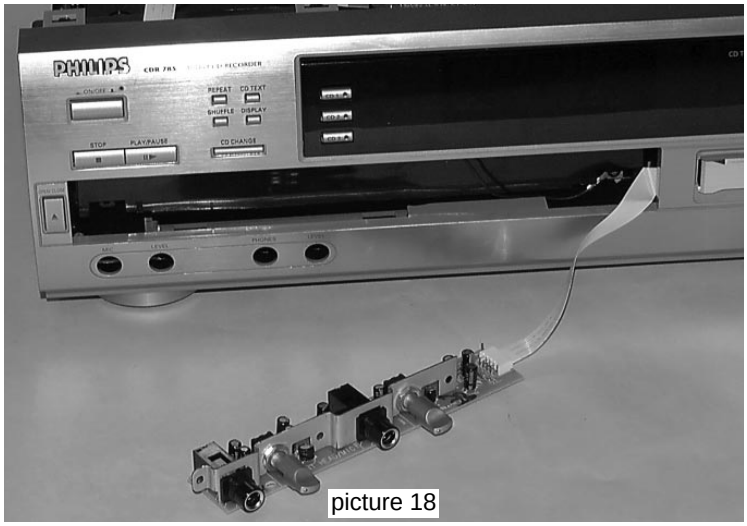


picture 17

SERVICE HINTS

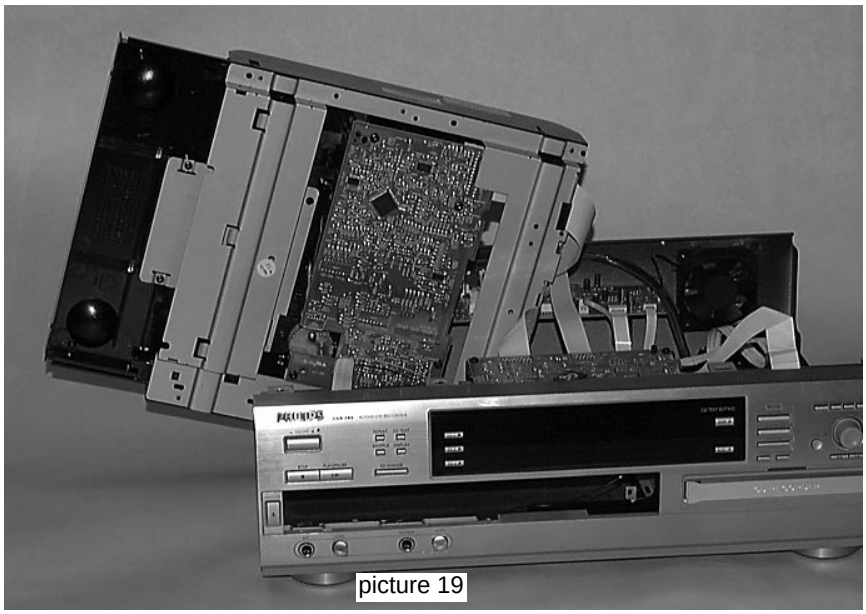
Service position *Headphone/Microphone Board*

- Dismantle front cabinet as described in chapter 4-2.
- Dismantle Headphone/Microphone Board and put it through the opening for the 3CDC-tray in front cabinet.
- Mount front cabinet provisional and re-connect flexfoil cables to Front Board.

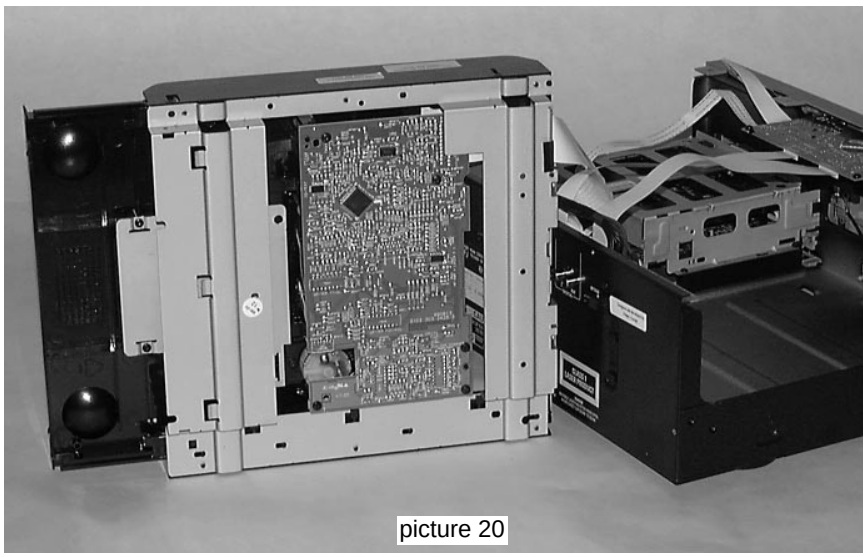


picture 18

Service position *3CDC Module*


picture 19

Dismantle the 3CDC module as described in chapter 4-2 to 4-3 and place it in the desired service position.


picture 20

5-4

SERVICE TESTPROGRAM
CD-CHANGER MODULE

To enter Service Testprogram hold ***CD → CD & NO*** buttons depressed while plugging mainscord in. On/Off switch in pos. *ON*.

* To leave Service Testprogram plug mains cord off.

Display shows version number of the µP - software.

5 stands for Service mode
XXX stands for version number of the software used in the front µP.

CD SERVO TEST

CD1 button pressed? N / Y

Tray *(open/close button)* and ***Carousel*** *(CD1, 2, 3 buttons)* work as in normal mode. After activation of the tray or the carousel program returns to SERVO test.

SERVO test

Display shows
CD
see also fig. 1

DISC MOTOR test

STOP button pressed? N / Y

PLAY button pressed? N / Y

FOCUS search

Display shows
FOC ERR
objective moves up&down

FOCUS found? N / Y

Display shows
FOC OK

STOP button pressed in FOCUS- or RADIAL-test returns to SERVO-test

PLAY button pressed? N / Y

DISC SERVO

Disc speeds up.
Display shows
DISC OK

PLAY button pressed? N / Y

RADIAL test

Display shows
RDL
→ Play mode
MUTE is switched off
(single speed)

NEXT ▸▸ button pressed? N / Y

PREV ◂◂ button pressed? N / Y

CUE - mode
jumps in steps of
16 tracks forwards
as long as button
is hold depressed.

REVIEW - mode
jumps in steps of
16 tracks backwards
as long as button
is hold depressed.

REC LEVEL button pressed? N / Y

Display shows:
CCW
Disc motor turns counter clockwise as long as button is held depressed. (brake)

PROG button pressed? N / Y

Display shows:
CW
Disc motor turns clockwise as long as button is held depressed. (accelerate)

SLIDE test

NEXT ▸▸ button pressed? N / Y

Display shows:
SLD O
Slide moves outside as long as button is held depressed.

PREV ◂◂ button pressed? N / Y

Display shows:
SLD I
Slide moves inside as long as button is held depressed.

Slide can be activated in FOCUS test too:
check if Focus functions over the whole disc area

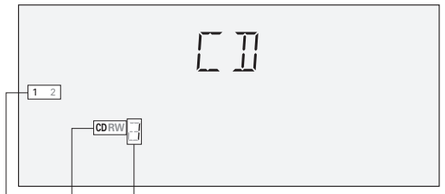


fig. 1

indicates the chosen disc - 1, 2 or 3

indicates sensitivity - *CD* or *CDRW*

indicates speed - *single speed* or *double speed*
note: when *double speed* is set output is muted in RADIAL test

Single/double speed

In the steps ***SERVO test*** and ***FOCUS search*** the disc speed can be toggled manually between single speed (1x) and double speed (2x) with the ***TEXT*** button.
Flag 1 or 2 of the music calendar indicates the actual speed.

Since the CD-RW reflects much less light than an ordinary CD-DA the gain of the HF-amplifier stage and the sensitivity of the ADC inside the Signal Processor must be increased to find the focus point.
In normal play mode high/low - gain is switched automatically.
In Service Test Mode, with the ***TRACK EDIT*** button, the gain/sensitivity can be toggled manually between high or low as soon as the SERVO test has been entered.
When the set is switched to high gain, **RW** flag is indicated on the display.
NOTE: If sensitivity is switched to *CDRW* the set might not work with normal Audio CDs!

Purpose of RADIAL test:

To check if the Audio signal is reproduced.
Subcode info is ignored during this test →
If the CD player functions well in this testmode, but not in the normal Play mode check quality of the eye-pattern signal.
Display shows absolute playing time of the disc in order one can determine position of the slide.
If the playing time is not shown (display flickers) the pickup is possibly out of the program area of the disc. Press ***Next*** or ***Prev*** to move slide inside.

CD PLAY TEST [1)]

CD3 button pressed? N / Y

Display shows:
STANDBY
for 5s.
Set is switched to Standby mode.

PLAY button pressed? N / Y

CD is in normal *PLAY* mode.
In case of failures error codes acc. table 1 will be indicated on the display.

MAINS CORD plugged off? N / Y

Exit Service Testprogram

[1)] The *CD PLAY TEST* is intended to be used for continuously playing a disc in order to detect intermittent or not reproducible failures. The error code indicates where the failure can be found.

CD ERROR CODES

Error number	*Error description*	*Error type*
E1000	**Focus Error** Triggered when the focus is lost for more than 250ms while playing the CD.	W
E1001	**Radial error** Triggered when the radial servo is not on track for a certain time during playing the CD.	W
E1002	**Slide-in error** Generated when the inner-switch did not close within approx. 6s when the pick up is moved inside. Inner-switch or slide motor problems.	W
E1003	**Slide-out error** Generated when the inner-switch did not open within approx. 250ms when the pick up is moved from the inner position outside. Inner-switch or slide motor problems.	W
E1005	**Jump error.** Triggered when the servo processor counts too less tracks in a defined time during JUMPS. This can be caused by a disturbed HF-signal (the tracks cannot be recognized exactly), slide motor problems, track servo problems or scratched discs.	W
E1006	**Subcode Error** No valid subcode for 300ms during *PLAY*.	W
E1007	**PLL lock error** When no valid subcode was found within 300ms PLL is checked. If PLL is locked E1006 will be indicated else E1007 and the servo is stopped and restarted once again to recover (as if the user would have pressed *STOP* and then *PLAY* immediately).	W
E1008	**Disc motor error** Generated when the CD could not reach 75% of speed during startup within 1,2s.	W
E1020	**Focus Search Error** Triggered when the focus could not be found within 4s when starting up the CD.	F

table 1

Error type: W = Warning → set continues operation, message remains on the display until next error occurs or any key is pressed.

F = Fatal Error → set stops operation, message remains on the display.

5-5

SERVICE TESTPROGRAM
CDR MODULE

To enter Service Testprogram hold ***CD → CD & NO*** buttons depressed while plugging mainscord in. On/Off switch in pos. *ON*

* To leave Service Testprogram plug mains cord off.

Display shows version number of the µP - software.
`S--CDR785--VXXX`

`S` stands for Service mode
`VXXX` stands for version number of the software used in the front µP.

CDR ELECTRICAL TEST

Insert CD-DA disc before starting the test

CDR button pressed? N / Y

MODULE INFORMATION

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

MAIN BOARD DIAGNOSTIC

DRAM TEST 7702 — Display shows: `DTST1` — ***FFWD*** ▸▸ button pressed? N / Y

CHECKSUM TEST 7703 — Display shows: `DTST2` — ***FFWD*** ▸▸ button pressed? N / Y

ERASE TEST 7208 — Display shows: `DTST3`

ADC/DAC TEST 7406 — Display shows: `DTST4` — ***FFWD*** ▸▸ button pressed? N / Y

COMMUNICATION TEST (DSA-BUS) — Display shows: `DTST5` — ***FFWD*** ▸▸ button pressed? N / Y

TEST O.K.? N → Display shows: `BERR n` (n=number of failed test) → ***FFWD*** ▸▸ button pressed? N / Y → Display shows next error

all errors shown? N / Y

CDR - LOADER TEST

CD-DA disc inserted? N → Display shows: `NO DISC` → ***FFWD*** ▸▸ button pressed? N / Y

Y → Display shows actual playing time. The test is performed by playing 5s at beginning, 5s in the middle and 5s at the end of the disc. — ***FFWD*** ▸▸ button pressed? N / Y → Exit CDR electrical Test

TEST O.K.? N → Display shows: `BERR 1` → ***FFWD*** ▸▸ button pressed? N / Y

Exit CDR electrical Test

Exit CDR electrical Test

CDR MECHANICAL TEST

for visual inspection only

FINALIZE button pressed? N / Y

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

STOP button pressed? N → / Y → Exit Mech. Testprogram

SLIDE TEST

NEXT ▸▸ button pressed? N / Y → Slide moves continuously in/out. Display shows: `BUSY`

PREV ◂◂ button pressed? N / Y → Dependent on the moving direction, slide moves to inner or outer end position.

TRAY TEST

OPEN/CLOSE button pressed? N / Y → Tray opens. Display shows: `OPENED` (even when tray is blocked)

OPEN/CLOSE button pressed? N / Y → Tray closes. Display shows: `CLOSE` (even when tray is blocked)

CDR DC-ERASE MODE

ERASE button pressed? N / Y

Complete disc will be erased with double speed. (starting from PMA-area up to and including ATIP leadout area)

The display shows the countdown of the remaining time required to complete the operation:

ER mm ss

mm: remaining minutes
ss: remaining seconds

Disc erased? N / Y

Display shows: `PASSED`

STOP button pressed? N / Y

Exit DC-ERASE Mode

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

5-6

SERVICE TESTPROGRAM
VARIOUS TESTS

To enter Service Testprogram hold ***CD*** ⟶► ***CD & NO*** buttons depressed while plugging mainscord in. On/Off switch in pos. *ON*

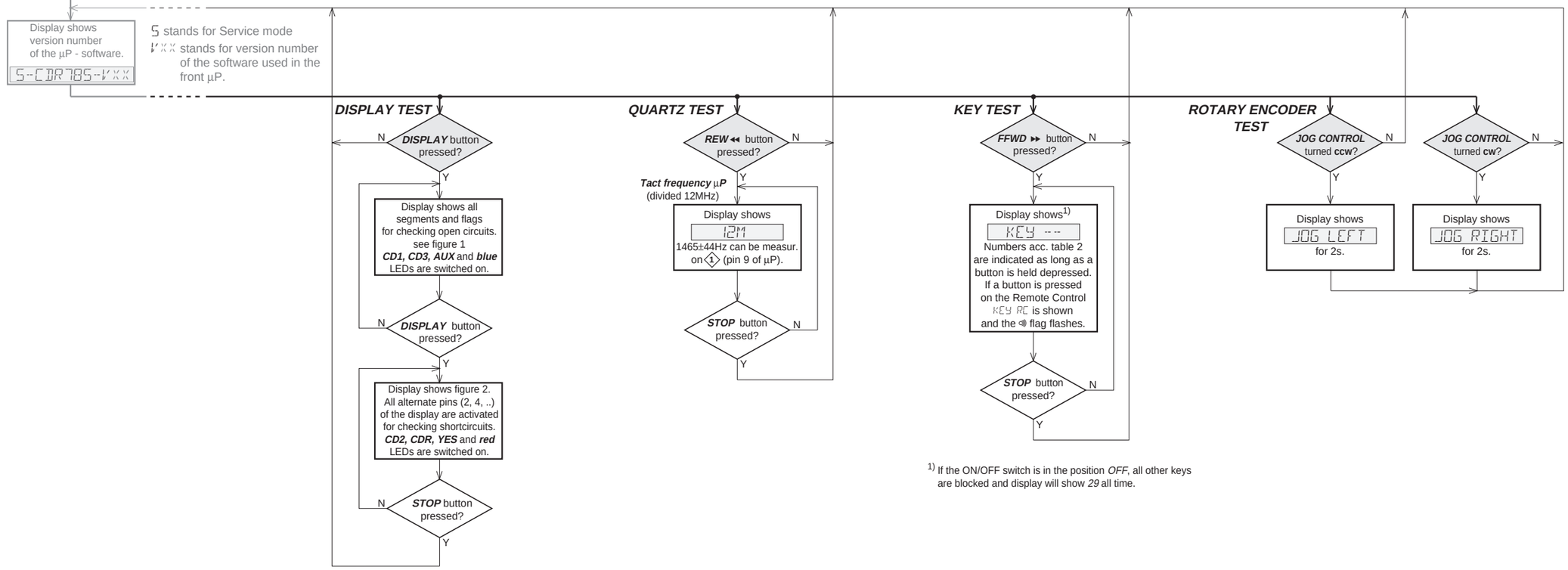
* To leave Service Testprogram plug mains cord off.

Display shows version number of the µP - software.

5--CDR785--V.XX

5 stands for Service mode

V.XX stands for version number of the software used in the front µP.



1) If the ON/OFF switch is in the position *OFF*, all other keys are blocked and display will show *29* all time.

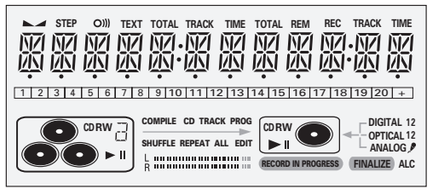


fig. 1

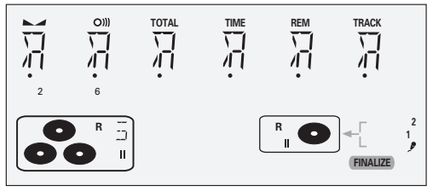


fig. 2

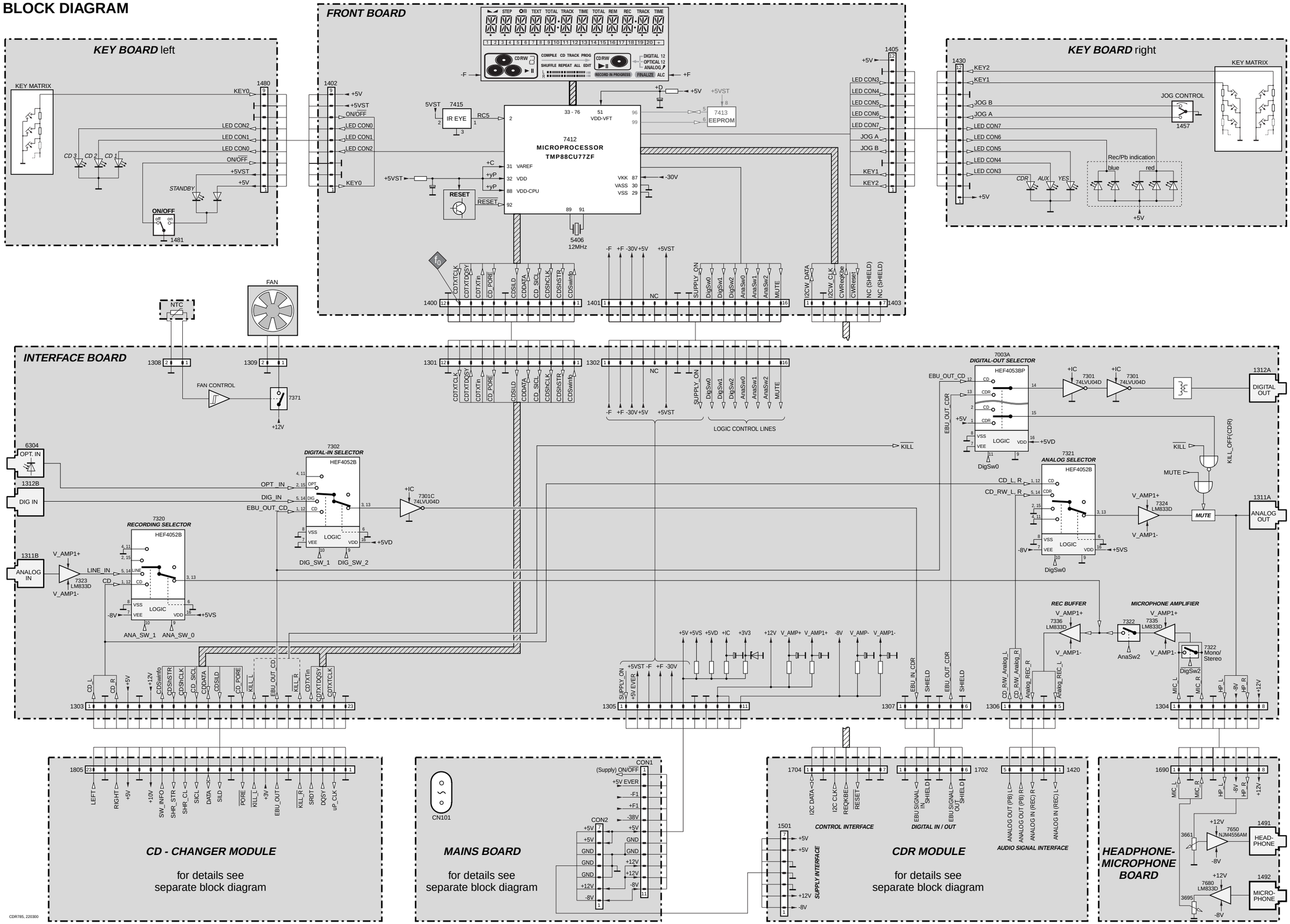
KEY CODES

KEY	KEY CODE	KEY	KEY CODE
STOP	exit test	CD ⟶► CD	15
TRACK EDIT	1	CDR	16
PROGRAM	2	AUX	17
TEXT	3	CD3	18
BALANCE	4	CD2	19
REC LEVEL	5	CD1	20
YES	6	CD TEXT	21
NO	7	REPEAT	22
FFWD ▸▸	8	DISPLAY	23
REW ◂◂	9	SHUFFLE	24
OPEN/CLOSE (CDR)	10	CD CHANGE	25
FINALIZE	11	PLAY/PAUSE	26
ERASE	12	OPEN/CLOSE (CDC)	27
REC TYPE	13	ON/OFF	29
COMPILE CD	14		

table 2

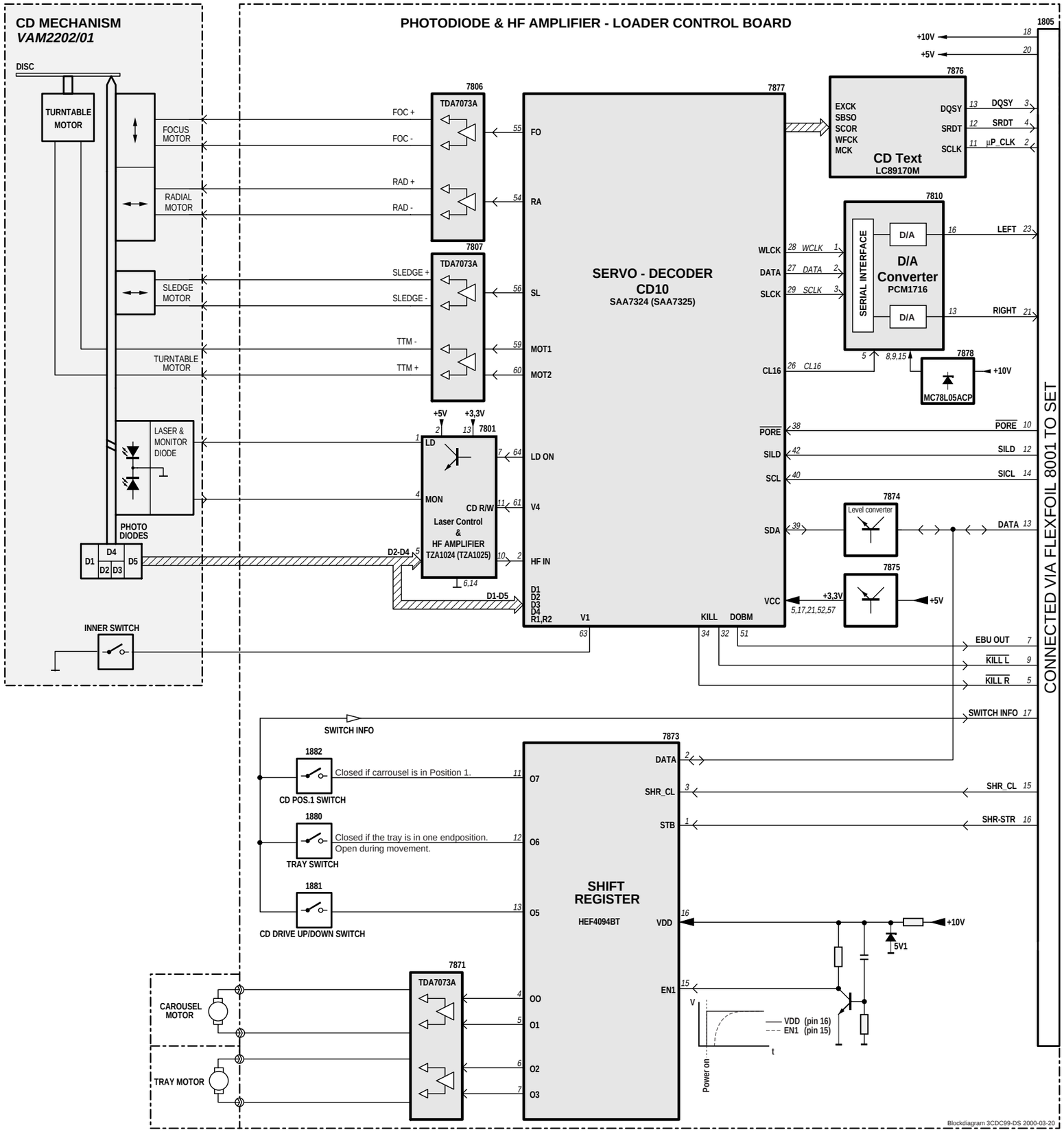
6-1

BLOCK DIAGRAM



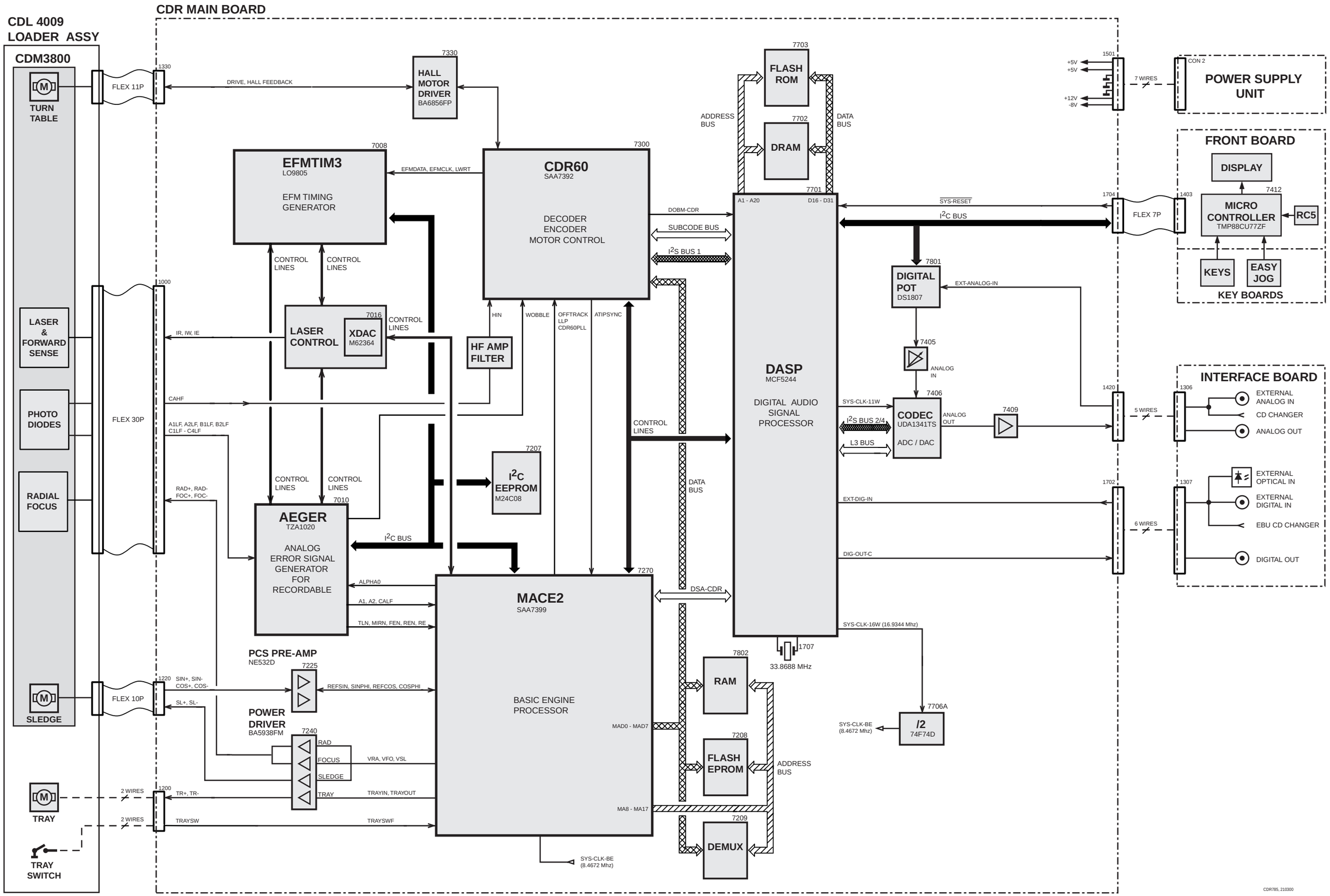
6-2

BLOCK DIAGRAM *3CDC MODULE*



6-3

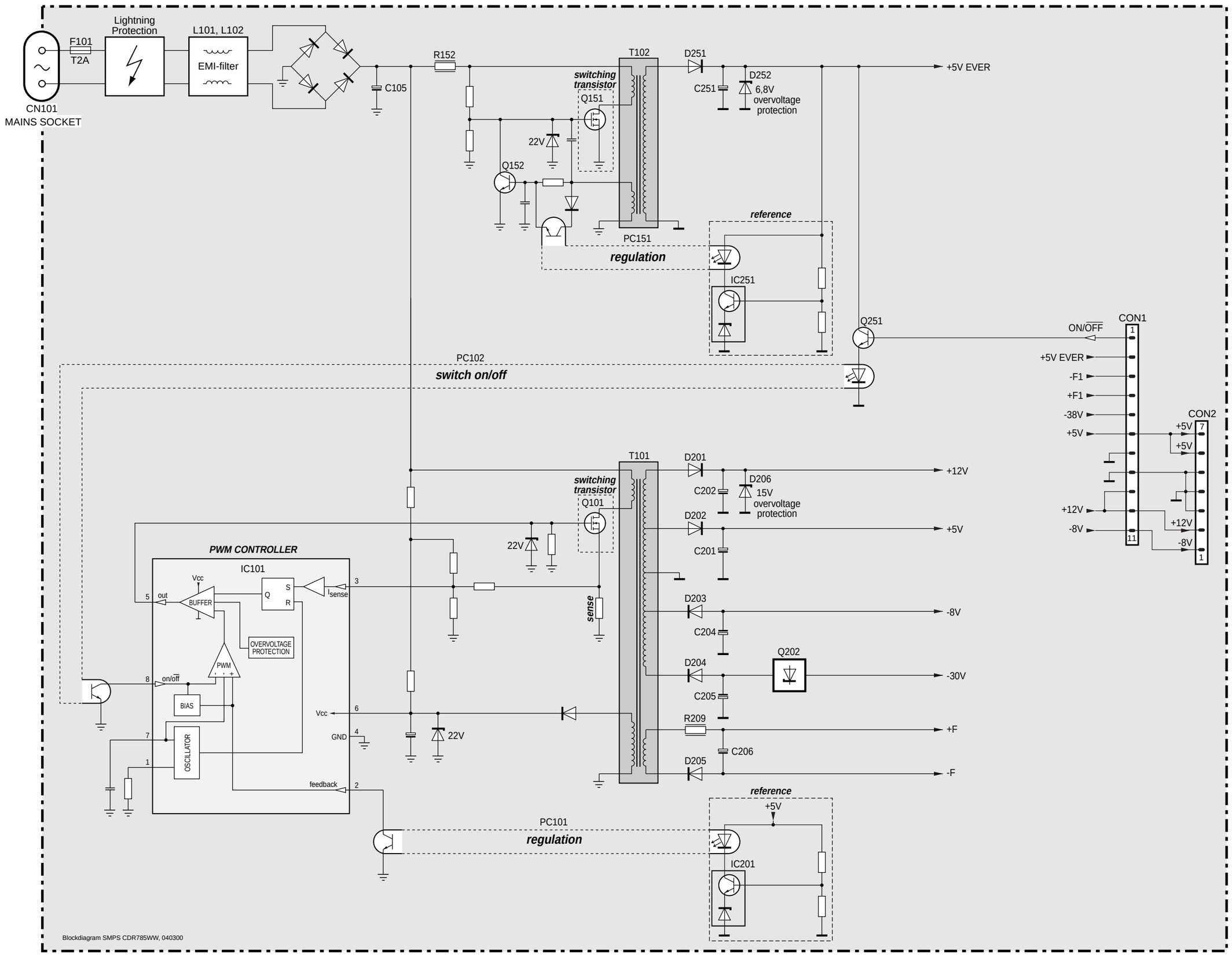
BLOCK DIAGRAM *CDR-MODULE*



6-5

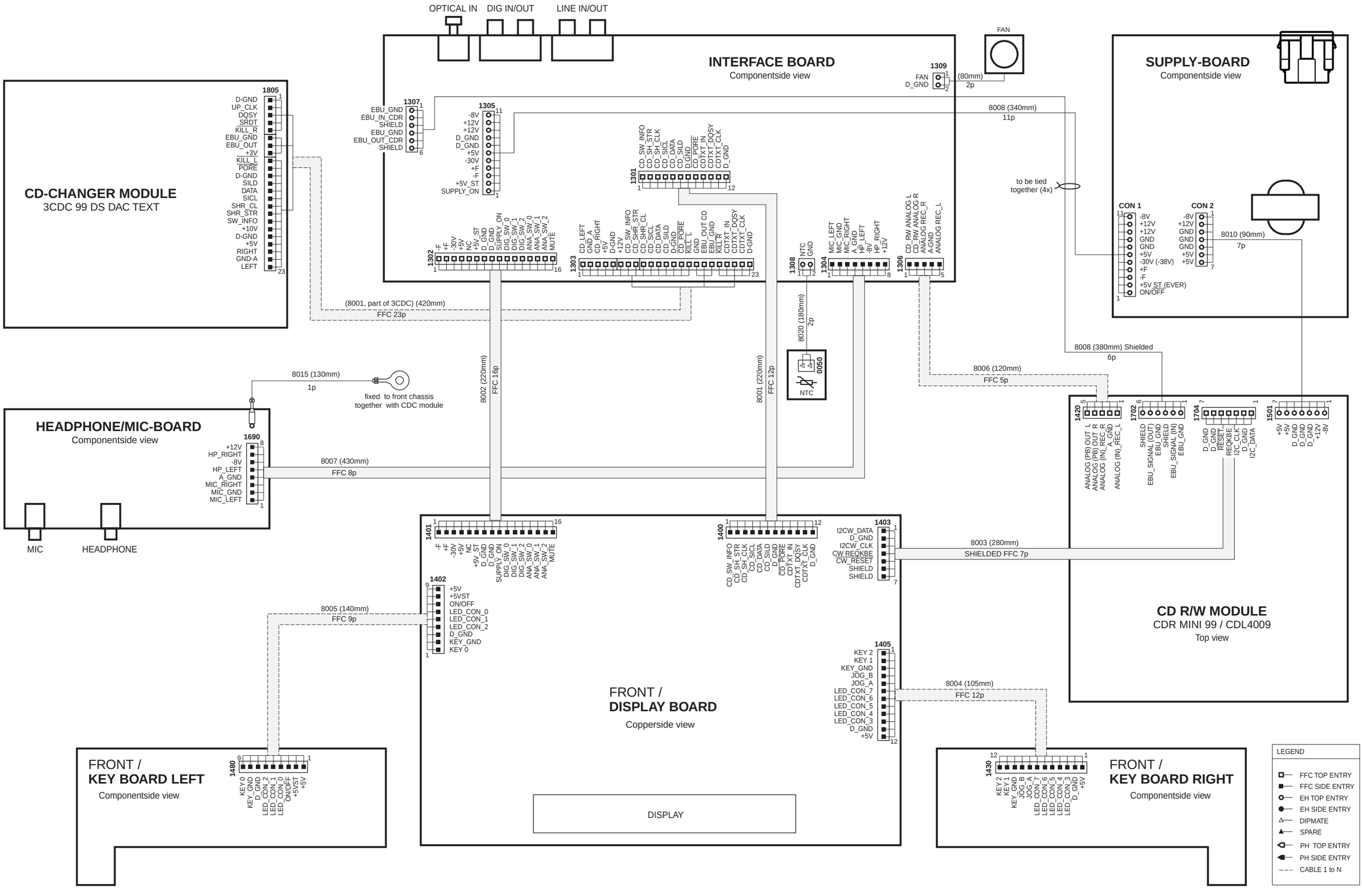
BLOCK DIAGRAM

SWITCHED MODE POWER SUPPLY / WorldWide version



6-6

WIRING DIAGRAM

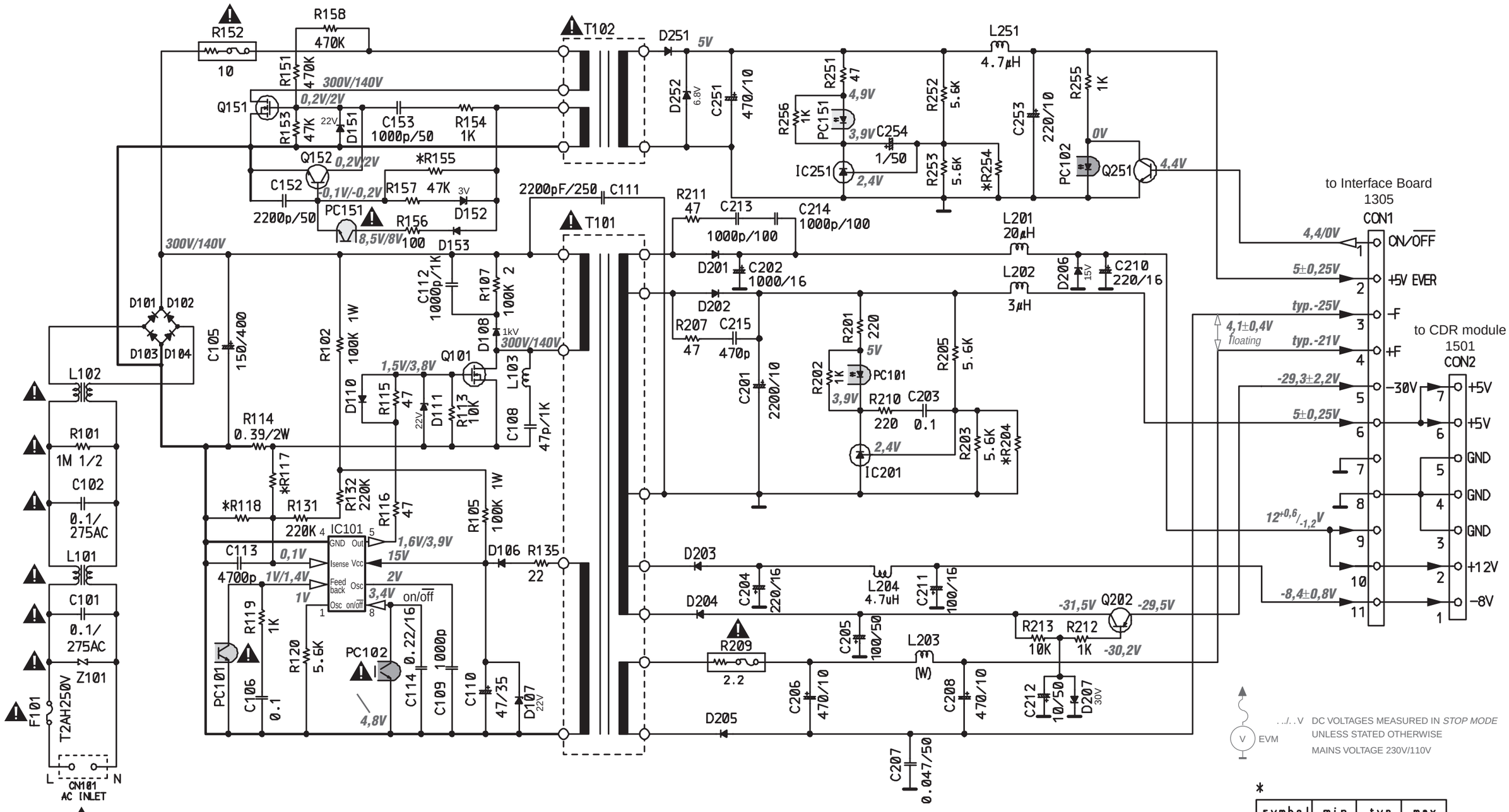


For service code numbers of flexfoil cables see mechanical partslist.

7-3

for orientation only

Switched Mode Power Supply / WorldWide version (/01)



. . ./. . V DC VOLTAGES MEASURED IN *STOP MODE*
UNLESS STATED OTHERWISE
MAINS VOLTAGE 230V/110V

EVM

D101.D102.D103, D104	1N4005 or 1N4007
D106	AU02Z or
D107, D151	MA4220 or MTZJ22
D108	EG01C or
D110, D153	1SS133 or MA165
D111	MA2220 or RD22F
D152	MA4030 or MTZJ3.0
Q101	2SK2651
Q151	2SK2128
Q152	2SC1740
PC101, PC102, PC151	ON3171 or PC123 or PS2561
IC101	KA7552 or FA5317P

D201	S3L20U or 31DF2
D202	D3S4M or SB340
D203, D204, D251	D1NL20U
D205	AK04
D206	RD15F or MA2150
D207	MA4300 or MTZJ30
D252	MA4068 or MTZJ6.8
IC201, IC251	AN1431T or MM1431AT
Q202	2SB1434 or 2SA1015 or 2SA933AS
Q251	UN4211 or DTC114ESA

Ω/W (1/4W)
µF/V (50V)

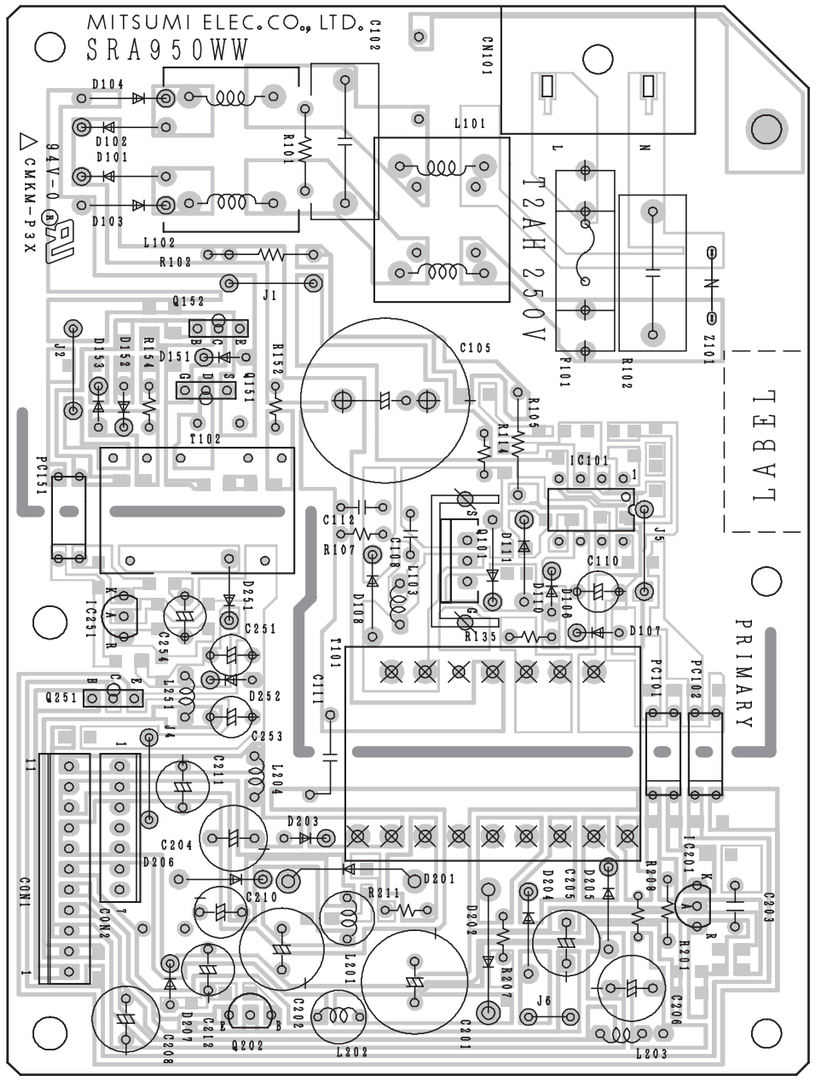
*

symbol	min	typ	max
*R117	470	560	680
*R118	560	680	820
*R155	15K	33K	82K
*R204	47K	100K	OPEN
*R254	47K	100K	OPEN

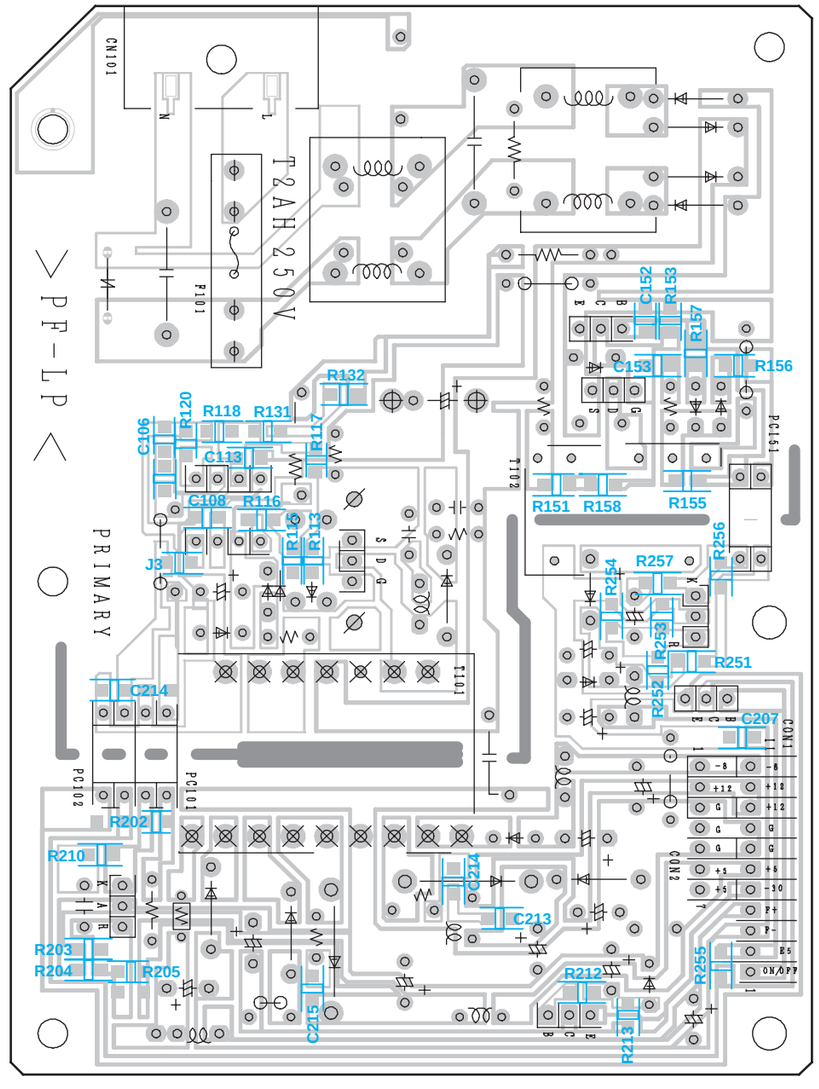
7-4

for orientation only

POWER BOARD / component side view
WorldWide version

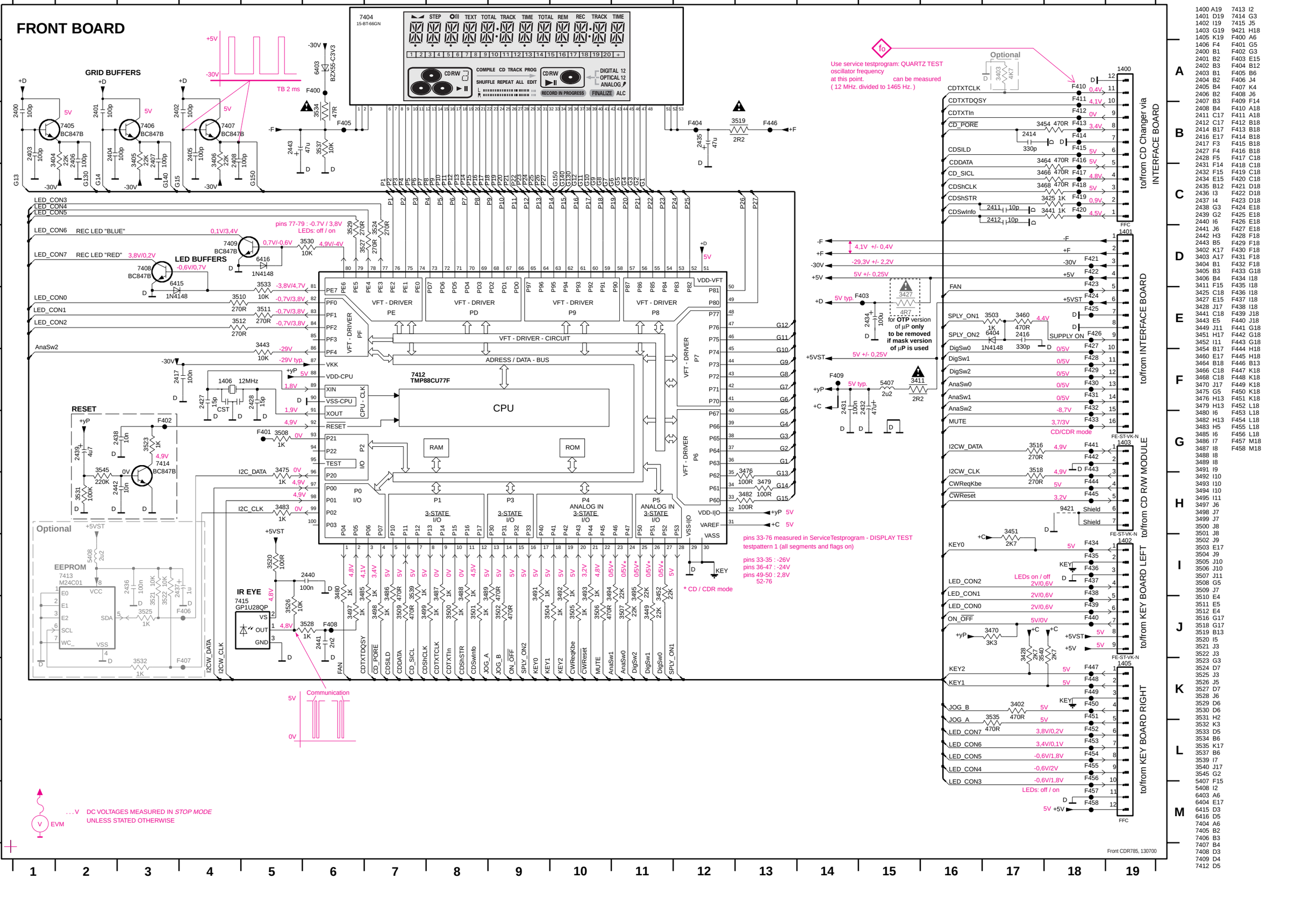


POWER BOARD / copper side view
WorldWide version



7-5

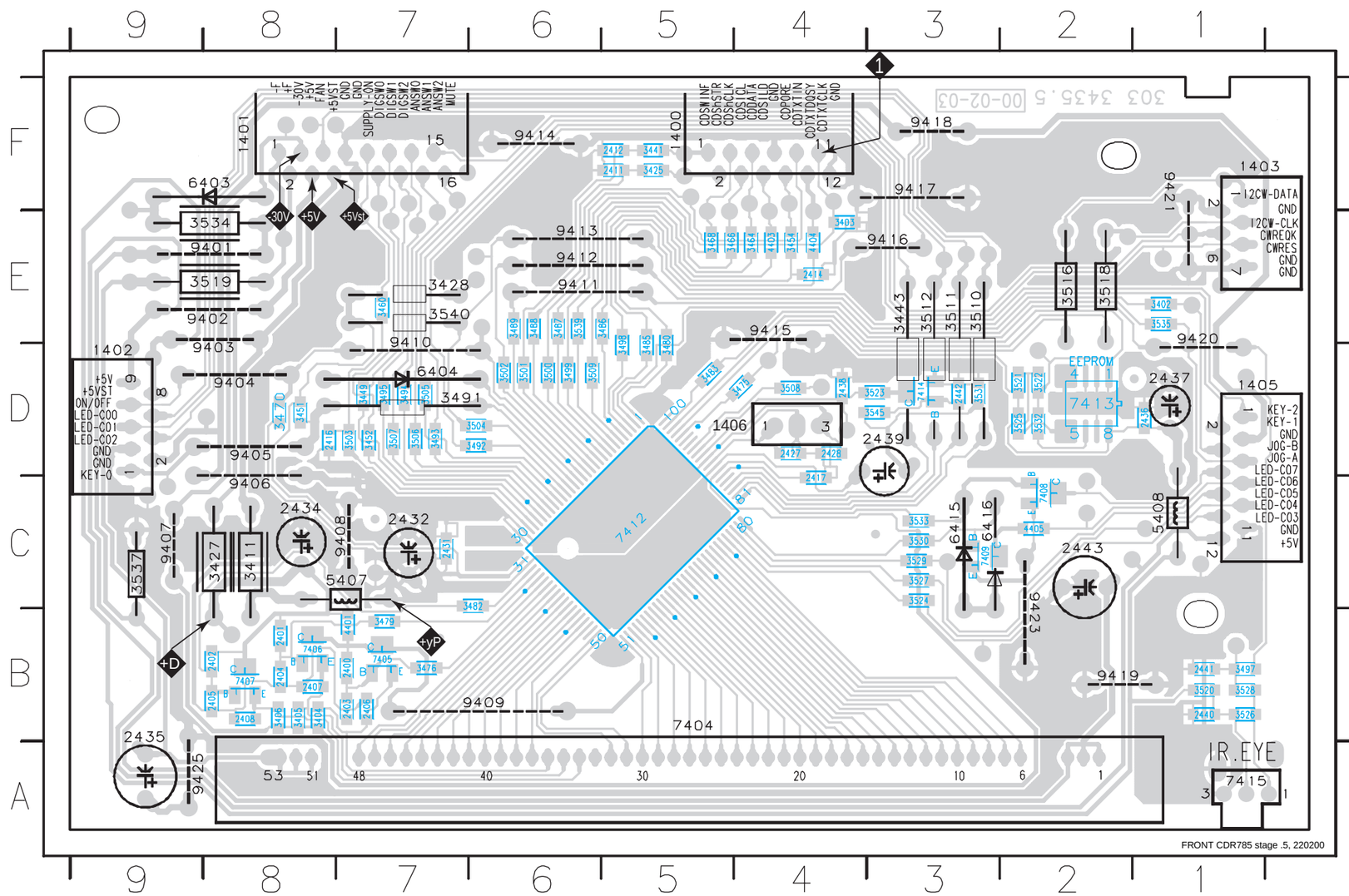
FRONT BOARD



1400 A19 7413 I2
1401 D19 7414 G3
1402 I19 7415 J5
1403 G19 9421 H18
1405 K19 F400 A6
1406 F4 F401 G5
2400 B1 F402 G3
2401 B2 F403 E15
2402 B3 F404 B12
2403 B1 F405 B6
2404 B2 F406 J4
2405 B4 F407 K4
2406 B2 F408 J6
2407 B3 F409 F14
2408 B4 F410 A18
2411 C17 F411 A18
2412 C17 F412 B18
2414 B17 F413 B18
2416 E17 F414 B18
2417 F3 F415 B18
2427 F4 F416 B18
2428 F5 F417 C18
2431 F14 F418 C18
2432 F15 F419 C18
2434 E15 F420 C18
2435 B12 F421 D18
2436 I3 F422 D18
2437 I4 F423 D18
2438 G3 F424 E18
2439 G2 F425 E18
2440 I6 F426 E18
2441 J6 F427 E18
2442 H3 F428 F18
2443 B5 F429 F18
3402 K17 F430 F18
3403 A17 F431 F18
3404 B1 F432 F18
3405 B3 F433 G18
3406 B4 F434 I18
3411 F15 F435 I18
3425 C18 F436 I18
3427 E15 F437 I18
3428 J17 F438 I18
3441 C18 F439 J18
3443 E5 F440 J18
3449 J11 F441 G18
3451 H17 F442 G18
3452 I11 F443 G18
3454 B17 F444 H18
3460 E17 F445 H18
3464 B18 F446 B13
3466 C18 F447 K18
3468 C18 F448 K18
3470 J17 F449 K18
3475 G5 F450 K18
3476 H13 F451 K18
3479 H13 F452 L18
3480 I6 F453 L18
3482 H13 F454 L18
3483 H5 F455 L18
3485 I6 F456 L18
3486 I7 F457 M18
3487 I8 F458 M18
3488 I8
3489 I8
3491 I9
3492 I10
3493 I10
3494 I10
3495 I11
3497 J6
3498 J7
3499 J7
3500 J8
3501 J8
3502 J9
3503 E17
3504 J9
3505 J10
3506 J10
3507 J11
3508 G5
3509 J7
3510 E4
3511 E5
3512 E4
3516 G17
3518 G17
3519 B13
3520 I5
3521 J3
3522 J3
3523 G3
3524 D7
3525 J3
3526 J5
3527 D7
3528 J6
3529 D6
3530 D6
3531 H2
3532 K3
3533 D5
3534 B6
3535 K17
3537 B6
3539 I7
3540 J17
3545 G2
5407 F15
5408 I2
6403 A6
6404 E17
6415 D3
6416 D5
7404 A6
7405 B2
7406 B3
7407 B4
7408 D3
7409 D4
7412 D5

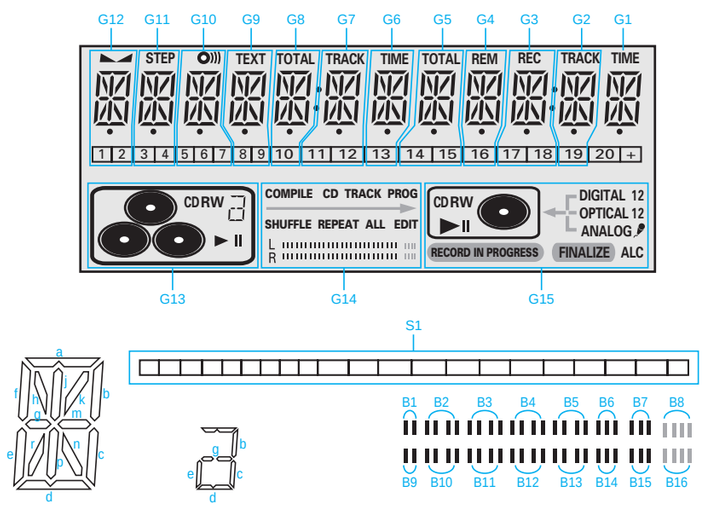
7-6

FRONT BOARD
copperside view

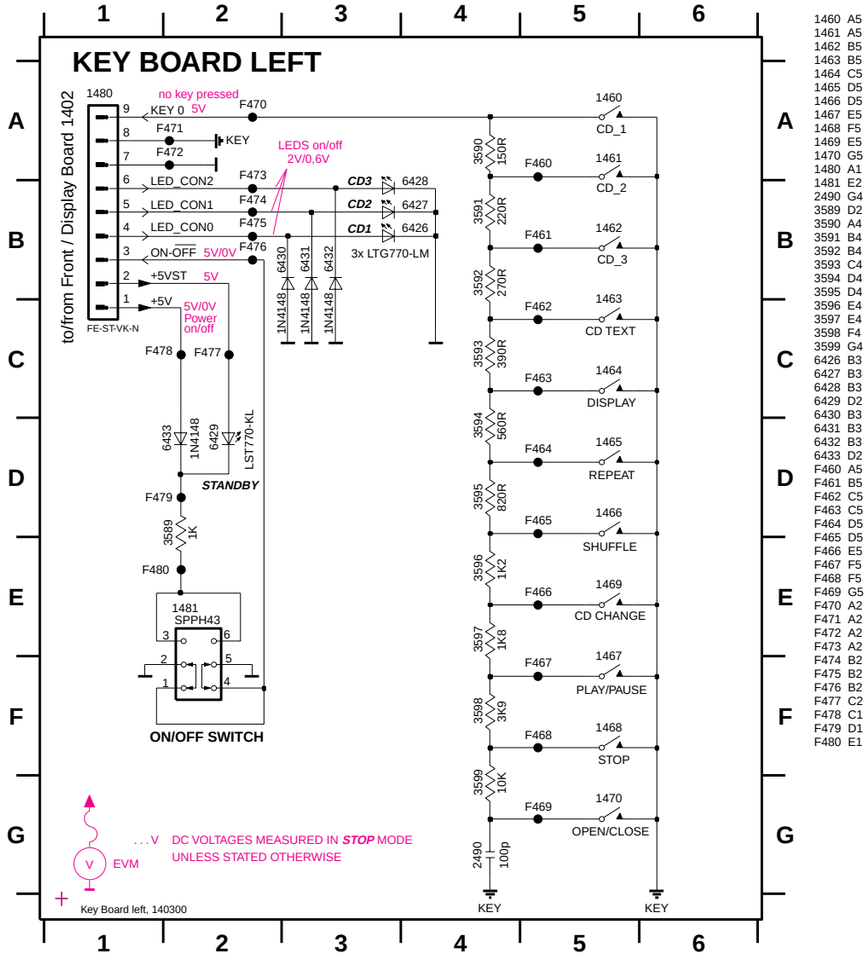


2400 B7	3499 D6	1400 F5	9423 B2
2401 B8	3500 D6	1401 F8	9425 A9
2402 B8	3501 D6	1402 D9	
2403 B7	3502 D6	1403 F1	
2404 B8	3503 D7	1405 D1	
2405 B8	3504 D6	1406 D4	
2406 B7	3505 D7	2432 C7	
2407 B8	3506 D7	2434 C8	
2408 B8	3507 D7	2435 A9	
2411 F5	3508 D4	2437 D1	
2412 F5	3509 D6	2439 C3	
2414 E4	3520 B1	2443 C2	
2416 D8	3521 D2	3411 C8	
2417 C4	3522 D2	3427 C9	
2427 D4	3523 D3	3428 E7	
2428 D4	3524 C3	3443 D3	
2431 C7	3525 D2	3491 D7	
2436 D1	3526 B1	3510 D3	
2438 D4	3527 C3	3511 D3	
2440 B1	3528 B1	3512 D3	
2441 B1	3529 C3	3516 E2	
2442 D3	3530 C3	3518 E2	
3402 E1	3531 D3	3519 E8	
3403 E4	3532 D2	3534 E8	
3404 B8	3533 C3	3537 C9	
3405 B8	3535 E1	3540 E7	
3406 B8	3539 E6	5407 B7	
3425 F5	3545 D3	5408 C1	
3441 F5	4401 B7	6403 F8	
3449 D7	4403 E4	6404 D6	
3451 D8	4404 E4	6415 C3	
3452 D7	4405 C2	6416 C2	
3454 E4	7405 B7	7404 B5	
3460 E7	7406 B8	7415 A1	
3464 E4	7407 B8	9401 E8	
3466 E5	7408 C2	9402 E8	
3468 E5	7409 C3	9403 D8	
3470 D8	7412 C5	9404 D8	
3475 D4	7413 D2	9405 D8	
3476 B7	7414 D3	9406 C8	
3479 B7		9407 C9	
3480 D5		9408 C7	
3482 C6		9409 B6	
3483 D5		9410 D7	
3485 D5		9411 E6	
3486 E5		9412 E6	
3487 E6		9413 E6	
3488 E6		9414 F6	
3489 E6		9415 D4	
3492 D6		9416 E3	
3493 D7		9417 F3	
3494 D7		9418 F3	
3495 D7		9419 B2	
3497 B1		9420 D1	
3498 D5		9421 E1	

DISPLAY CONNECTION



Pin		34	35	36	37	38	39	40	41	42	43	44	45	46	47	48
		G15	G14	G13	G12	G11	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1
6	P1	▭	B1	▭	a	a	a	a	a	a	a	a	a	a	a	a
7	P2	▶	B2	▶	j	j	j	j	j	j	j	j	j	j	j	j
8	P3	⏸	B3	⏸	h	h	h	h	h	h	h	h	h	h	h	h
9	P4	**2** (optical)	B4	◯ (right)	k	k	k	k	k	k	k	k	k	k	k	k
10	P5	**1** (optical)	B5	● (right)	b	b	b	b	b	b	b	b	b	b	b	b
11	P6	–	B6	◯ (left)	f	f	f	f	f	f	f	f	f	f	f	f
12	P7	◀–	B7	● (left)	m	m	m	m	m	m	m	m	m	m	m	m
13	P8	◯	B8	◯ (top)	g	g	g	g	g	g	g	g	g	g	g	g
14	P9	●	**EDIT**	● (top)	c	c	c	c	c	c	c	c	c	c	c	c
15	P10	**OPTICAL**	**ALL**	**CD**	e	e	e	e	e	e	e	e	e	e	e	e
16	P11	**2** (digital)	**REPEAT**	**R**	r	r	r	r	r	r	r	r	r	r	r	r
17	P12	**1** (digital)	**SHUFFLE**	**W**	n	n	n	n	n	n	n	n	n	n	n	n
18	P13	-	-	-	p	p	p	p	p	p	p	p	p	p	p	p
19	P14	**DIGITAL**	——▶	e	d	d	d	d	d	d	d	d	d	d	d	d
20	P15	⌜	**PROG**	c	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪	▪
21	P16	**CD**	**TRACK**	b	**1**	**3**	**5**	**8**	**10**	**11**	**13**	**14**	**16**	**17**	**19**	**20**
22	P17	**R**	**CD**	g, a, d	**2**	**4**	**6**	**9**	-	**12**	-	**15**	-	**18**	-	**+**
23	P18	**W**	**COMPILE**	5h	-	-	7	-	-	-	-	-	-	-	-	-
24	P19	⌞	B16	-	◣	**STEP**	🔊	**TEXT**	**TOTAL**	**TRACK**	**TIME**	**TOTAL**	**REM**	**REC**	**TRACK**	**TIME**
25	P20	**ANALOG**	B15	-	-	-	-	-	-	-	-	-	-	:		-
26	P21	🎤	B14	-	-	-	-	-	:		-	-	-	-	-	
27	P22	**ALC**	B13	-	S1											
28	P23	FINALIZE	B12	-	-	-	-	-	-	-	-	-	-	-	-	-
29	P24	REC IN PROGR.	B11	-	-	-	-	-	-	-	-	-	-	-	-	-
30	P25	-	B10	-	-	-	-	-	-	-	-	-	-	-	-	-
31	P26	-	B9	-	-	-	-	-	-	-	-	-	-	-	-	-
32	P27	-	L R	-	-	-	-	-	-	-	-	-	-	-	-	-



1460 A5
1461 A5
1462 B5
1463 B5
1464 C5
1465 D5
1466 D5
1467 E5
1468 F5
1469 E5
1470 G5
1480 A1
1481 E2
2490 G4
3589 D2
3590 A4
3591 B4
3592 B4
3593 C4
3594 D4
3595 D4
3596 E4
3597 E4
3598 F4
3599 G4
6426 B3
6427 B3
6428 B3
6429 D2
6430 B3
6431 B3
6432 B3
6433 D2
F460 A5
F461 B5
F462 C5
F463 C5
F464 D5
F465 D5
F466 E5
F467 F5
F468 F5
F469 G5
F470 A2
F471 A2
F472 A2
F473 A2
F474 B2
F475 B2
F476 B2
F477 C2
F478 C1
F479 D1
F480 E1

1460 A9
1461 B9
1462 C9
1463 A6
1464 B6
1465 A6
1466 B6
1467 C4
1468 C2
1469 C6
1470 D1
1480 A4
1481 B2
3590 A8
3591 B8
3596 C5
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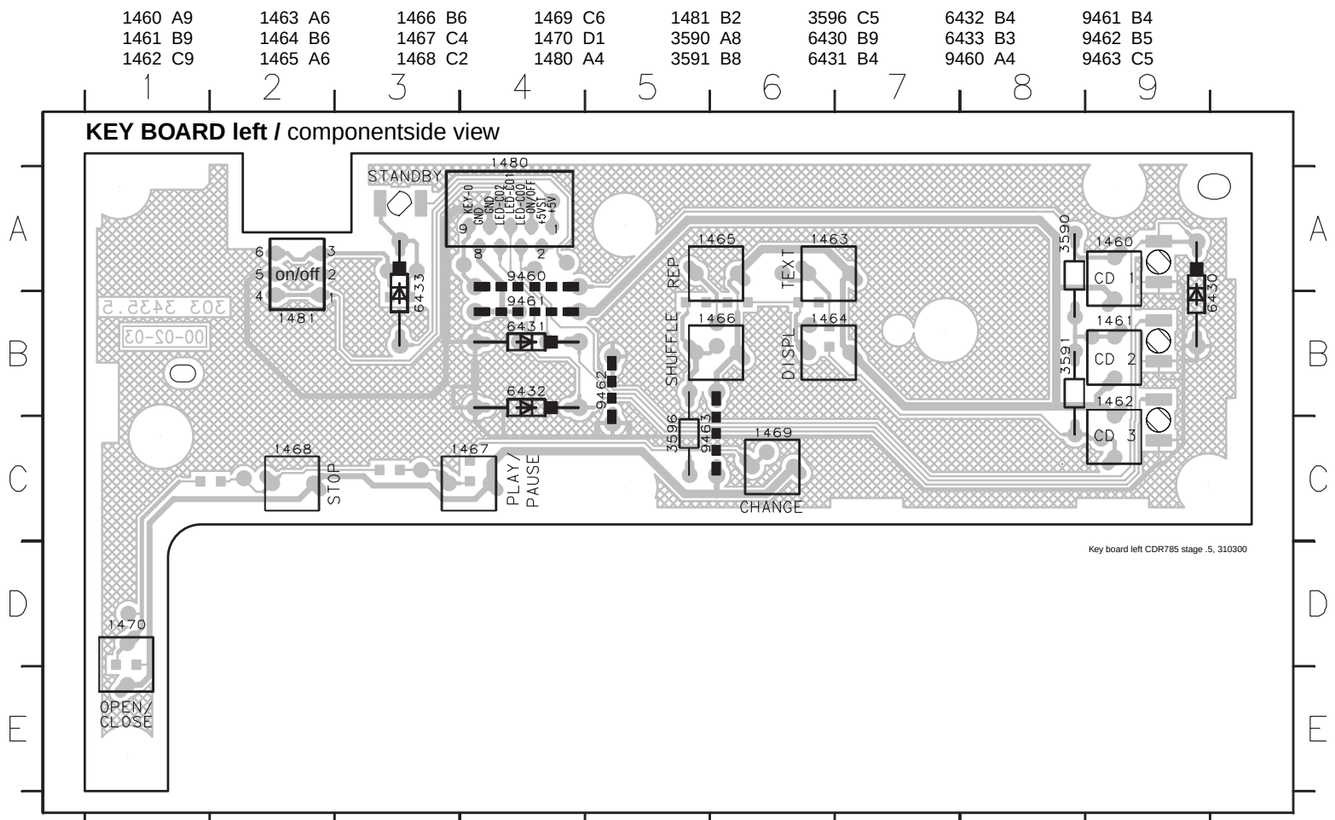
6432 B4
6433 B3
9460 A4
9461 B4
9462 B5
9463 C5



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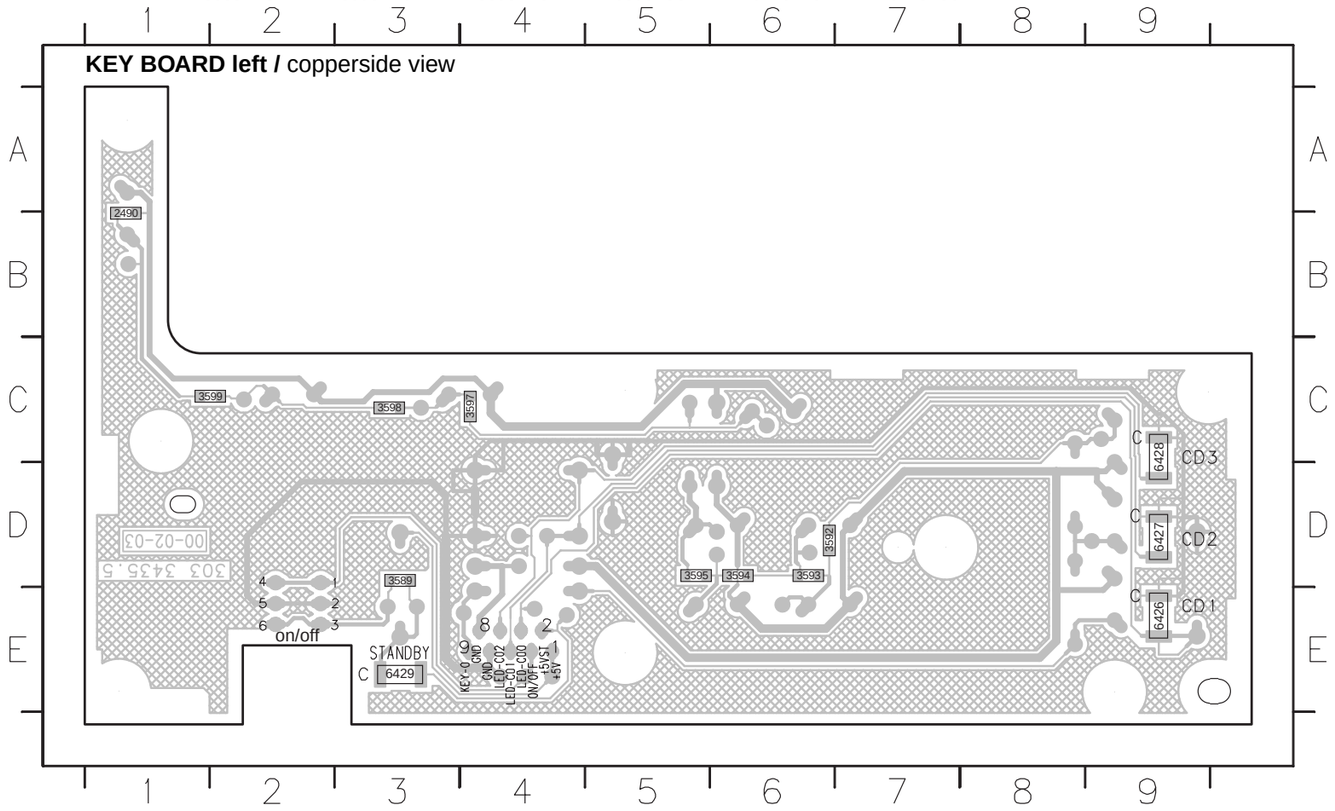
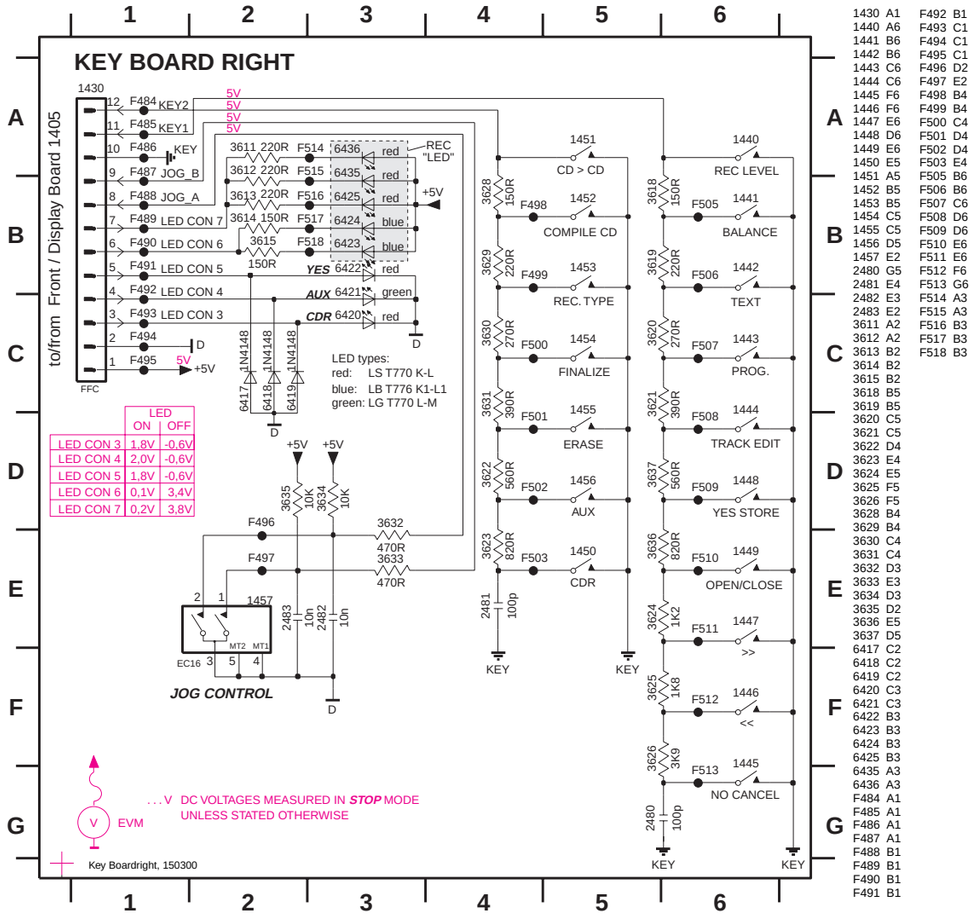
3589 D3
3592 D6
3593 D6
3594 D6
3595 D5
3597 C4
3598 C3
3599 C1
6426 E9
6427 D9
6428 C9
6429 E3





1430 A1 F492 B1
1440 A6 F493 C1
1441 B6 F494 C1
1442 B6 F495 C1
1443 C6 F496 D2
1444 C6 F497 E2
1445 F6 F498 B4
1446 F6 F499 B4
1447 E6 F500 C4
1448 D6 F501 D4
1449 E6 F502 D4
1450 E5 F503 E4
1451 A5 F505 B6
1452 B5 F506 B6
1453 B5 F507 C6
1454 C5 F508 D6
1455 C5 F509 D6
1456 D5 F510 E6
1457 E2 F511 E6
2480 G5 F512 F6
2481 E4 F513 G6
2482 E3 F514 A3
2483 E2 F515 A3
3611 A2 F516 B3
3612 A2 F517 B3
3613 B2 F518 B3
3614 B2
3615 B2
3618 B5
3619 B5
3620 C5
3621 C5
3622 D4
3623 E4
3624 E5
3625 F5
3626 F5
3628 B4
3629 B4
3630 C4
3631 C4
3632 D3
3633 E3
3634 D3
3635 D2
3636 E5
3637 D5
6417 C2
6418 C2
6419 C2
6420 C3
6421 C3
6422 B3
6423 B3
6424 B3
6425 B3
6435 A3
6436 A3
F484 A1
F485 A1
F486 A1
F487 A1
F488 B1
F489 B1
F490 B1
F491 B1

1430 A5 1442 A7 1445 B6 1448 C9 1451 A3 1454 C4 1457 A7 3636 C8 6418 B3 9452 A5
1440 A6 1443 A8 1446 D7 1449 D9 1452 B4 1455 C3 3632 B5 3637 B8 6419 A3 9453 C4
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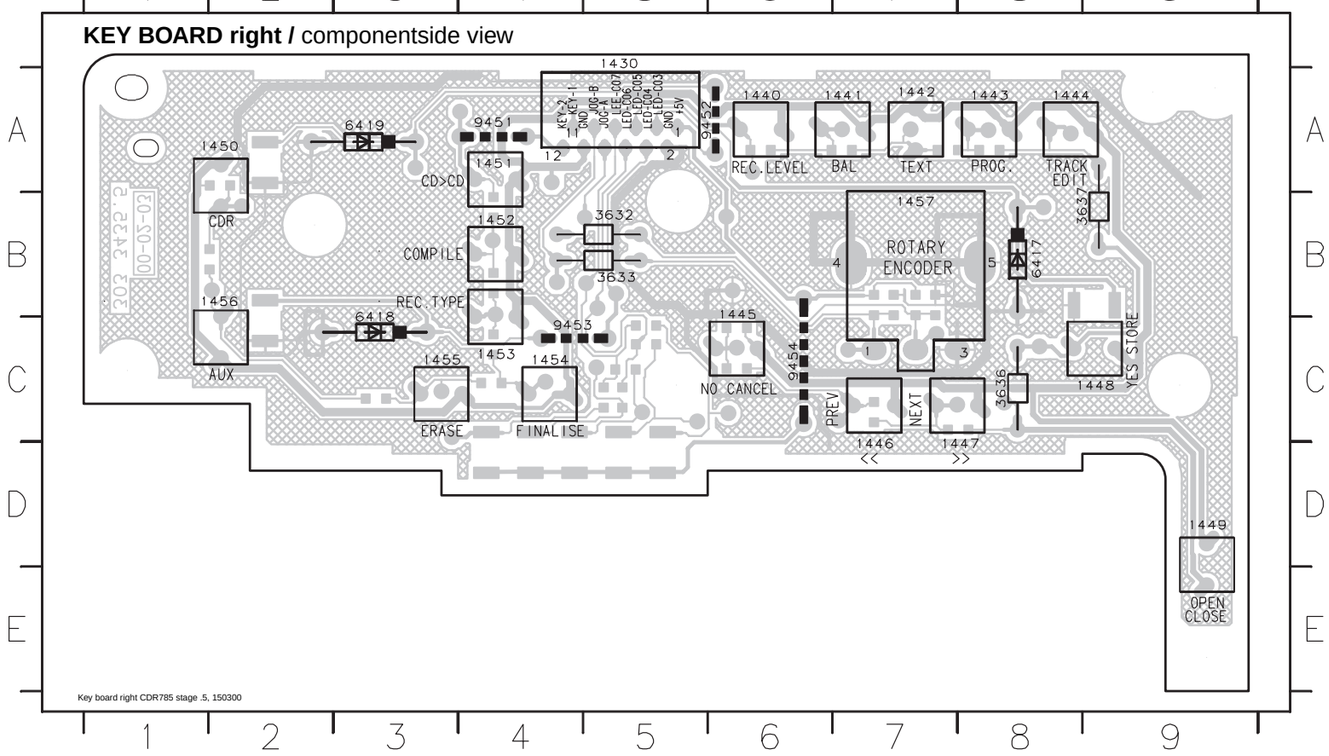
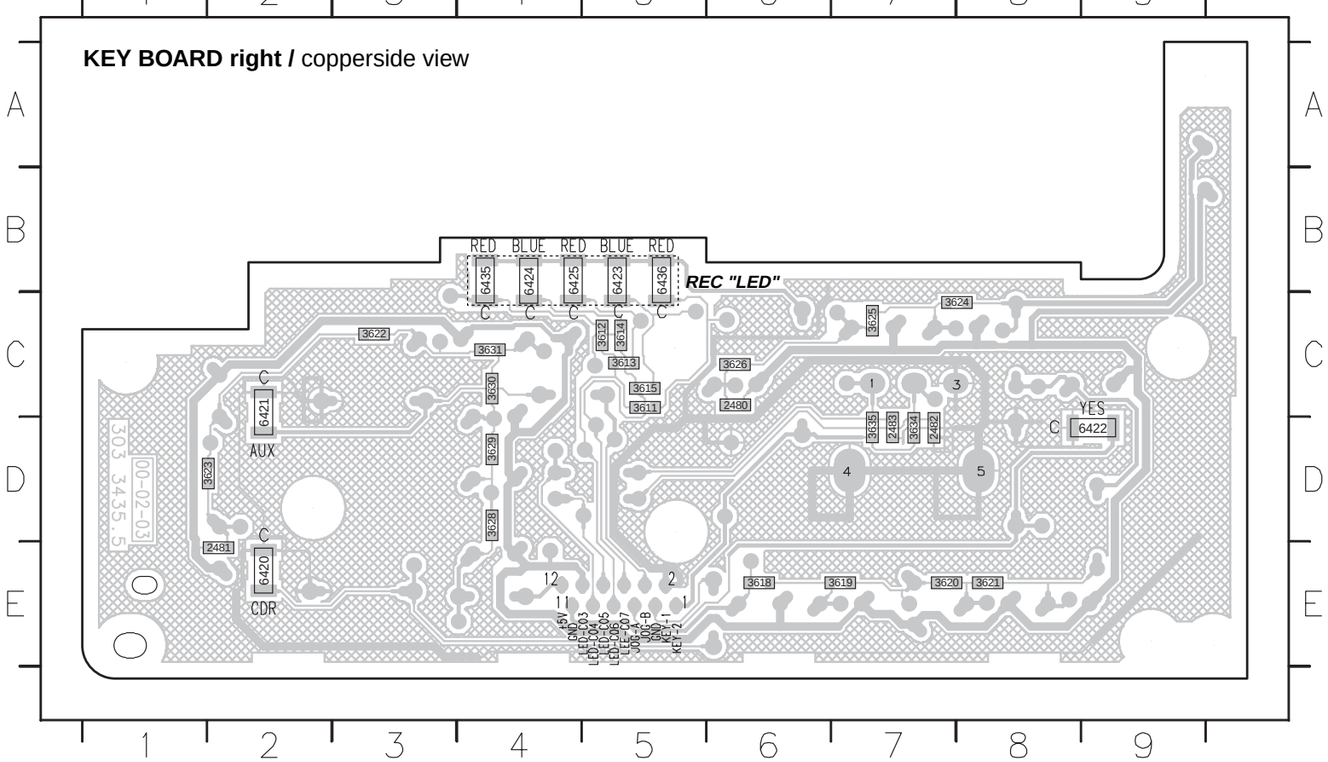


2480 C6 2483 D7 3613 C5 3618 E6 3621 E8 3624 C8 3628 D4 3631 C4 6420 E2 6423 B5 6435 B4
2481 E2 3611 C5 3614 C5 3619 E7 3622 C3 3625 C7 3629 D4 3634 D7 6421 C2 6424 B4 6436 B5
2482 D7 3612 C5 3615 C5 3620 E7 3623 D2 3626 C6 3630 C4 3635 D7 6422 D9 6425 B4



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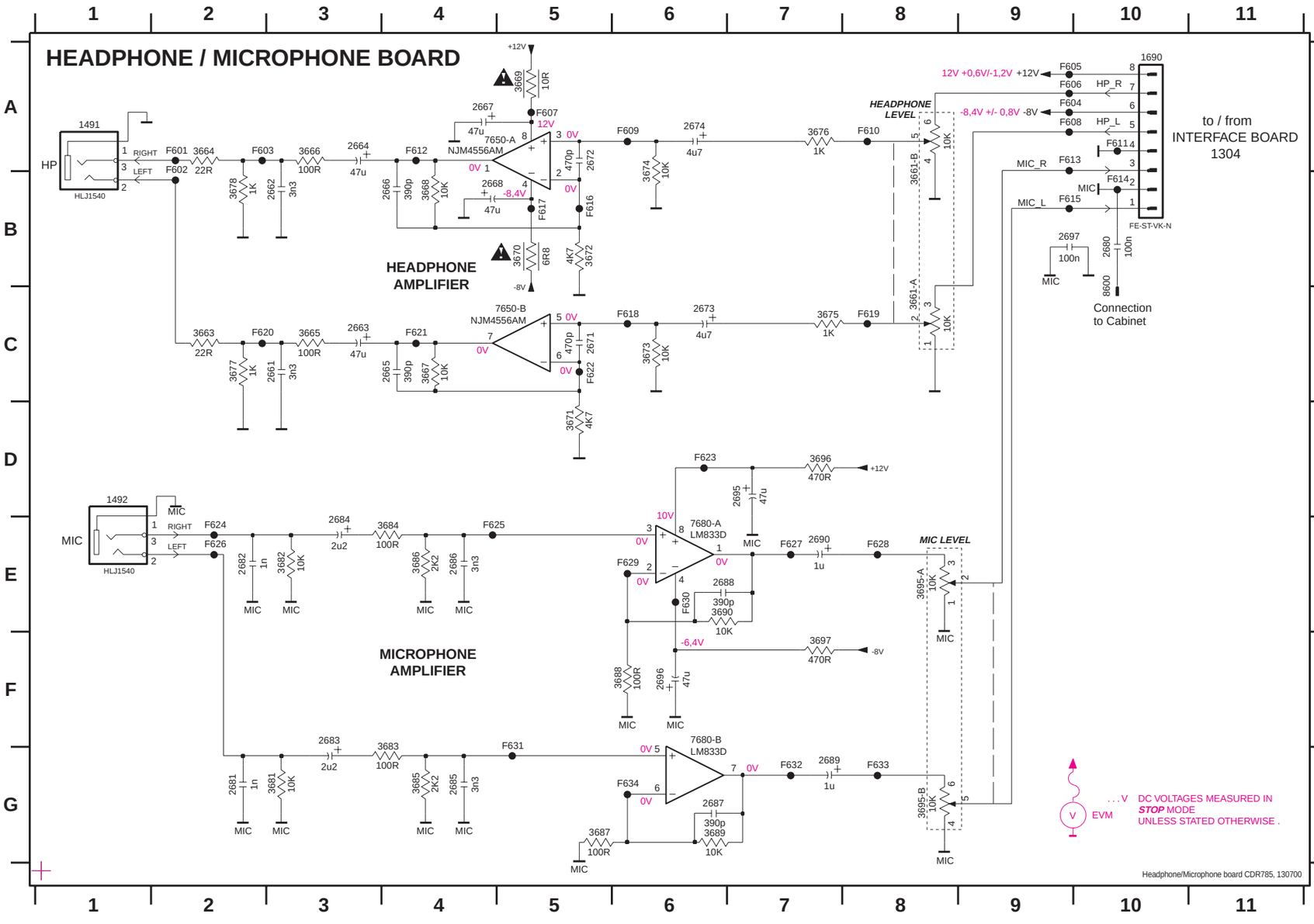
HEADPHONE / MICROPHONE BOARD



1491	A1	F618	C6
1492	D1	F619	C8
1690	A10	F620	C2
2661	C3	F621	C4
2662	B3	F622	C5
2663	C3	F623	D6
2664	A3	F624	E2
2665	C4	F625	E4
2666	B4	F626	E2
2667	A4	F627	E7
2668	B4	F628	E8
2671	C5	F629	E6
2672	A5	F630	E6
2673	C6	F631	G5
2674	A6	F632	G7
2680	B10	F633	G8
2681	G2	F634	G6
2682	E2		
2683	F3		
2684	E3		
2685	G4		
2686	E4		
2687	G6		
2688	E6		
2689	G7		
2690	E7		
2695	D7		
2696	F6		
2697	B9		
3661	B8		
3663	C2		
3664	A2		
3665	C3		
3666	A3		
3667	C4		
3668	B4		
3669	A5		
3670	B5		
3671	D5		
3672	B5		
3673	C6		
3674	A6		
3675	C7		
3676	A7		
3677	C2		
3678	B2		
3681	G3		
3682	E3		
3683	G4		
3684	E4		
3685	G4		
3686	E4		
3687	G5		
3688	F6		
3689	G6		
3690	E6		
3695	F8		
3696	D7		
3697	F7		
7650A	A5		
7650B	C5		
7680A	E6		
7680B	G6		
8600	C10		
F601	A2		
F602	B2		
F603	A2		
F604	A9		
F605	A9		
F606	A9		
F607	A5		
F608	A9		
F609	A6		
F610	A8		
F611	A10		
F612	A4		
F613	A9		
F614	B10		
F615	B9		
F616	B5		
F617	B5		

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1491 B6
1492 B1
1690 B10

2663 B8
2664 A6
2667 A9

2668 B9
2673 A8
2674 B8

2683 A2
2684 A2
2689 A3

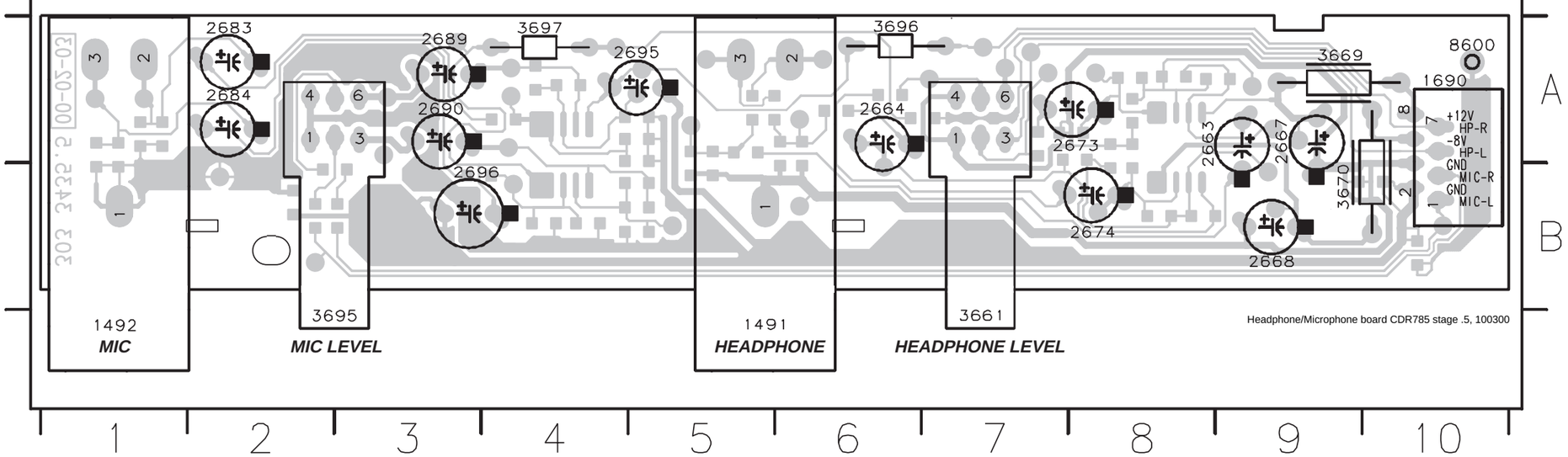
2690 A3
2695 A5
2696 B3

3661 B7
3669 A9
3670 B10

3695 B2
3696 A6
3697 A4

8600 A10

HEADPHONE / MICROPHONE BOARD / componentside view



2661 A5
2662 A6
2665 B8
2666 A8
2671 B8

2672 A8
2680 A10
2681 B1
2682 A1
2685 A5

2686 A4
2687 B4
2688 A5
2697 A10
3663 B5

3664 B5
3665 A5
3666 B6
3667 B9
3668 A8

3661 B8
3672 A8
3673 B8
3674 A8
3675 A7

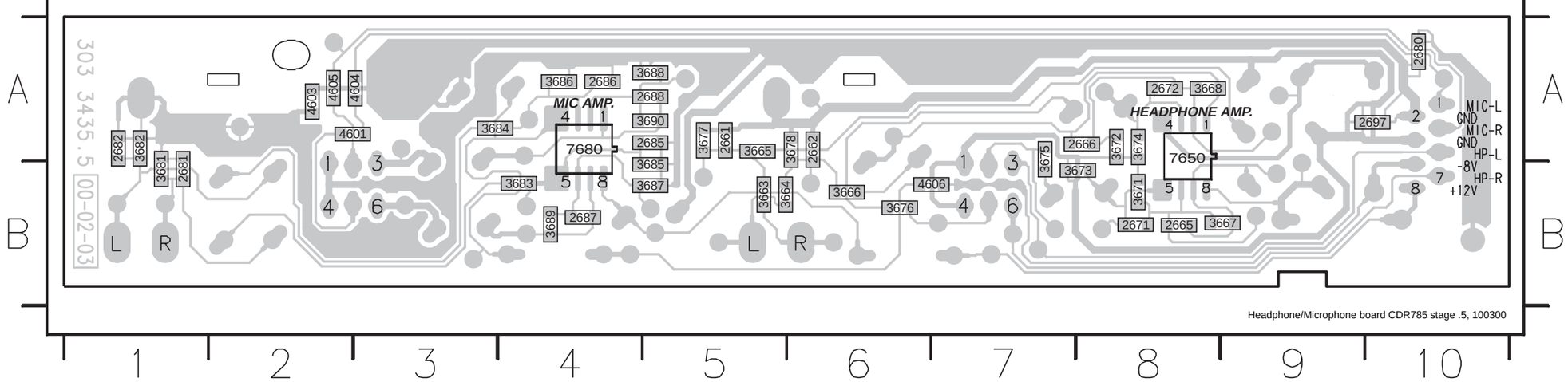
3676 B6
3677 A5
3678 A6
3681 B1
3682 A1

3683 B4
3684 A3
3685 B5
3686 A4
3687 B5

3688 A5
3689 B4
3690 A5
4601 A2
4603 A2

4604 A3
4605 A2
4606 B7
7650 A8
7680 A4

HEADPHONE / MICROPHONE BOARD / copperside view



7-11

INTERFACE BOARD /digital part

from FRONTBOARD

DIGITAL IN-SELECTOR

LOGIC		
DIG SW 2	DIG SW 1	SOURCE
0	0	CD
1	0	OPT
0	1	DIG
1	1	GND

DIGITAL OUT-SELECTOR

LOGIC	
DIG SW 0	SOURCE
0	CD
1	CD R/W

from CD-CHANGER

to/from FRONTBOARD 1400

to/from CD-CHANGER MODULE

to/from FRONTBOARD 1401

from SUPPLYBOARD

from/to CD R/W MODULE

Temperature Sensor mounted on bottom cabinet

FAN CONTROL

Fan switched off/on

DIG. OUT

KILL_OFF (CDR) to Mute Control (Analog part)

KILL to Interf.Board analog part

to Interf.Board analog part

to Interf.Board analog part

Rework 3CDC Reset problem:
1) cut off GND connection from pin 16 of 1303
2) connect pin 6 of 1302 with pin 16 of 1303
3) 3CDC board solder 220Ω in parallel to3868

ⓟ for PROVISION ONLY

V EVM ...V DC VOLTAGES MEASURED IN ***STOP*** MODE UNLESS STATED OTHERWISE

Interface Board / Digital part, 070400

1301	G1	F351	G12
1302	G5	F352	I14
1303	F3	F355	C13
1305	G7	F356	C13
1307	C13	F358	C13
1308	G11	F359	C7
1309	H14	F362	A9
1312A	E13	F363	C1
1312B	C1	F364	D1
2301	B10	F366	B1
2302	E7	F367	B1
2303	G9	F368	D10
2304	G9	F369	E13
2305	B1	F370	E13
2307	H14		
2309	C1		
2310	E11		
2311	E12		
2312	E12		
2313	E12		
2340	H13		
2350	I10		
2351	H10		
2352	I12		
2353	I13		
2354	I13		
2355	I13		
2390	I8		
2391	H8		
2392	G8		
2400	H9		
2401	I9		
3300	B12		
3301	A2		
3302	A2		
3303	G9		
3304	A2		
3305	B11		
3306	G9		
3307	E11		
3308	D2		
3309	D2		
3310	D5		
3311	D9		
3312	E13		
3313	G13		
3316	F10		
3317	C1		
3318	C10		
3319	G13		
3320	G12		
3329	C5		
3334	I12		
3340	H12		
3358	H9		
3359	I9		
3363	I10		
3364	H10		
3365	G12		
3366	I13		
3370	B2		
3373	G13		
3374	F8		
3379	F9		
3400	G12		
3402	E8		
3405	C11		
3406	D5		
3408	C5		
3420	B2		
5301	B11		
6304	E12		
6373	D1		
7301A	F9		
7301B	D11		
7301C	C11		
7301D	E11		
7301E	E10		
7301F	F11		
7302	B9		
7303A	D6		
7303B	E6		
7303C	C6		
7340	G12		
7341	H13		
7371	H13		
F301	F2		
F302	F2		
F303	G2		
F304	G2		
F305	G4		
F306	G3		
F307	G4		
F309	G4		
F310	H3		
F312	H3		
F313	H3		
F314	H3		
F315	H3		
F316	H3		
F317	I3		
F320	I4		
F321	I4		
F322	I3		
F323	I4		
F324	G6		
F325	G6		
F326	G6		
F329	H6		
F332	H6		
F333	H6		
F334	H6		
F335	I6		
F336	I6		
F337	I6		
F338	I6		
F339	I6		
F347	H8		
F348	H8		
F349	H7		
F350	H14		

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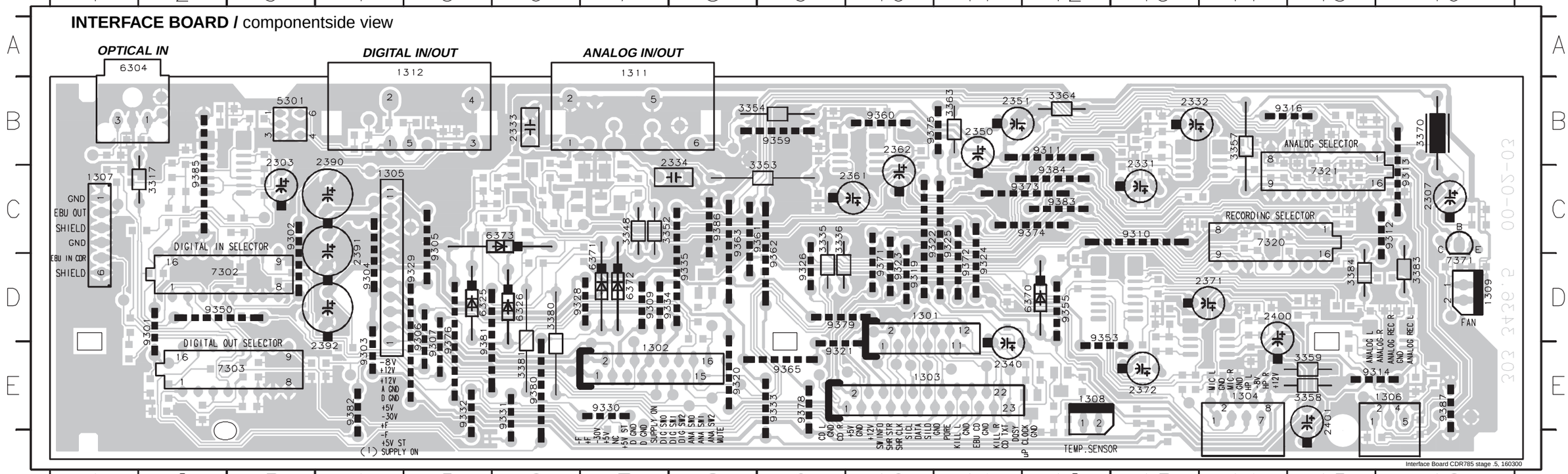
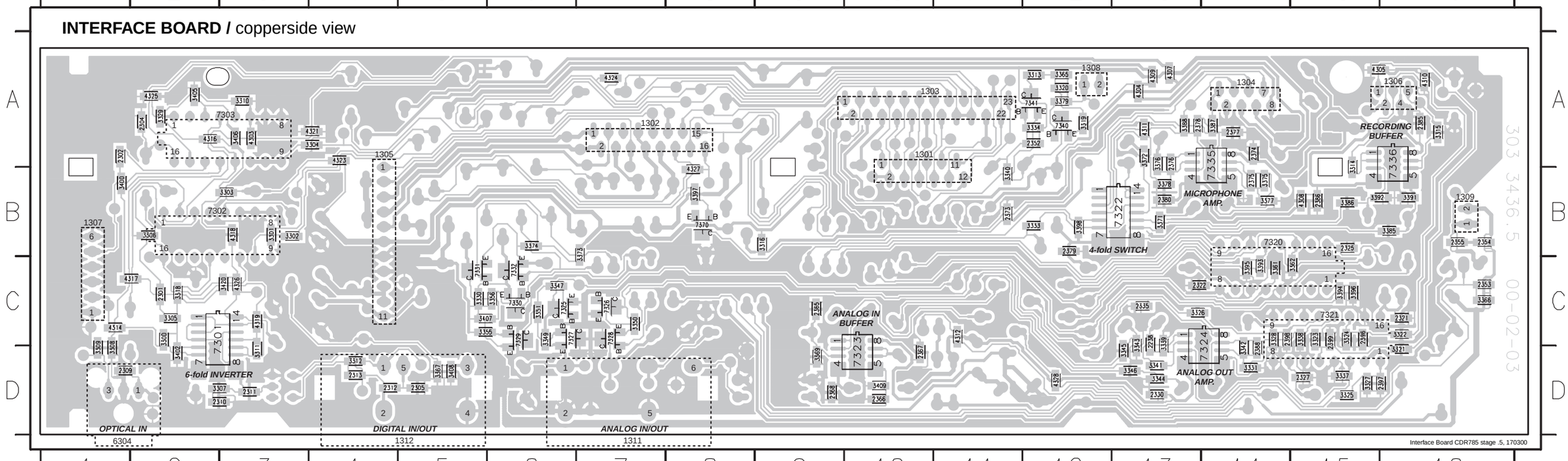
1301 D10 1302 E7 1303 E10 1304 E14 1305 D5 1306 E16 1307 C1 1308 E12 1309 D16 1311 B7 1312 B5 2303 B3 2307 C16 2331 B13 2332 B13 2333 B6 2334 B8 2340 E11 2350 B11 2351 B11 2361 C10 2362 B10 2371 D14 2372 E13 2390 B4 2391 C4 2392 E4 2400 D14 2401 E15 3317 C2 3335 D9 3336 D10 3348 C7 3352 C7 3353 C9 3354 B8 3357 B14 3358 E15 3359 E15 3363 B11 3364 B12 3370 B16 3380 D6 3381 D6 5301 B11 6304 B2 6325 D5 6326 D6 6370 D12 6371 D7 6372 D7 6373 C6 7302 C3 7303 D3 7320 D14 7321 C15 7371 D16 9301 D2 9302 C3 9303 E4 9304 D4 9305 C5 9306 D5 9307 E5 9309 D7 9310 C13 9311 B12 9313 C16 9314 E15 9316 B15 9319 D10 9320 E8 9321 E9 9322 C10 9323 D10 9324 D11 9325 D11 9326 D9 9328 D6 9329 E5 9330 E7 9331 E6 9332 E5 9333 E7 9334 D7 9335 D8 9350 D2 9353 D12 9355 D12 9359 B9 9360 B10 9361 C9 9362 D9 9363 C8 9365 E9 9371 D10 9372 D11 9373 C11 9374 C12 9375 B10 9376 E5 9378 E9 9379 D9 9380 E6 9381 E6 9382 E4 9383 C13 9384 C12 9385 C2 9386 C8 9387 E16



2238 C13 2301 C2 2302 A1 2304 A2 2305 D5 2309 D1 2310 D3 2311 D3 2312 D4 2313 D4 2321 C16 2322 C13 2325 B15 2327 D15 2330 D13 2335 C13 2352 A12 2353 C16 2354 B16 2355 B16 2365 C9 2366 D10 2367 D10 2368 D9 2373 B11 2374 A14 2375 B14 2376 A13 2377 A14 2378 A13 2379 B12 2380 B13 2385 A16 2386 B15 2388 D14 2396 C15 2397 D16 2398 C14 2399 C15 3300 C2 3301 B3 3302 B3 3303 B3 3304 A4 3305 C2 3306 B2 3307 D3 3308 D1 3309 D1 3310 A3 3311 D3 3312 D4 3313 A12 3314 A15 3315 A16 3316 B9 3318 C2 3319 A12 3320 A12 3321 D16 3322 C16 3323 C15 3324 C15 3325 D15 3326 C13 3327 D15 3328 C14 3329 A2 3330 C5 3331 D14 3333 B12 3334 A12 3337 D15 3338 C15 3339 C13 3340 B11 3341 D13 3342 D14 3343 C13 3344 D13 3345 D13 3346 D13 3347 C6 3349 C6 3350 C7 3351 C6 3355 C5 3356 C6 3361 C14 3362 C15 3365 A12 3366 C16 3367 D5 3369 D9 3371 B13 3372 A13 3373 B7 3374 B6 3375 B14 3376 A13 3377 B14 3378 B13 3379 A12 3385 B16 3386 B15 3387 A14 3388 A13 3391 B16 3392 B15 3393 C14 3394 C15 3395 C14 3396 C15 3397 B8 3398 B12 3400 B1 3402 D2 3405 A2 3406 A3 3407 C5 3408 D5 3409 D10 3420 C3 4303 A3 4304 A13 4305 A15 4307 A13 4308 B15 4309 A13 4310 A16 4311 A13 4312 C11 4314 C1 4316 A2 4317 C2 4318 B3 4319 C3 4321 A4 4323 A4 4324 A7 4325 A2 4326 C3 4327 B8 4328 D12 7301 C2 7322 B13 7323 D10 7324 D14 7325 C6 7326 C7 7327 C6 7328 C7 7329 C6 7330 C6 7331 C5 7332 C6 7335 A14 7336 A16 7340 A12 7341 A12 7370 B8



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INTERFACE BOARD /analog part

ANALOG SELECTOR

ANALOG OUT AMPLIFIER

ANALOG OUT

MUTE

MUTE CONTROL

ANALOG IN

ANALOG IN BUFFER

RECORDING SELECTOR

RECORDING BUFFER

MICROPHONE AMPLIFIER

MONO/ STEREO

LOGIC	
DIG SW 0	SOURCE
0	CD
1	CD R/W

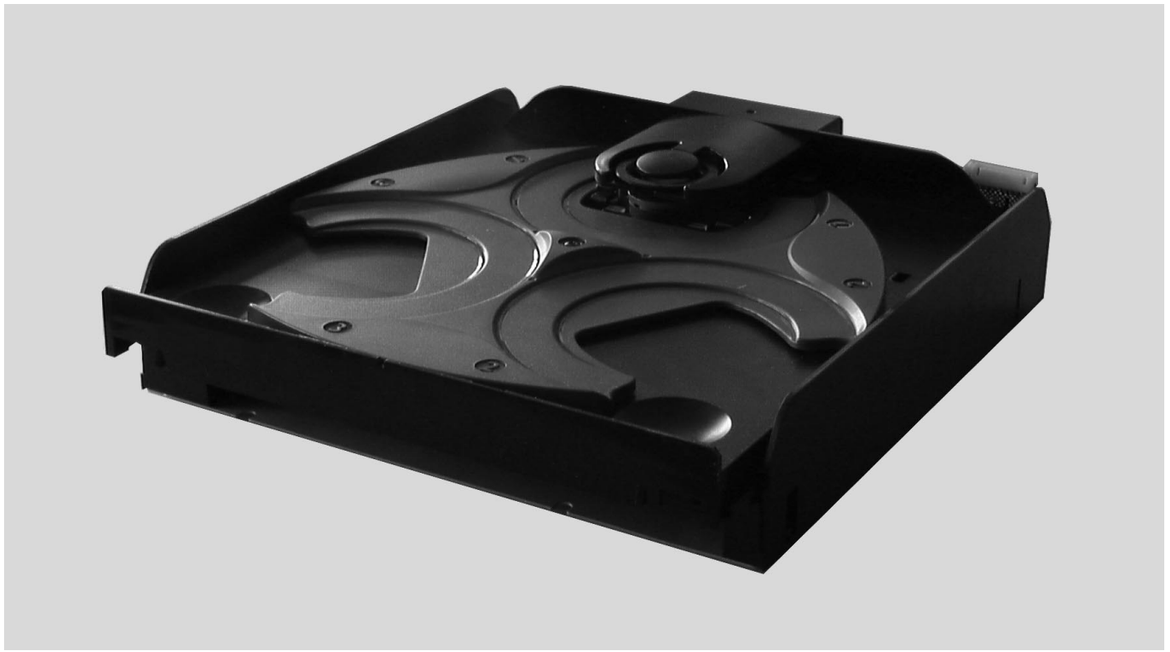
LOGIC		
ANA SW 0	ANA SW 1	SOURCE
0	0	CD
0	1	LINE IN
0	0	-
1	1	GND

+5V	5V +/- 0,25V
+3V3	3,3V
+5VS	5V
V_AMP+	5,6V
V_AMP1+	10V
-8V	-8,4 +/- 0,8V
V_AMP-	-7,1V
V_AMP1-	-7,1V

DC VOLTAGES MEASURED IN ***STOP*** MODE UNLESS STATED OTHERWISE

Interface Board / Analog part, 160300

1304	G13	7332	C12
1306	H1	7335A	I10
1311A	A13	7335B	F10
1311B	D1	7336A	G3
2238	B8	7336B	H3
2321	E5	7370	H10
2322	H6	F371	E1
2325	A6	F372	E1
2327	D7	F374	H1
2330	A8	F375	H1
2331	A9	F376	H1
2332	C9	F377	I1
2333	A11	F378	D2
2334	C11	F379	A13
2335	A8	F380	A13
2361	C4	F381	H13
2362	E4	F382	A13
2365	D2	F383	G13
2366	E2	F386	H13
2367	D3	F387	H13
2368	E3		
2371	F10		
2372	I10		
2373	H12		
2374	E11		
2375	F10		
2376	I11		
2377	F12		
2378	I12		
2379	H11		
2380	F11		
2385	F3		
2386	G3		
2388	D8		
2396	C1		
2397	A5		
2398	B5		
2399	B2		
3314	G2		
3315	I2		
3321	A1		
3322	C1		
3323	B1		
3324	C1		
3325	A5		
3326	B5		
3327	A5		
3328	B5		
3330	E12		
3331	D8		
3333	I8		
3335	E7		
3336	E7		
3337	B8		
3338	C8		
3339	B8		
3341	B8		
3342	C8		
3343	A9		
3344	C9		
3345	A9		
3346	C9		
3347	A9		
3348	D9		
3349	A10		
3350	C10		
3351	A10		
3352	D10		
3353	D2		
3354	E2		
3355	B11		
3356	E11		
3357	A7		
3361	D4		
3362	E4		
3369	D2		
3371	F10		
3372	I10		
3375	F10		
3376	I11		
3377	F11		
3378	I11		
3380	B12		
3381	D12		
3383	H7		
3384	H7		
3385	H7		
3386	I7		
3387	F12		
3388	I12		
3391	H3		
3392	G4		
3393	G5		
3394	F5		
3395	G5		
3396	F5		
3397	H9		
3398	H10		
3407	B12		
3409	E2		
6325	A12		
6326	D12		
6370	I8		
6371	C12		
6372	B12		
7320	F6		
7321	A6		
7322A	F13		
7322B	G11		
7322C	F9		
7322D	I9		
7323A	C3		
7323B	E3		
7324A	A8		
7324B	C8		
7325	A10		
7326	C10		
7327	A10		
7328	C10		
7329	A11		
7330	D12		
7331	F12		



3CDC99-DS Module

(3 Disc Carousel Changer)

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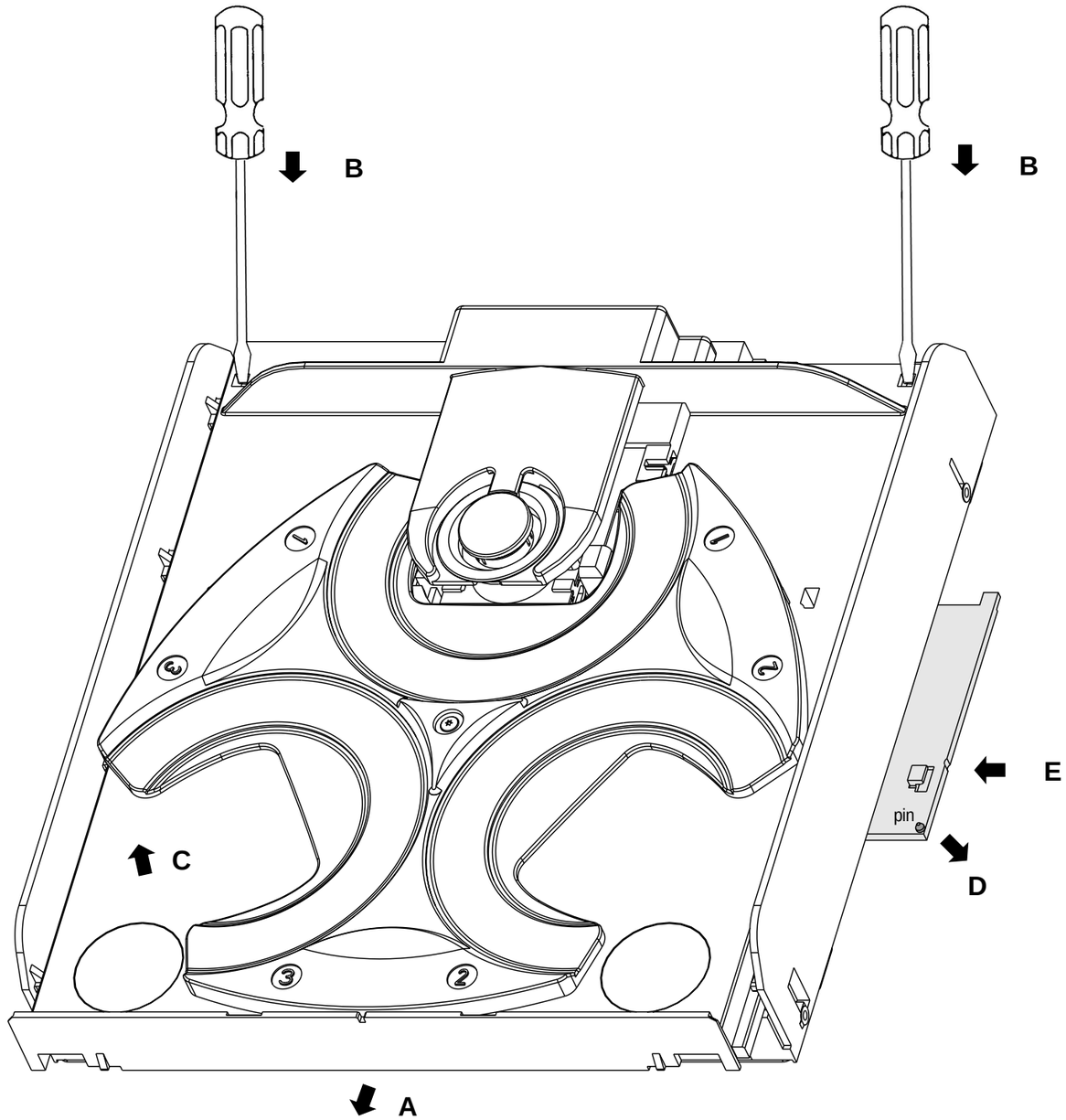
Dismantling Hints



Dismantling of Drawer

→ **A** Pull drawer outwards
→ **B** Unlock drawer with screwdriver
→ **C** Lift drawer to remove from chassis

Dismantling of Cover Plate

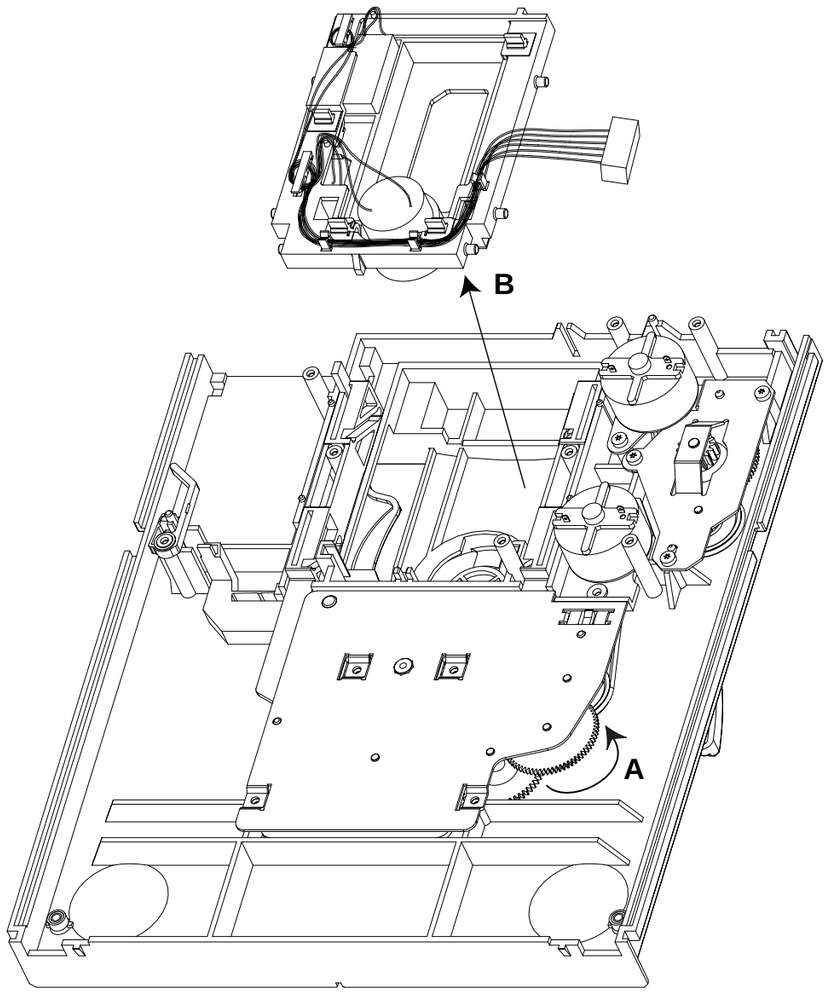
(protection for flex wire)
→ **D** Lift plate to unlock pin from bottom plate
→ **E** Move plate inwards to remove from bottom plate

Service Hints

Replacement of CD Drive

See also exploded view of changer mechanism.

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

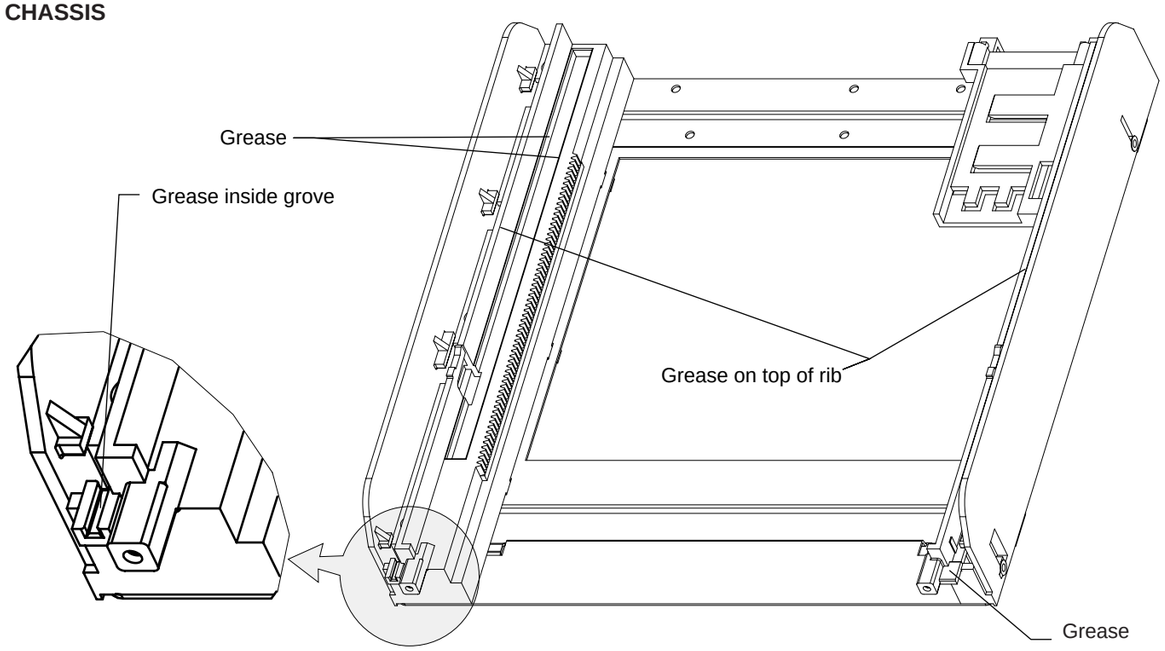


Mounting of Carousel

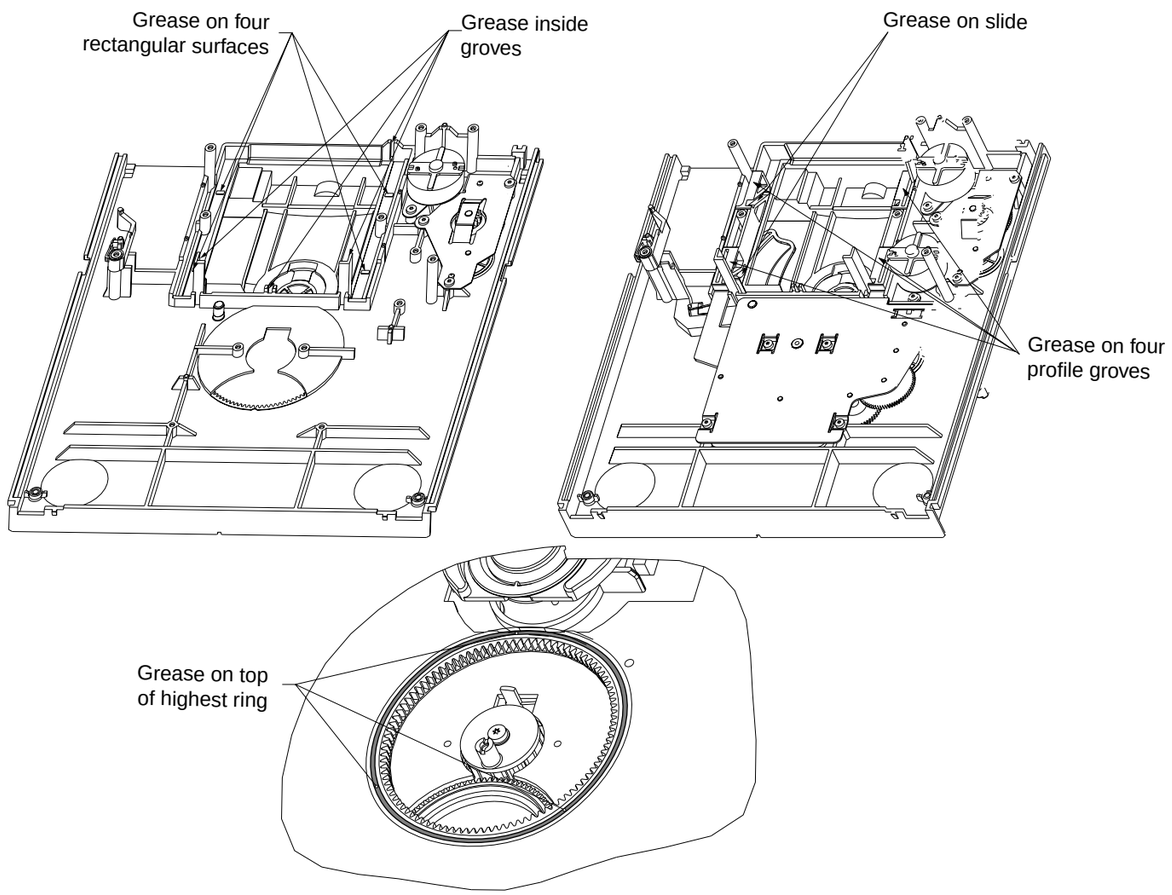
1. Turn gearwheel (pos 42) of disc change mechanism by finger until CD drive is in play position.
2. Mount carousel (pos 115) so that disc is positioned right on turntable. Carousel position number doesn´t matter.

Lubrication Instructions

CHASSIS

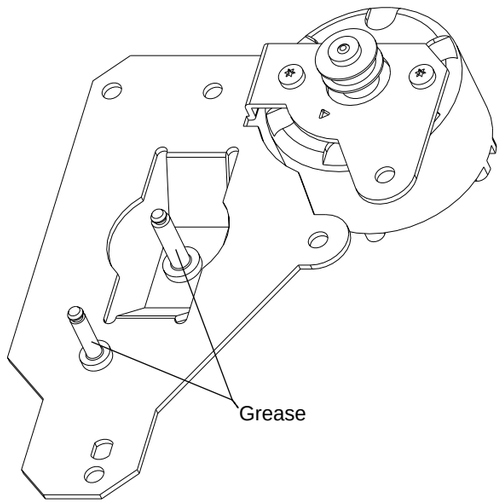


DRAWER

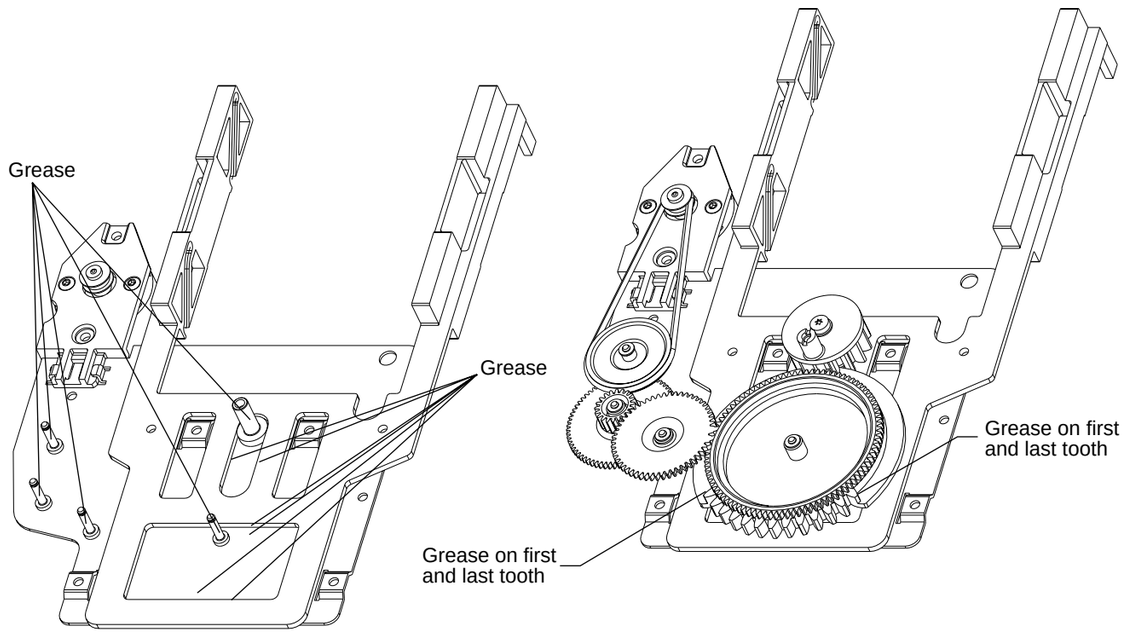


Lubrication Instructions

DRAWER MECHANISM



DISC CHANGE MECHANISM



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

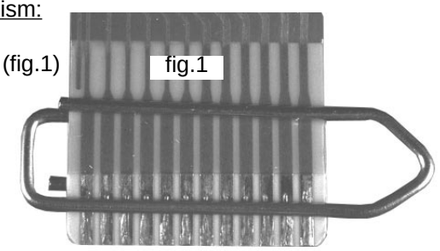
8-3

WARNING

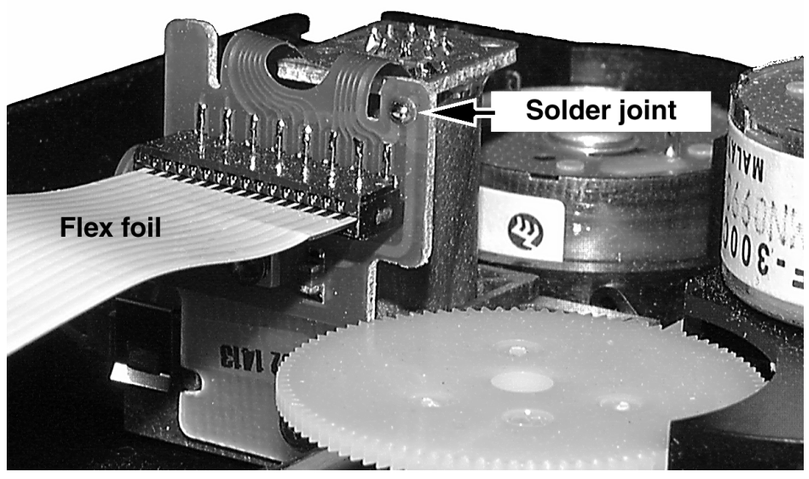
CHARGED CAPACITORS ON THE SERVO BOARD MAY DAMAGE THE CD DRIVE ELECTRONICS WHEN CONNECTING A NEW CD MECHANISM. THAT´S WHY, BESIDES THE SAFETY MEASURES LIKE
• SWITCH OFF POWER SUPPLY
• ESD PROTECTION
ADDITIONAL ACTIONS MUST BE TAKEN BY THE REPAIR TECHNICIAN.

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

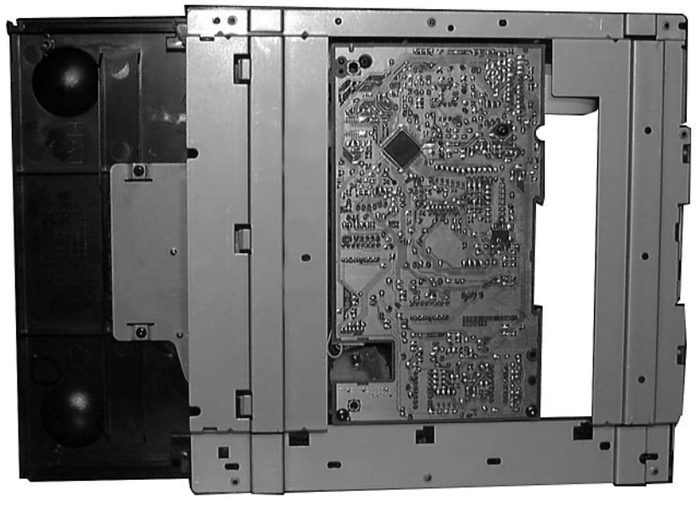
1. Disconnect flexfoil cable from old CD drive
2. Put a paper clip onto the flexfoil cable to short-circuit connections (fig.1)
3. Remove old CD drive
4. Remove paper clip from flexfoil cable
5. Connect flexfoil cable to new CD drive
6. Position new CD drive on its studs
7. Remove soldered short-circuit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



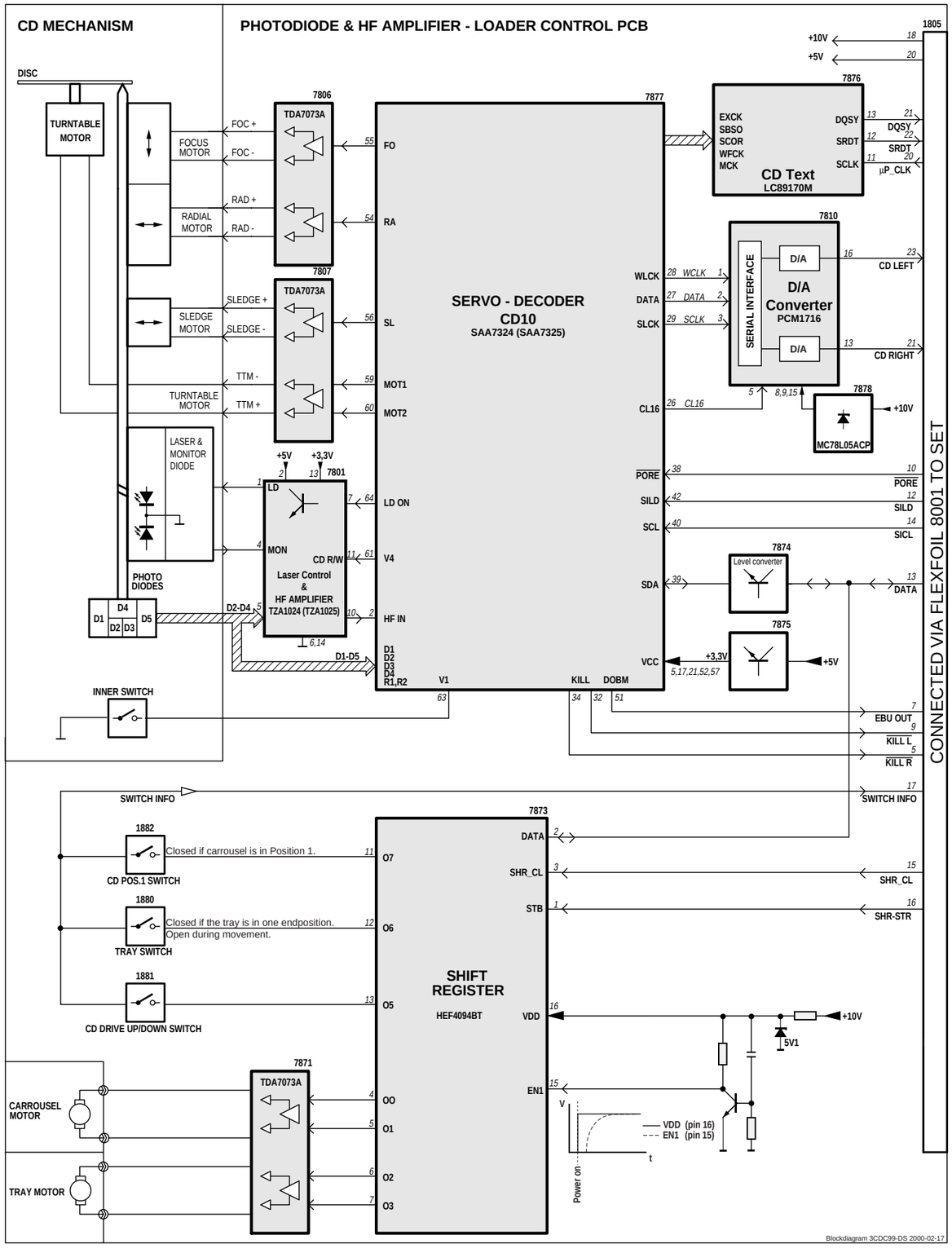
Attention: The laser diode of this CD drive is protected against ESD by a solder joint which shortcircuits the laser diode to ground.
For proper functionality of the CD drive this solder joint must be removed **after** connecting the drive to the set.



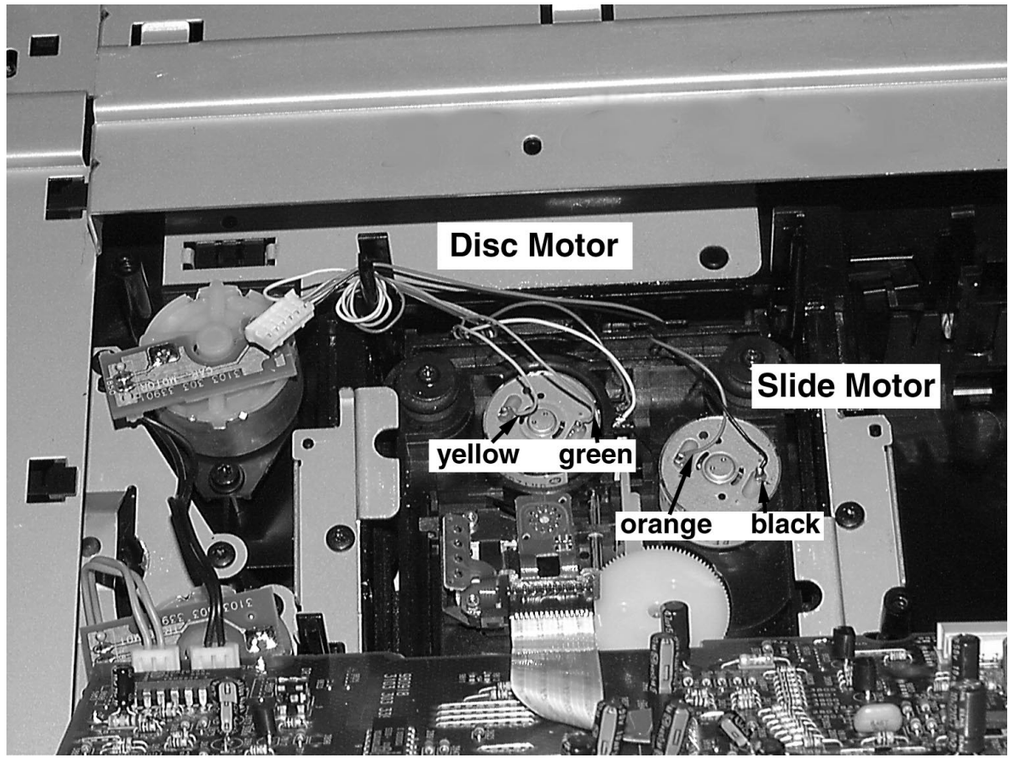
Service Position



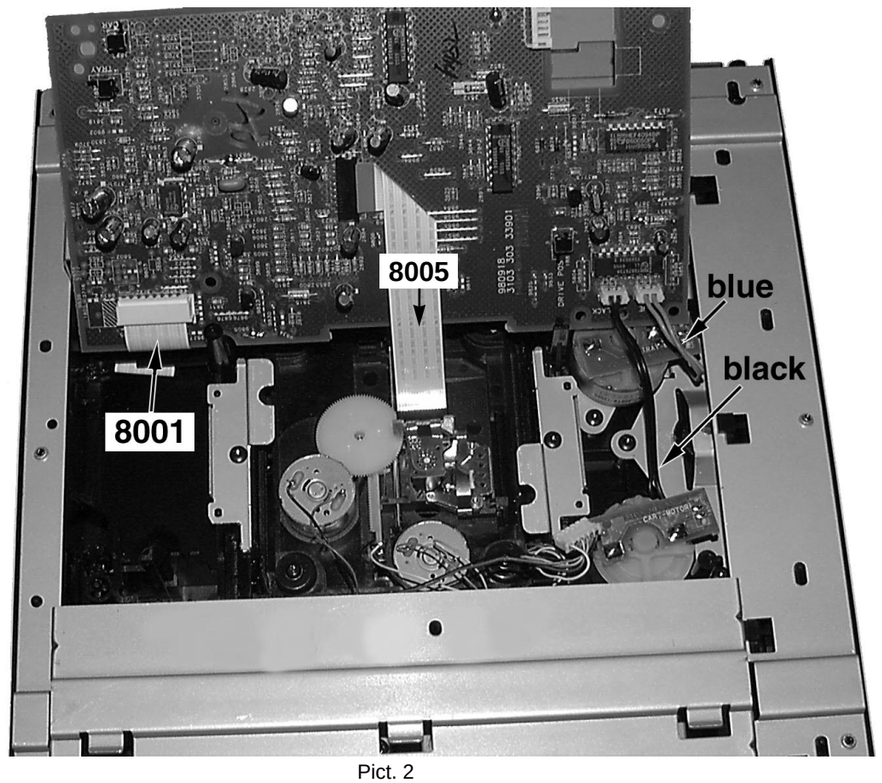
Blockdiagram



Wiring of CD Drive



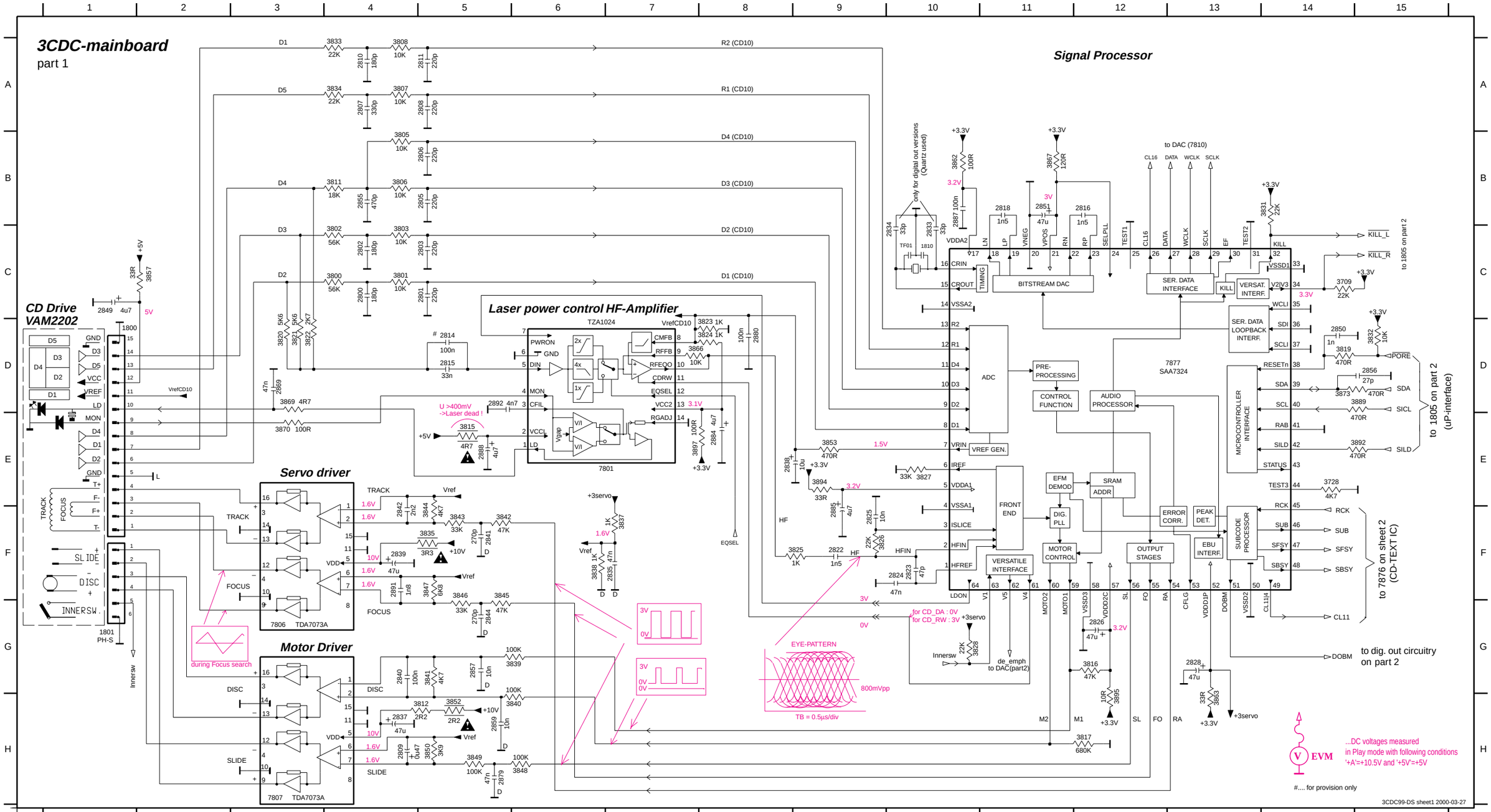
Pict. 1



Pict. 2

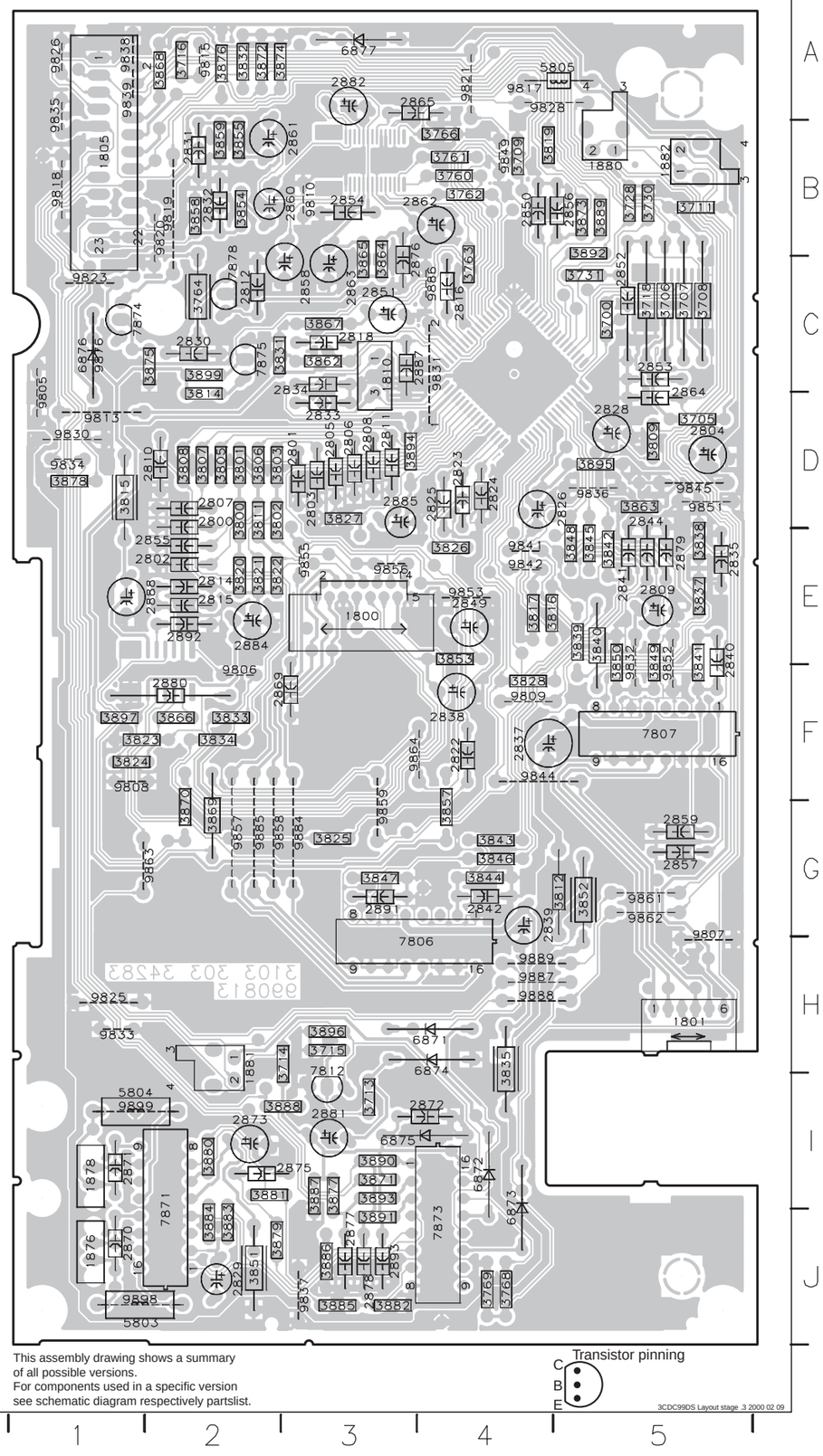
8-5

1800 D2	2803 C5	2810 A4	2822 F9	2833 C10	2840 G4	2851 B11	2879 H5	2891 F4	3802 C4	3811 B4	3820 D3	3826 F9	3834 A4	3841 G5	3847 F5	3857 C2	3870 E3	3897 E7
1801 G1	2805 B5	2811 A5	2823 F10	2834 C10	2841 F5	2855 B4	2880 D8	2892 D5	3803 C4	3812 H5	3821 D3	3827 E10	3835 F5	3842 F5	3848 H6	3862 B10	3873 D14	7801 E7
1810 C10	2806 B5	2814 D5	2824 F10	2835 F7	2842 F4	2856 D15	2884 E8	3709 C14	3805 B4	3815 E5	3822 D3	3828 G10	3837 F7	3843 F5	3849 H5	3863 H13	3889 D15	7806 G3
2800 C4	2807 A4	2815 D5	2825 F9	2837 H4	2844 G5	2857 G5	2885 F9	3728 E14	3806 B4	3816 G12	3823 D8	3831 B14	3838 F6	3844 F5	3850 H5	3866 D7	3892 E15	7807 H3
2801 C5	2808 A5	2816 B12	2826 G12	2838 E8	2849 C1	2859 H5	2887 B10	3800 C4	3807 A4	3817 H12	3824 D8	3832 D15	3839 G6	3845 F5	3852 H5	3867 B11	3894 E9	7877 D12
2802 C4	2809 H4	2818 B11	2828 G13	2839 F4	2850 D14	2869 D3	2888 E5	3801 C4	3808 A4	3819 D14	3825 F9	3833 A4	3840 H6	3846 F5	3853 E9	3869 D3	3895 H12	



8-6

3CDC99 DS Board Componentside view



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

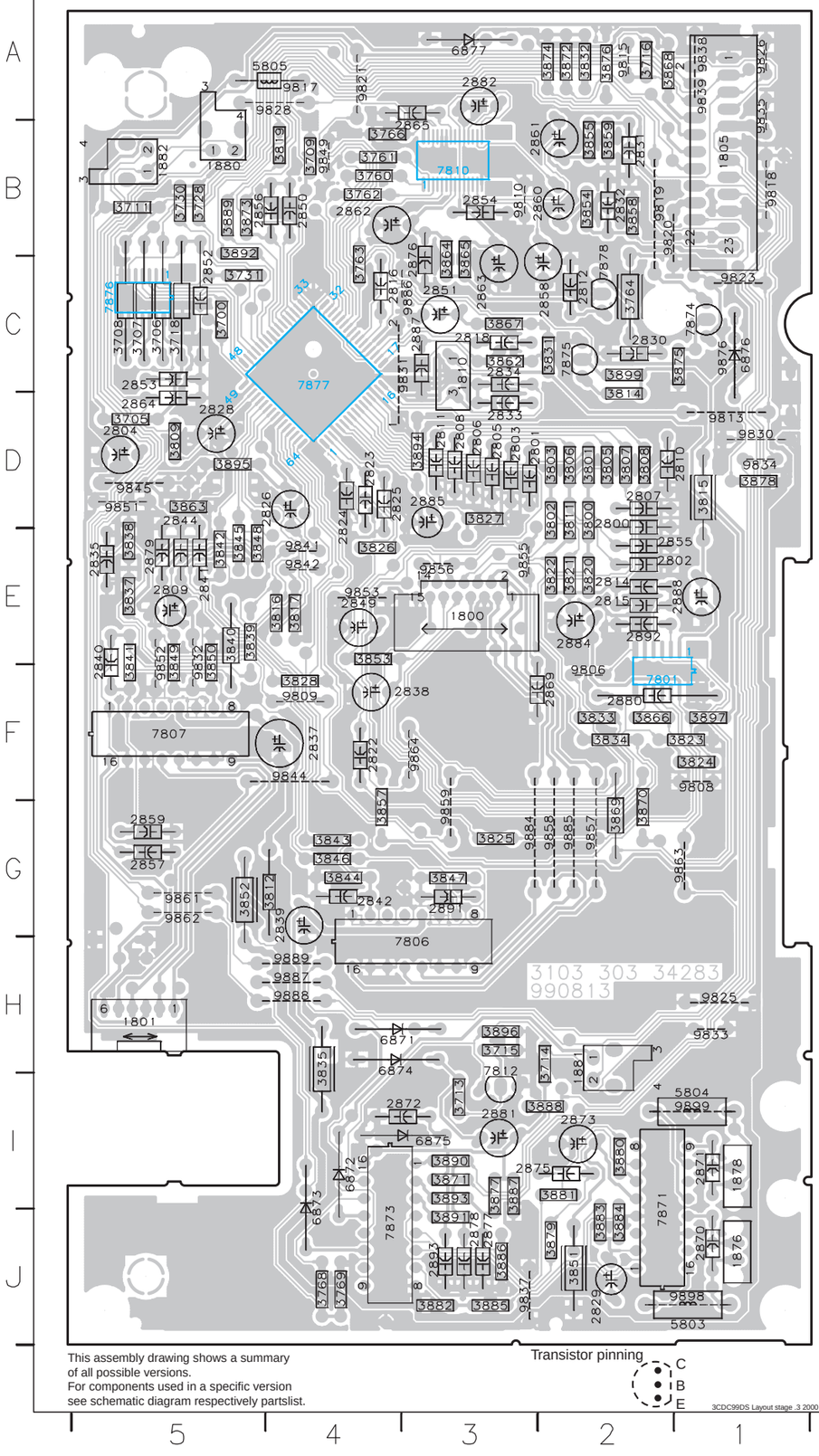
Transistor pinning

3CDC99DS Layout stage .3 2000 02 09

Mapping

1800	E3	3714	H2	3886	J3
1801	H5	3715	H3	3887	I3
1805	A1	3716	A2	3888	I3
1810	D3	3718	C5	3889	B5
1876	J1	3728	B5	3890	I3
1878	I1	3730	B5	3891	I3
1880	A5	3731	C5	3892	C4
1881	I2	3760	B3	3893	I3
1882	B5	3761	B3	3894	D4
2800	D2	3762	B3	3895	D5
2801	D3	3763	C4	3896	H3
2802	E2	3764	C2	3897	F1
2803	D3	3766	B3	3899	C2
2804	D5	3768	J4	5803	J1
2805	D3	3769	J4	5804	I1
2806	D3	3800	D2	5805	A5
2807	D2	3801	D2	6871	H4
2808	D3	3802	D3	6872	I4
2809	E5	3803	D2	6873	I4
2810	D2	3805	D2	6874	H4
2811	D3	3806	D2	6875	I4
2812	C2	3807	D2	6876	C1
2814	E2	3808	D2	6877	A3
2815	E1	3809	D5	7801	F2
2816	C4	3811	D2	7806	H3
2818	C3	3812	G4	7807	F5
2822	F4	3814	D2	7810	B3
2823	D4	3815	D1	7812	H3
2824	D4	3816	E5	7871	I1
2825	D4	3817	E4	7873	J4
2826	D4	3819	B5	7874	C1
2828	D5	3820	E2	7875	C2
2829	J2	3821	E2	7876	C5
2830	C2	3822	E3	7877	C4
2831	B2	3823	F1	7878	C2
2832	B2	3824	F1	9805	C1
2833	D2	3825	G3	9806	E2
2834	C2	3826	E4	9807	G5
2835	E5	3827	E3	9808	F1
2837	F4	3828	F4	9809	F4
2838	F4	3831	C2	9810	B3
2839	H4	3832	A2	9813	D1
2840	E5	3833	F2	9815	A2
2841	E5	3834	F2	9817	A5
2842	G4	3835	H4	9818	B1
2844	E5	3837	E5	9819	B2
2849	E4	3838	D5	9820	B2
2850	B4	3839	E5	9821	A4
2851	C3	3840	E5	9823	C1
2852	C5	3841	E5	9825	H1
2853	C5	3842	E5	9826	A1
2854	B3	3843	G4	9828	A5
2855	E2	3844	G4	9830	D1
2856	C4	3845	E5	9831	C4
2857	G5	3846	G4	9832	E5
2858	C3	3847	G3	9833	H1
2859	G5	3848	E5	9834	D1
2860	B3	3849	E5	9835	A1
2861	A2	3850	E5	9836	D5
2862	B4	3851	J2	9837	J3
2863	C3	3852	G5	9838	A1
2864	D5	3853	F4	9839	A1
2865	A3	3854	B2	9841	E4
2869	F2	3855	B2	9842	E4
2870	J1	3857	G4	9844	F4
2871	I1	3858	B2	9845	D5
2872	I4	3859	A2	9849	A4
2873	I2	3862	C3	9851	D5
2875	I3	3863	D5	9852	E5
2876	B3	3864	B3	9853	E4
2877	J3	3865	C3	9855	E3
2878	J3	3866	F2	9856	E3
2879	E5	3867	C3	9857	G2
2880	F2	3868	B2	9858	G3
2881	I3	3869	G2	9859	G3
2882	A3	3870	G2	9861	G5
2884	E2	3871	I3	9862	G5
2885	E3	3872	A2	9863	G2
2887	C4	3873	B5	9864	F3
2888	E1	3874	A3	9876	C1
2891	G3	3875	C1	9884	G3
2892	E2	3876	A2	9885	G2
2893	J3	3877	I3	9886	C3
3700	C5	3878	D1	9887	H4
3705	D5	3879	J3	9888	H4
3706	C5	3880	I2	9889	H4
3707	C5	3881	I2	9898	J1
3708	C5	3882	J3	9899	I1
3709	B4	3883	J2		
3711	B5	3884	I2		
3713	I3	3885	J3		

3CDC99 DS Board Copperside view



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

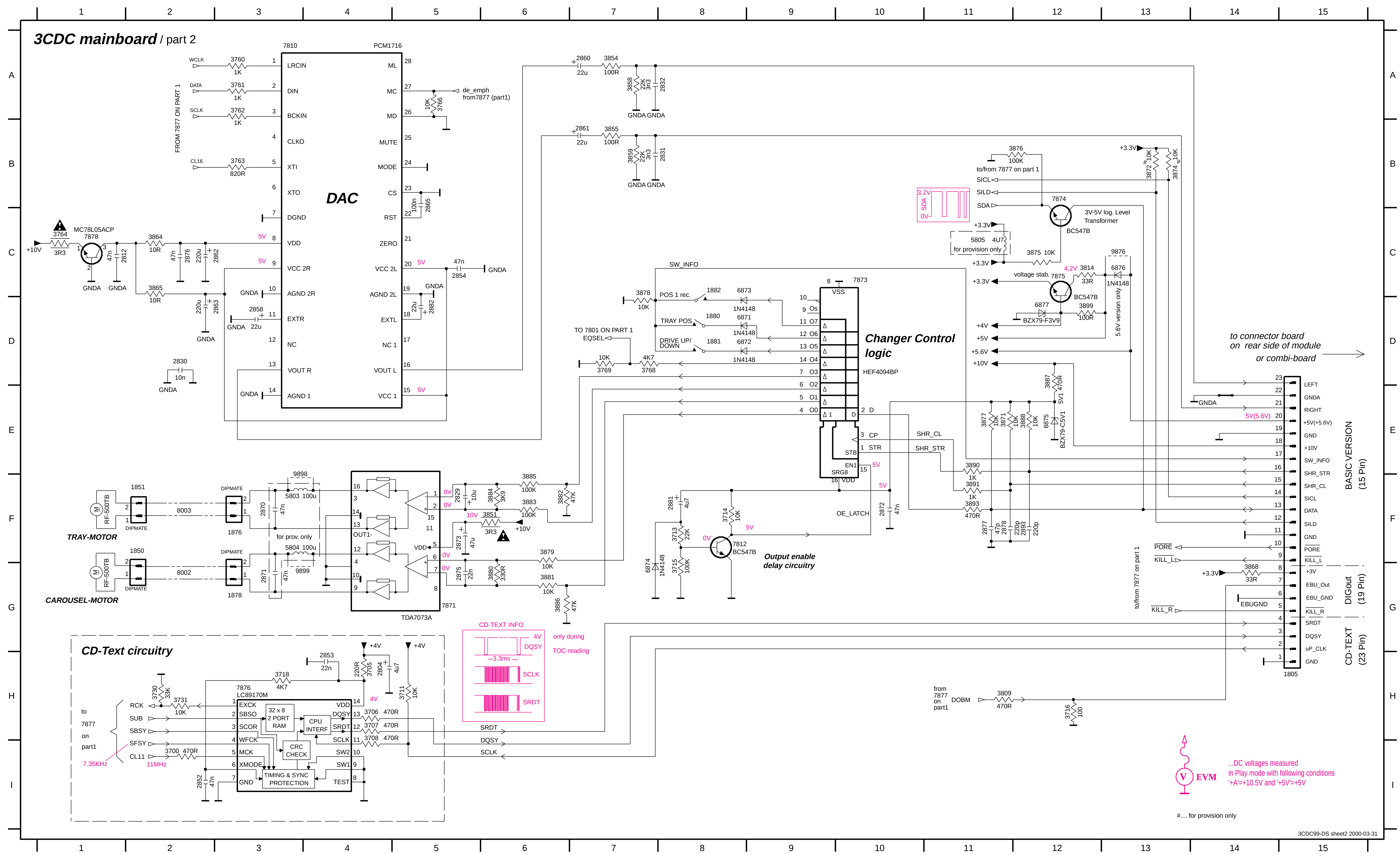
Transistor pinning

3CDC99DS Layout stage .3 2000 02 09

8-7

1805 H15	2804 H4	2852 I2	2862 C2	2872 F10	2881 F8	3707 H4	3716 H12	3762 A3	3809 H11	3859 B7	3874 B13	3880 G6	3886 G6	3896 G10	6872 D8	7810 A3	7876 H3	9839 C14
1876 F3	2812 C1	2853 H4	2863 D2	2873 F5	2882 D5	3708 H4	3718 H3	3763 B3	3814 C12	3864 C2	3875 C12	3881 G6	3887 D12	3899 D12	6873 C8	7812 F8	7878 C1	9876 C13
1878 G3	2829 F5	2854 C5	2864 H12	2875 G5	2893 F12	3711 H5	3730 H2	3764 C1	3851 F6	3865 C2	3876 B12	3882 F6	3888 E12	5803 F3	6874 G7	7871 G5	9826 H14	9898 E3
1880 D8	2830 D2	2858 D3	2865 B5	2876 C2	3700 I2	3713 F8	3731 H2	3766 A5	3854 A7	3868 G14	3877 E11	3883 F6	3890 E11	5804 F3	6875 E12	7873 C10	9834 F10	9899 G3
1881 D8	2831 B8	2860 A7	2870 F3	2877 F11	3705 H4	3714 F8	3760 A3	3768 D7	3855 B7	3871 E11	3878 C7	3884 F6	3891 F11	5805 C11	6876 C13	7874 B12	9835 G11	
1882 C8	2832 A8	2861 B7	2871 G3	2878 F11	3706 H4	3715 G8	3761 A3	3769 D7	3858 A7	3872 B13	3879 F6	3885 E6	3893 F11	6871 D8	6877 D12	7875 C12	9838 C14	

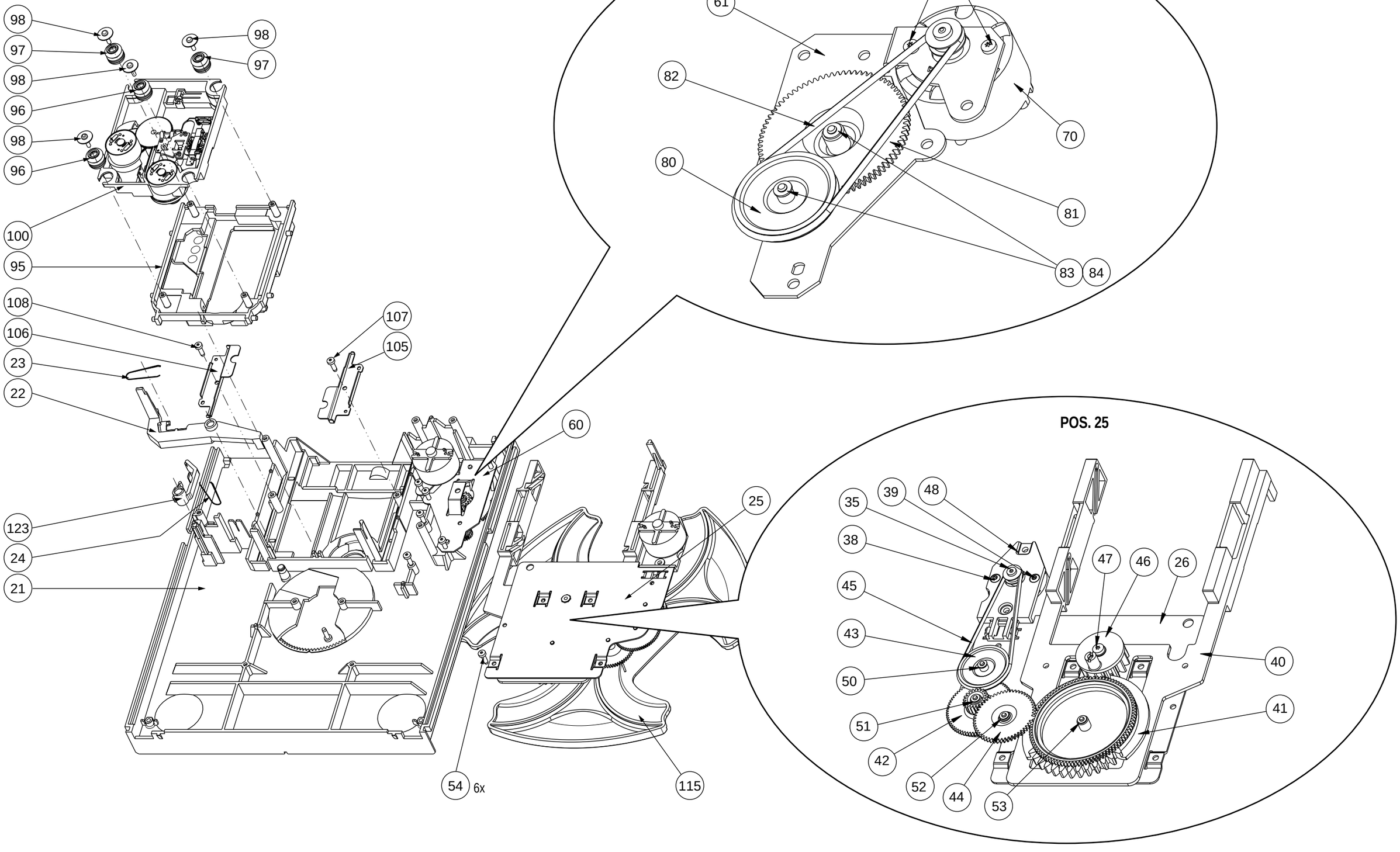
3CDC mainboard / part 2



8-8

EXPLODED VIEW / *3CDC99-DS*

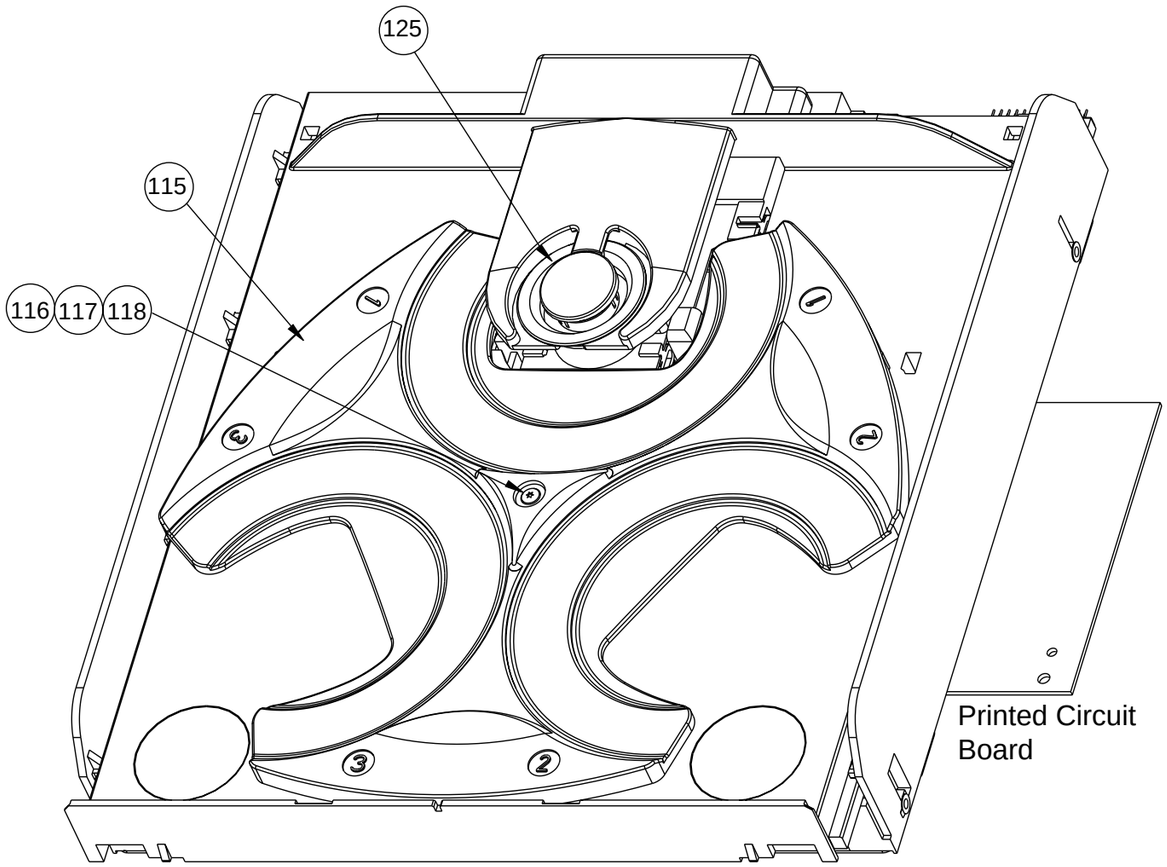
Drawer bottom view



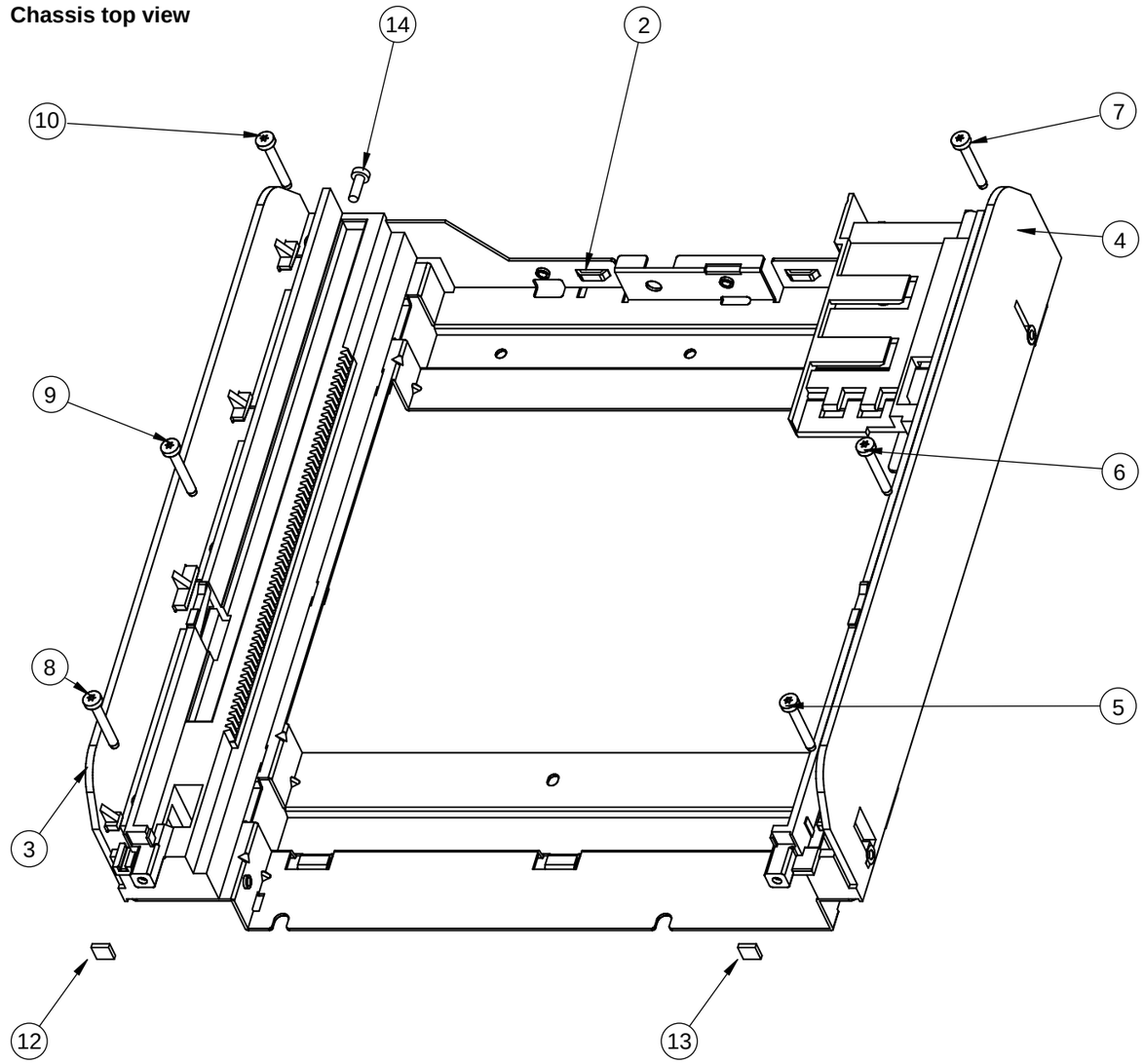
8-9

EXPLODED VIEW / *3CDC99-DS*

Module top view



Chassis top view



MECHANICAL PARTSLIST 3CDC99-DS MODULE

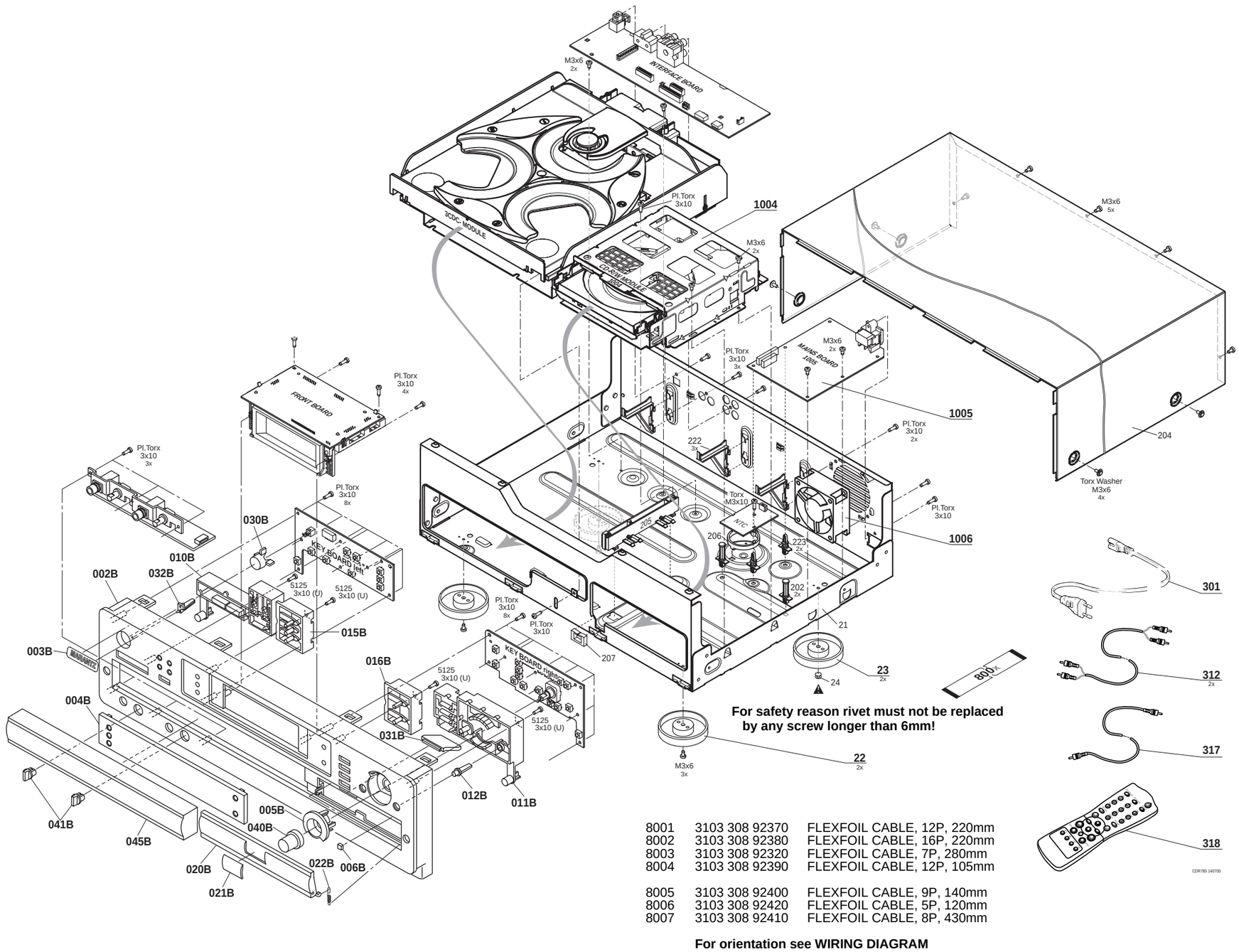
0003	4822 463 11235	GUIDING LEFT	0053	4822 532 12364	WASHER
0004	4822 463 11236	GUIDING RIGHT	0073	4822 502 12548	SCREW M2,6X3,5
0012	4822 466 12146	RUBBER	0074	4822 502 12548	SCREW M2,6X3,5
0013	4822 466 12146	RUBBER	0080	4822 528 10937	PULLEY
0021	4822 418 10403	DRAWER	0081	4822 522 10494	GEAR DRAWER
0022	4822 402 11236	BRACKET TUMBLER	0082	4822 358 10115	BELT
0023	4822 492 11721	SPRING	0083	4822 532 12364	WASHER
0024	4822 492 11721	SPRING	0084	4822 532 12364	WASHER
0038	4822 502 12548	SCREW M2,6x3,5	0095	4822 404 10985	SUPPORT-VAM
0039	4822 502 12548	SCREW M2,6X3,5	0096	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT
0040	4822 463 11237	SLIDE	0097	4822 529 10387	RUBBER DAMPER CD DRIVE, FRONT
0041	4822 522 10509	CONTROL DISC	0100	9305 022 30201	VAM2202/01
0042	4822 522 10492	GEAR WHEEL	0115	4822 466 10736	CAROUSEL
0043	4822 528 10937	PULLEY	0117	4822 532 12365	BUSH DRAWER
0044	4822 522 10493	IDLER WHEEL	0123	4822 402 11237	SWITCH-BRACKET
0045	4822 358 10115	BELT	0125	4822 401 11708	DISC CLAMP VAM DRIVE 3CDC
0046	4822 466 10735	ECCENTRIC GEAR WHEEL			
0050	4822 532 12364	WASHER			
0051	4822 532 12364	WASHER			
0052	4822 532 12364	WASHER			

10-1

EXPLODED VIEW / *apparatus*

POS. NO	VERS. COLOR	DESCRIPTION	PART NO. (MJI)
002B	/F1N	FRONT PANEL GOLD	437W248110
002B	/U1B	FRONT PANEL BLACK	437W248010
003B		BADGE MARANTZ	185J251010
004B		WINDOW	437W158010
005B	/F1N	RING EASY JOG GOLD	437W353110
005B	/U1B	RING EASY JOG BLACK	437W353010
010B	/F1N	BUTTON CHANGER PLAY/STOP GL	437W270110
010B	/U1B	BUTTON CHANGER PLAY/STOP BL	437W270010
011B	/F1N	BUTTON CD-R REC MODE GOLD	437W270120
011B	/U1B	BUTTON CD-R REC MODE BLACK	437W270020
012B		BUTTON CD-R MENU YES	437W270040
015B		BUTTON CHANGER DISC SELECT	437W270030
016B		BUTTON CD-R SOURCE SELECT	437W270130
019B		SCREW 51250310U0	nsp
020B	/F1N	FLIP DOOR CD-R GOLD	437W257110
020B	/U1B	FLIP DOOR CD-R BLACK	437W257010
021B		BADGE CD-RW LOGO	437W251010
022B		CLOSE SPRING FLIP DOOR	437W115010
030B	/F1N	BUTTON POWER ON/STANDBY GL	437W270150
030B	/U1B	BUTTON POWER ON/STANDBY BL	437W270050
031B		REC INDICATOR	437W355500
032B		STANDBY INDICATOR	437W355020
040B	/F1N	JOG KNOB GOLD	437W154110
040B	/U1B	JOG KNOB BLACK	437W154010
041B	/F1N	LEVEL MICROPHONE/HEADPHONE GL	437W154120
041B	/U1B	LEVEL MICROPHONE/HEADPHONE BL	437W154020
045B	/F1N	TRAY LID CD CHANGER GOLD	437W063110
045B	/U1B	TRAY LID CD CHANGER BLACK	437W063010
22		FOOT GOLD	183J057010
23		FOOT GOLD	183J057110
⚠ 301	/F1N	MAINS CORD JAPAN (3104 128 92620)	QW12892620
⚠ 301	/U1B	MAINS CORD NAFTA (4822 321 11466)	QP32111466
⚠ 1005	/F1N	POWER BOARD-SMPS CDR785 WW /01 (3103 308 52980)	QY30852980
⚠ 1005	/U1B	POWER BOARD-SMPS CDR785 US /17 (3103 308 52970)	QY30852970
1006		FAN KD120 6PTS 3 - C112 (3103 308 52950)	QY30852950
001T	/F1N	USER GUIDE (JPN) (3103 306 17690)	437W851110
001T	/U1B	USER GUIDE (NAFTA) (3103 306 17680)	437W851250
318		REMOTE CONTROLLER RC4160DR (3139 228 86250)	ZK436W0010

Only those parts of which a service code number is stated are normal service parts.



For safety reason rivet must not be replaced by any screw longer than 6mm!

8001	3103 308 92370	FLEXFOIL CABLE, 12P, 220mm
8002	3103 308 92380	FLEXFOIL CABLE, 16P, 220mm
8003	3103 308 92320	FLEXFOIL CABLE, 7P, 280mm
8004	3103 308 92390	FLEXFOIL CABLE, 12P, 105mm
8005	3103 308 92400	FLEXFOIL CABLE, 9P, 140mm
8006	3103 308 92420	FLEXFOIL CABLE, 5P, 120mm
8007	3103 308 92410	FLEXFOIL CABLE, 8P, 430mm

For orientation see WIRING DIAGRAM

ELECTRICAL PARTSLIST *FRONT BOARD*

MISCELLANEOUS

1400	4822 267 51453	FFC-CONNECTOR, 12P, SIDE ENTRY
1401	2422 025 14546	FFC-CONNECTOR, 16P, SIDE ENTRY
1402	4822 265 11531	FFC-CONNECTOR, 9P, SIDE ENTRY
1403	4822 267 10956	FFC-CONNECTOR, 7P, SIDE ENTRY
1405	4822 267 51453	FFC-CONNECTOR, 12P, SIDE ENTRY
7404	3103 308 52920	VFD DISPLAY, 15-BT-66GN
7415	4822 218 11573	GP1U28QP, IR-EYE

CAPACITORS

2400 ©	5322 122 32531	100pF	5%	50V
2401 ©	5322 122 32531	100pF	5%	50V
2402 ©	5322 122 32531	100pF	5%	50V
2403 ©	5322 122 32531	100pF	5%	50V
2404 ©	5322 122 32531	100pF	5%	50V
2405 ©	5322 122 32531	100pF	5%	50V
2406 ©	5322 122 32531	100pF	5%	50V
2407 ©	5322 122 32531	100pF	5%	50V
2408 ©	5322 122 32531	100pF	5%	50V
2411 ©	5322 122 32448	10pF	5%	50V
2412 ©	5322 122 32448	10pF	5%	50V
2414 ©	5322 122 31863	330pF	5%	50V
2416 ©	5322 122 31863	330pF	5%	50V
2417 ©	4822 126 13838	100nF	10%	50V
2427 ©	4822 126 13486	15pF	2%	63V
2428 ©	4822 126 13486	15pF	2%	63V
2431 ©	4822 126 14585	100nF	10%	50V
2432	4822 124 40433	47µF	20%	25V
2434	4822 124 41584	100µF	20%	10V
2435	4822 124 41751	47µF	20%	16V
2438 ©	4822 122 33177	10nF	20%	50V
2439	4822 124 40769	4,7µF	20%	100V
2440 ©	4822 126 14585	100nF	10%	50V
2441 ©	4822 122 33127	2,2nF	10%	63V
2442 ©	4822 122 33177	10nF	20%	50V
2443	4822 124 41751	47µF	20%	16V

RESISTORS

3402 ©	4822 051 20471	470Ω	5%	0,1W
3404 ©	4822 051 20223	22kΩ	5%	0,1W
3405 ©	4822 051 20223	22kΩ	5%	0,1W
3406 ©	4822 051 20223	22kΩ	5%	0,1W
3411	4822 052 10228	2,2Ω	5%	0,33W
3425 ©	4822 051 10102	1kΩ	2%	0,25W
3427	4822 052 10478	4,7Ω	5%	NFR
3428	4822 116 52263	2,7kΩ	5%	0,5W
3441 ©	4822 051 10102	1kΩ	2%	0,25W
3443	4822 050 21003	10kΩ	5%	0,2W
3449 ©	4822 051 20223	22kΩ	2%	0,25W
3451 ©	4822 117 12955	2,7kΩ	1%	0,1W
3452 ©	4822 051 20223	22kΩ	2%	0,25W
3454 ©	4822 051 20471	470Ω	5%	0,1W
3460 ©	4822 051 20471	470Ω	5%	0,1W
3464 ©	4822 051 20471	470Ω	5%	0,1W
3466 ©	4822 051 20471	470Ω	5%	0,1W
3468 ©	4822 051 20471	470Ω	5%	0,1W
3470 ©	4822 051 20332	3,3kΩ	5%	0,1W
3475 ©	4822 051 10102	1kΩ	2%	0,25W
3476 ©	4822 051 20101	100Ω	5%	0,1W
3479 ©	4822 051 20101	100Ω	5%	0,1W
3480 ©	4822 051 10102	1kΩ	2%	0,25W
3482 ©	4822 051 20101	100Ω	5%	0,1W
3483 ©	4822 051 10102	1kΩ	2%	0,25W
3485 ©	4822 051 10102	1kΩ	2%	0,25W
3486 ©	4822 051 20471	470Ω	5%	0,1W
3487 ©	4822 051 10102	1kΩ	2%	0,25W
3488 ©	4822 051 10102	1kΩ	2%	0,25W
3489 ©	4822 051 20471	470Ω	5%	0,1W

RESISTORS

3491	4822 050 11002	1kΩ	5%	0,2W
3492 ©	4822 051 10102	1kΩ	2%	0,25W
3493 ©	4822 051 10102	1kΩ	2%	0,25W
3494 ©	4822 051 20223	22kΩ	2%	0,25W
3495 ©	4822 051 20223	22kΩ	2%	0,25W
3497 ©	4822 051 10102	1kΩ	2%	0,25W
3498 ©	4822 051 10102	1kΩ	2%	0,25W
3499 ©	4822 051 10102	1kΩ	2%	0,25W
3500 ©	4822 051 10102	1kΩ	2%	0,25W
3501 ©	4822 051 10102	1kΩ	2%	0,25W
3502 ©	4822 051 20471	470Ω	5%	0,1W
3503 ©	4822 051 10102	1kΩ	2%	0,25W
3504 ©	4822 051 10102	1kΩ	2%	0,25W
3505 ©	4822 051 10102	1kΩ	2%	0,25W
3506 ©	4822 051 20471	470Ω	5%	0,1W
3507 ©	4822 051 20223	22kΩ	2%	0,25W
3508 ©	4822 051 10102	1kΩ	2%	0,25W
3509 ©	4822 051 20471	470Ω	5%	0,1W
3510	4822 116 83876	270Ω	5%	0.16W
3511	4822 116 83876	270Ω	5%	0.16W
3512	4822 116 83876	270Ω	5%	0.16W
3516	4822 116 83876	270Ω	5%	0.16W
3518	4822 116 83876	270Ω	5%	0.16W
3519	4822 052 10228	2,2Ω	5%	0,33W
3520 ©	4822 051 20101	100Ω	5%	0,1W
3523 ©	4822 051 10102	1kΩ	2%	0,25W
3524 ©	4822 117 11504	270Ω	1%	0.1W
3526 ©	4822 117 10833	10kΩ	1%	0,1W
3527 ©	4822 117 11504	270Ω	1%	0.1W
3528 ©	4822 051 10102	1kΩ	2%	0,25W
3529 ©	4822 117 11504	270Ω	1%	0.1W
3530 ©	4822 117 10833	10kΩ	1%	0,1W
3531 ©	4822 117 10837	100kΩ	1%	0,1W
3533 ©	4822 117 10833	10kΩ	1%	0,1W
3534	4822 052 10479	47Ω	5%	0,3W
3535 ©	4822 051 20471	470Ω	5%	0,1W
3537	4822 050 21003	10kΩ	2%	0,25W
3539 ©	4822 051 10102	1kΩ	2%	0,25W
3540	4822 116 52263	2,7kΩ	5%	0,5W
3545 ©	4822 117 13579	220kΩ	1%	0.1W
4401 ©	4822 051 20008	CHIP JUMPER 0805		
4403 ©	4822 051 20008	CHIP JUMPER 0805		
4404 ©	4822 051 20008	CHIP JUMPER 0805		
4405 ©	4822 051 20008	CHIP JUMPER 0805		

COILS

1406	5322 242 73686	CERAMIC RESONATOR, 12MHZ
5407	4822 157 62552	2,2µH

DIODES

6403	3198 010 53380	BZX79-B3V3
6404	4822 130 30621	1N4148
6415	4822 130 30621	1N4148
6416	4822 130 30621	1N4148

TRANSISTORS

7405 ©	4822 130 60511	BC847B
7406 ©	4822 130 60511	BC847B
7407 ©	4822 130 60511	BC847B
7408 ©	4822 130 60511	BC847B
7409 ©	4822 130 60511	BC847B
7414 ©	4822 130 60511	BC847B

INTEGRATED CIRCUITS

7412 ©	3103 308 84270	TMP88CU77F-DR450.1, µ-PROC.

ELECTRICAL PARTSLIST *KEY BOARD left*

MISCELLANEOUS

1460	4822 276 13775	TACT SWITCH
1461	4822 276 13775	TACT SWITCH
1462	4822 276 13775	TACT SWITCH
1463	4822 276 13775	TACT SWITCH
1464	4822 276 13775	TACT SWITCH
1465	4822 276 13775	TACT SWITCH
1466	4822 276 13775	TACT SWITCH
1467	4822 276 13775	TACT SWITCH
1468	4822 276 13775	TACT SWITCH
1469	4822 276 13775	TACT SWITCH
1470	4822 276 13775	TACT SWITCH
1480	4822 265 11531	FFC-CONNECTOR, 9P, SIDE ENTRY
1481	2422 128 02929	SWITCH, PUSH

CAPACITORS

2490 ©	5322 122 32531	100pF	5%	50V

RESISTORS

3589 ©	4822 051 10102	1kΩ	2%	0,25W
3590	4822 116 83868	150Ω	5%	0,5W
3591	4822 116 83872	220Ω	5%	0,5W
3592 ©	4822 117 11504	270Ω	1%	0.1W
3593 ©	4822 051 20391	390Ω	5%	0,1W
3594 ©	4822 051 20561	560Ω	5%	0,1W
3595 ©	4822 117 11454	820Ω	1%	
3596	4822 116 52207	1,2kΩ	5%	0,5W
3597 ©	4822 051 20182	1,8kΩ	5%	0,1W
3598 ©	4822 051 20392	3,9kΩ	5%	0,1W
3599 ©	4822 117 10833	10kΩ	1%	0,1W

DIODES

6426 ©	9322 147 84685	LGT770-LM, GREEN
6427 ©	9322 147 84685	LGT770-LM, GREEN
6428 ©	9322 147 84685	LGT770-LM, GREEN
6429 ©	9322 147 85685	LST770-KL, RED
6430	4822 130 30621	1N4148
6431	4822 130 30621	1N4148
6432	4822 130 30621	1N4148
6433	4822 130 30621	1N4148

ELECTRICAL PARTSLIST *KEY BOARD right*

MISCELLANEOUS

1430	4822 267 51453	FFC-CONNECTOR, 12P, SIDE ENTRY
1440	4822 276 13775	TACT SWITCH
1441	4822 276 13775	TACT SWITCH
1442	4822 276 13775	TACT SWITCH
1443	4822 276 13775	TACT SWITCH
1444	4822 276 13775	TACT SWITCH
1445	4822 276 13775	TACT SWITCH
1446	4822 276 13775	TACT SWITCH
1447	4822 276 13775	TACT SWITCH
1448	4822 276 13775	TACT SWITCH
1449	4822 276 13775	TACT SWITCH
1450	4822 276 13775	TACT SWITCH
1451	4822 276 13775	TACT SWITCH
1452	4822 276 13775	TACT SWITCH
1453	4822 276 13775	TACT SWITCH
1454	4822 276 13775	TACT SWITCH
1455	4822 276 13775	TACT SWITCH
1456	4822 276 13775	TACT SWITCH
1457	8203 303 84420	JOG ENCODER

CAPACITORS

2480 ©	5322 122 32531	100pF	5%	50V
2481 ©	5322 122 32531	100pF	5%	50V
2482 ©	4822 122 33177	10nF	20%	50V
2483 ©	4822 122 33177	10nF	20%	50V

RESISTORS

3611 ©	4822 117 11503	220Ω	5%	0,1W
3612 ©	4822 117 11503	220Ω	5%	0,1W
3613 ©	4822 117 11503	220Ω	5%	0,1W
3614 ©	4822 117 10353	150Ω	5%	0,1W
3615 ©	4822 117 10353	150Ω	5%	0,1W
3618 ©	4822 117 10353	150Ω	5%	0,1W
3619 ©	4822 117 11503	220Ω	5%	0,1W
3620 ©	4822 117 11504	270Ω	1%	0.1W
3621 ©	4822 051 20391	390Ω	5%	0,1W
3622 ©	4822 051 20561	560Ω	5%	0,1W
3623 ©	4822 117 11454	820Ω	1%	
3624 ©	4822 051 20122	1,2kΩ	5%	0,1W
3625 ©	4822 051 20182	1,8kΩ	5%	0,1W
3626 ©	4822 051 20392	3,9kΩ	5%	0,1W
3628 ©	4822 117 10353	150Ω	5%	0,1W
3629 ©	4822 117 11503	220Ω	5%	0,1W
3630 ©	4822 117 11504	270Ω	1%	0.1W
3631 ©	4822 051 20391	390Ω	5%	0,1W
3632	4822 116 83883	470Ω	5%	0,16W
3633	4822 116 83883	470Ω	5%	0,16W
3634 ©	4822 117 10833	10kΩ	1%	0,1W
3635 ©	4822 117 10833	10kΩ	1%	0,1W
3636	4822 116 52231	820Ω	5%	0,5W
3637	4822 116 52226	560Ω	5%	0,5W

DIODES

6417	4822 130 30621	1N4148
6418	4822 130 30621	1N4148
6419	4822 130 30621	1N4148
6420 ©	9322 147 85685	LST770-KL, RED
6421 ©	9322 147 84685	LGT770-LM, GREEN
6422 ©	9322 147 85685	LST770-KL, RED
6423 ©	9322 147 83685	LBT776-K1L1, BLUE
6424 ©	9322 147 83685	LBT776-K1L1, BLUE
6425 ©	9322 147 85685	LST770-KL, RED
6435 ©	9322 147 85685	LST770-KL, RED
6436 ©	9322 147 85685	LST770-KL, RED

ELECTRICAL PARTSLIST *HEADPHONE BOARD*

MISCELLANEOUS

1491	4822 267 31453	HEADPHONE SOCKET 6,3mm
1492	4822 267 31453	MICROPHONE SOCKET 6,3mm
1690	4822 265 11535	FFC-CONNECTOR, 8P, SIDE ENTRY

CAPACITORS

2661 ©	4822 122 33891	3,3nF	10%	63V
2662 ©	4822 122 33891	3,3nF	10%	63V
2663	4822 124 40433	47µF	20%	25V
2664	4822 124 40433	47µF	20%	25V
2665 ©	4822 122 33172	390pF	5%	50V
2666 ©	4822 122 33172	390pF	5%	50V
2667	4822 124 40433	47µF	20%	25V
2668	4822 124 40433	47µF	20%	25V
2671 ©	5322 122 34099	470pF	10%	63V
2672 ©	5322 122 34099	470pF	10%	63V
2673	4822 124 12032	4,7µF	20%	50V
2674	4822 124 12032	4,7µF	20%	50V
2680 ©	4822 126 14585	100nF	10%	50V
2681 ©	5322 122 31647	1nF	10%	63V
2682 ©	5322 122 31647	1nF	10%	63V
2683	4822 124 22652	2,2µF	20%	50V
2684	4822 124 22652	2,2µF	20%	50V
2685 ©	4822 122 33891	3,3nF	10%	63V
2686 ©	4822 122 33891	3,3nF	10%	63V
2687 ©	4822 122 33172	390pF	5%	50V
2688 ©	4822 122 33172	390pF	5%	50V
2689	4822 124 21913	1µF	20%	63V
2690	4822 124 21913	1µF	20%	63V
2695	4822 124 40433	47µF	20%	25V
2696	4822 124 81286	47µF	20%	16V
2697 ©	4822 126 14585	100nF	10%	50V

RESISTORS

3661	4822 101 21199	POTMETER 2x10KΩ		
3663 ©	4822 051 20229	22Ω	5%	0,1W
3664 ©	4822 051 20229	22Ω	5%	0,1W
3665 ©	4822 051 20101	100Ω	5%	0,1W
3666 ©	4822 051 20101	100Ω	5%	0,1W
3667 ©	4822 117 10833	10kΩ	1%	0,1W
3668 ©	4822 117 10833	10kΩ	1%	0,1W
3669	4822 052 10109	10Ω	5%	NFR
3670	4822 052 10688	6,8Ω	5%	0,33W
3671 ©	4822 051 20472	4,7kΩ	5%	0,1W
3672 ©	4822 051 20472	4,7kΩ	5%	0,1W
3673 ©	4822 117 10833	10kΩ	1%	0,1W
3674 ©	4822 117 10833	10kΩ	1%	0,1W
3675 ©	4822 051 10102	1kΩ	2%	0,25W
3676 ©	4822 051 10102	1kΩ	2%	0,25W
3677 ©	4822 051 10102	1kΩ	2%	0,25W
3678 ©	4822 051 10102	1kΩ	2%	0,25W
3681 ©	4822 117 10833	10kΩ	1%	0,1W
3682 ©	4822 117 10833	10kΩ	1%	0,1W
3683 ©	4822 051 20101	100Ω	5%	0,1W
3684 ©	4822 051 20101	100Ω	5%	0,1W
3685 ©	4822 117 11449	2,2kΩ	1%	0,1W
3686 ©	4822 117 11449	2,2kΩ	1%	0,1W
3687 ©	4822 051 20101	100Ω	5%	0,1W
3688 ©	4822 051 20101	100Ω	5%	0,1W
3689 ©	4822 117 10833	10kΩ	1%	0,1W
3690 ©	4822 117 10833	10kΩ	1%	0,1W
3695	4822 101 21199	POTMETER 2x10KΩ		
3696	4822 116 83883	470Ω	5%	0,16W
3697	4822 116 83883	470Ω	5%	0,16W

RESISTORS

4601 ©	4822 051 20008	CHIP JUMPER 0805
4603 ©	4822 051 20008	CHIP JUMPER 0805
4604 ©	4822 051 20008	CHIP JUMPER 0805
4605 ©	4822 051 20008	CHIP JUMPER 0805
4606 ©	4822 051 20008	CHIP JUMPER 0805

INTEGRATED CIRCUITS

7650 ©	4822 209 31378	NJM4556M, 2-FOLD OP-AMP.
7680 ©	4822 209 30095	LM833D, 2-FOLD OP-AMP.

ELECTRICAL PARTSLIST *INTERFACE BOARD*

MISCELLANEOUS

1301	4822 267 10732	FFC-CONNECTOR, 12P, TOP ENTRY
1302	2422 025 14526	FFC-CONNECTOR, 16P, TOP ENTRY
1303	4822 267 10757	FFC-CONNECTOR, 23P, TOP ENTRY
1304	4822 265 11535	FFC-CONNECTOR, 8P, SIDE ENTRY
1306	4822 267 10958	FFC-CONNECTOR, 5P, SIDE ENTRY
1311	4822 265 11151	CINCH SOCKET, 4-FOLD
1312	4822 267 31448	CINCH SOCKET, 2-FOLD
6304	4822 218 11487	OPTICAL CONNECTOR, GP1F32R

CAPACITORS

2238 ©	5322 122 32531	100pF	5%	50V
2301 ©	4822 126 14585	100nF	10%	50V
2302 ©	4822 126 14585	100nF	10%	50V
2303	4822 124 21913	1µF	20%	63V
2304 ©	4822 126 14585	100nF	10%	50V
2305 ©	4822 126 14585	100nF	10%	50V
2307	4822 124 40433	47µF	20%	25V
2309 ©	4822 126 14585	100nF	10%	50V
2310 ©	5322 122 31647	1nF	10%	63V
2311 ©	4822 126 14585	100nF	10%	50V
2312 ©	4822 126 14585	100nF	10%	50V
2313 ©	5322 122 33538	150pF	5%	63V
2321 ©	4822 126 14585	100nF	10%	50V
2322 ©	4822 126 14585	100nF	10%	50V
2325 ©	4822 126 14585	100nF	10%	50V
2327 ©	4822 126 13838	100nF	10%	50V
2330 ©	4822 126 14585	100nF	10%	50V
2331	4822 124 40248	10µF	20%	63V
2332	4822 124 40248	10µF	20%	63V
2333	4822 121 42687	3,3nF	10%	63V
2334	4822 121 42687	3,3nF	10%	63V
2335 ©	4822 126 14585	100nF	10%	50V
2340	4822 124 41584	100µF	20%	10V
2350	4822 124 40207	100µF	20%	25V
2351	4822 124 40207	100µF	20%	25V
2352 ©	4822 126 14585	100nF	10%	50V
2353 ©	4822 126 14585	100nF	10%	50V
2354 ©	4822 126 14043	1µF	20%	16V
2355 ©	4822 126 14043	1µF	20%	16V
2361	4822 124 40248	10µF	20%	63V
2362	4822 124 40248	10µF	20%	63V
2365 ©	5322 122 31863	330pF	5%	50V
2366 ©	5322 122 31863	330pF	5%	50V
2367 ©	4822 126 14585	100nF	10%	50V
2368 ©	4822 126 14585	100nF	10%	50V
2371	4822 124 40248	10µF	20%	63V
2372	4822 124 40248	10µF	20%	63V
2373 ©	4822 126 14585	100nF	10%	50V
2375 ©	5322 122 34099	470pF	10%	63V
2376 ©	5322 122 34099	470pF	10%	63V
2377 ©	4822 122 33127	2,2nF	10%	63V
2378 ©	4822 122 33127	2,2nF	10%	63V
2379 ©	4822 126 14585	100nF	10%	50V
2380 ©	4822 126 14585	100nF	10%	50V
2385 ©	4822 126 14585	100nF	10%	50V
2386 ©	4822 126 14585	100nF	10%	50V
2388 ©	5322 122 32531	100pF	5%	50V
2390	4822 124 80791	470µF	20%	16V
2391	4822 124 80791	470µF	20%	16V
2392	4822 124 80791	470µF	20%	16V
2396 ©	5322 116 80853	560pF	5%	63V
2397 ©	4822 122 33575	220pF	5%	50V
2398 ©	4822 122 33575	220pF	5%	50V

CAPACITORS

2399 ©	5322 116 80853	560pF	5%	63V
2400	4822 124 40207	100µF	20%	25V
2401	4822 124 40207	100µF	20%	25V

RESISTORS

2374 ©	4822 117 10361	680Ω	1%	0,1W
3300 ©	4822 117 10833	10kΩ	1%	0,1W
3301 ©	4822 051 10102	1kΩ	2%	0,25W
3302 ©	4822 051 10102	1kΩ	2%	0,25W
3303 ©	4822 117 11503	220Ω	5%	0,1W
3304 ©	4822 051 10102	1kΩ	2%	0,25W
3305 ©	4822 051 20101	100Ω	5%	0,1W
3306 ©	4822 051 20471	470Ω	5%	0,1W
3307 ©	4822 051 20561	560Ω	5%	0,1W
3309 ©	4822 051 10102	1kΩ	2%	0,25W
3311 ©	4822 117 11449	2,2kΩ	1%	0,1W
3312 ©	4822 051 20399	39Ω	5%	0,1W
3313 ©	4822 051 10102	1kΩ	2%	0,25W
3314 ©	4822 051 20479	47Ω	5%	0,1W
3315 ©	4822 051 20479	47Ω	5%	0,1W
3316 ©	4822 117 11503	220Ω	5%	0,1W
3317	4822 116 52195	47Ω	5%	0,5W
3318 ©	4822 117 10833	10kΩ	1%	0,1W
3319 ©	4822 117 10353	150Ω	5%	0,1W
3320 ©	4822 117 10353	150Ω	5%	0,1W
3321 ©	4822 117 11507	6,8kΩ	1%	0,1W
3322 ©	4822 117 11507	6,8kΩ	1%	0,1W
3323 ©	4822 117 11449	2,2kΩ	1%	0,1W
3324 ©	4822 117 11449	2,2kΩ	1%	0,1W
3325 ©	4822 051 20822	8,2kΩ	5%	0,1W
3326 ©	4822 051 20822	8,2kΩ	5%	0,1W
3327 ©	4822 051 20822	8,2kΩ	5%	0,1W
3328 ©	4822 051 20822	8,2kΩ	5%	0,1W
3329 ©	4822 117 11148	56kΩ	1%	0,1W
3330 ©	4822 117 10837	100kΩ	1%	0,1W
3331 ©	4822 051 20332	3,3kΩ	5%	0,1W
3333 ©	4822 051 10102	1kΩ	2%	0,25W
3334 ©	4822 117 10834	47kΩ	1%	0,1W
3335	4822 050 11002	1kΩ	5%	0,2W
3336	4822 050 11002	1kΩ	5%	0,2W
3337 ©	4822 051 20105	1MΩ	5%	0,1W
3338 ©	4822 051 20105	1MΩ	5%	0,1W
3339 ©	4822 051 20332	3,3kΩ	5%	0,1W
3340 ©	4822 116 83933	15kΩ	1%	0,1W
3341 ©	4822 117 10833	10kΩ	1%	0,1W
3342 ©	4822 117 10833	10kΩ	1%	0,1W
3343 ©	4822 117 10834	47kΩ	1%	0,1W
3344 ©	4822 117 10834	47kΩ	1%	0,1W
3345 ©	4822 051 20101	100Ω	5%	0,1W
3346 ©	4822 051 20101	100Ω	5%	0,1W
3347 ©	4822 117 11449	2,2kΩ	1%	0,1W
3348	4822 116 52256	2,2kΩ	5%	0,16W
3349 ©	4822 051 20101	100Ω	5%	0,1W
3350 ©	4822 051 20101	100Ω	5%	0,1W
3351 ©	4822 117 11449	2,2kΩ	1%	0,1W
3352	4822 116 52256	2,2kΩ	5%	0,16W
3353	4822 050 11002	1kΩ	5%	0,2W
3354	4822 050 11002	1kΩ	5%	0,2W
3355 ©	4822 117 10833	10kΩ	1%	0,1W
3356 ©	4822 117 10833	10kΩ	1%	0,1W
3357	4822 050 11002	1kΩ	5%	0,2W
3358	4822 116 83881	390Ω	5%	0,5W
3359	4822 116 52175	100Ω	5%	0,5W
3361 ©	4822 117 10834	47kΩ	1%	0,1W

ELECTRICAL PARTSLIST *INTERFACE BOARD*

RESISTORS

3362 ©	4822 117 10834	47kΩ	1%	0,1W
3363	4822 116 52175	100Ω	5%	0,5W
3364	4822 116 83872	220Ω	5%	0,5W
3366 ©	4822 117 10833	10kΩ	1%	0,1W
3367 ©	4822 051 20101	100Ω	5%	0,1W
3369 ©	4822 117 10834	47kΩ	1%	0,1W
3370	4822 052 10229	22Ω	5%	0,33W
3371 ©	4822 051 20101	100Ω	5%	0,1W
3372 ©	4822 051 20101	100Ω	5%	0,1W
3373 ©	4822 117 10353	150Ω	5%	0,1W
3374 ©	4822 051 20101	100Ω	5%	0,1W
3375 ©	4822 117 10833	10kΩ	1%	0,1W
3376 ©	4822 117 10833	10kΩ	1%	0,1W
3377 ©	4822 117 11449	2,2kΩ	1%	0,1W
3378 ©	4822 117 11449	2,2kΩ	1%	0,1W
3379 ©	4822 117 10833	10kΩ	1%	0,1W
3380	4822 050 21003	10kΩ	2%	0,25W
3381	4822 050 21003	10kΩ	2%	0,25W
3383	4822 116 52283	4,7kΩ	5%	0,5W
3384	4822 116 52283	4,7kΩ	5%	0,5W
3385 ©	4822 117 10833	10kΩ	1%	0,1W
3386 ©	4822 117 10833	10kΩ	1%	0,1W
3387 ©	4822 051 10102	1kΩ	2%	0,25W
3388 ©	4822 051 10102	1kΩ	2%	0,25W
3391 ©	4822 051 20105	1MΩ	5%	0,1W
3392 ©	4822 051 20105	1MΩ	5%	0,1W
3393 ©	4822 051 20822	8,2kΩ	5%	0,1W
3394 ©	4822 051 20822	8,2kΩ	5%	0,1W
3395 ©	4822 051 20822	8,2kΩ	5%	0,1W
3396 ©	4822 051 20822	8,2kΩ	5%	0,1W
3397 ©	4822 051 20683	68kΩ	5%	0,1W
3398 ©	4822 117 10833	10kΩ	1%	0,1W
3400 ©	4822 051 20471	470Ω	5%	0,1W
3402 ©	4822 117 10837	100kΩ	1%	0,1W
3406 ©	4822 051 20683	68kΩ	5%	0,1W
3407 ©	4822 117 10837	100kΩ	1%	0,1W
3408 ©	4822 051 20471	470Ω	5%	0,1W
3409 ©	4822 117 10834	47kΩ	1%	0,1W
4303 ©	4822 051 20008	CHIP JUMPER 0805		
4304 ©	4822 051 20008	CHIP JUMPER 0805		
4305 ©	4822 051 20008	CHIP JUMPER 0805		
4307 ©	4822 051 20008	CHP JUMPER 0805		
4308 ©	4822 051 20008	CHIP JUMPER 0805		
4309 ©	4822 051 20008	CHIP JUMPER 0805		
4310 ©	4822 051 20008	CHIP JUMPER 0805		
4311 ©	4822 051 20008	CHIP JUMPER 0805		
4312 ©	4822 051 20008	CHIP JUMPER 0805		
4314 ©	4822 051 20008	CHIP JUMPER 0805		
4316 ©	4822 051 20008	CHIP JUMPER 0805		
4317 ©	4822 051 20008	CHIP JUMPER 0805		
4318 ©	4822 051 20008	CHIP JUMPER 0805		
4319 ©	4822 051 20008	CHIP JUMPER 0805		
4321 ©	4822 051 20008	CHIP JUMPER 0805		
4323 ©	4822 051 20008	CHIP JUMPER 0805		
4325 ©	4822 051 20008	CHIP JUMPER 0805		
4326 ©	4822 051 20008	CHIP JUMPER 0805		
4327 ©	4822 051 20008	CHIP JUMPER 0805		
4328 ©	4822 051 20008	CHIP JUMPER 0805		

COILS

5301	2422 536 00019	TRANSFORMER, DIGITAL OUT

DIODES

6325	4822 130 30621	1N4148
6326	4822 130 30621	1N4148
6370	4822 130 30621	1N4148
6371	4822 130 30621	1N4148
6372	4822 130 30621	1N4148
6373	3198 010 53380	BZX79-B3V3

TRANSISTORS

7325 ©	4822 130 42804	BC817-25
7326 ©	4822 130 42804	BC817-25
7327 ©	4822 130 42804	BC817-25
7328 ©	4822 130 42804	BC817-25
7329 ©	4822 130 60373	BC856B
7330 ©	4822 130 60373	BC856B
7331 ©	4822 130 60373	BC856B
7332 ©	4822 130 60373	BC856B
7340 ©	4822 130 60373	BC856B
7341 ©	4822 130 60511	BC847B
7370 ©	4822 130 60373	BC856B
7371	4822 130 40959	BC547B

INTEGRATED CIRCUITS

7301 ©	4822 209 17235	74LVU04D, 6-FOLD INVERTER
7302	4822 209 10263	HEF4052BP, SELECTOR IC
7303	5322 209 10576	HEF4053BP, SELECTOR IC
7320	4822 209 10263	HEF4052BP, SELECTOR IC
7321	4822 209 10263	HEF4052BP, SELECTOR IC
7322 ©	5322 209 14542	HEF4066BT, 4-FOLD SWITCH
7323 ©	4822 209 30095	LM833D, 2-FOLD OP-AMP.
7324 ©	4822 209 30095	LM833D, 2-FOLD OP-AMP.
7335 ©	4822 209 30095	LM833D, 2-FOLD OP-AMP.
7336 ©	4822 209 30095	LM833D, 2-FOLD OP-AMP.

ELECTRICAL PARTSLIST *3CDC99-DS MODULE*

MISCELLANEOUS

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

CAPACITORS

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

CAPACITORS

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

RESISTORS

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

ELECTRICAL PARTSLIST *3CDC99-DS MODULE*

RESISTORS

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

RESISTORS

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

COILS

1810	4822 242 10849	CRYSTAL 8,46MHz

DIODES

6871	4822 130 30621	1N4148
6872	4822 130 30621	1N4148
6873	4822 130 30621	1N4148
6874	4822 130 30621	1N4148
6875	3198 010 55180	DIO REG BZX79-B5V1
6877	3198 010 53980	DIO REG BZX79-B3V9

TRANSISTORS

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

INTEGRATED CIRCUITS

7801 ©	4822 209 17286	TZA1024T/N1, HF-AMPLIFIER
7806	9352 628 49112	IC TDA7073A/N4, SERVO DRIVER
7807	9352 628 49112	IC TDA7073A/N4, MOTOR DRIVER
7810 ©	8203 303 11278	PCM1716, D/A CONVERTER
7871	9352 628 49112	IC TDA7073A/N4, MOTOR DRIVER
7873	5322 209 10421	HEF4094BP, SHIFT REGISTER
7876 ©	4822 209 16143	LC89170M, CD TEXT IC
7877 ©	9352 641 80557	SAA7324H/M2B, CD10 SIGNAL PROC.
7878	4822 209 72042	MC78L05ACP, STABILIZER