Portable CD-player with MP3/WMA playback EXP7361

all versions

Service
Service
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PRODUCT FAMILY EXPANIUM 7

Service Manual

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CLASS 1 LASER PRODUCT

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Version 1.0

PHILIPS

TECHNICAL SPECIFICATION

General

Dimensions (W x H x D) : 133 x 15.5 x 133mm
Weight without batteries : 150g

Power supply modes

DC-in socket (for play-mode) : 2.9..7.0V
DC-in socket (for charge-mode) : 3.6..7.0V
Primary batteries (battery box) : 1.7..3.2V
Rechargeable batteries (AY3365) : 1.7..3.2V
Voltage protection DC-in socket : -14.5..+14.5V

Battery lifetime

BATTERY LIFETIME	CDDA	MP3/WMA
Primary batteries 2 x LR06	≥23h (45h typ.)	≥39h (68h typ.)
Rechargeable batteries AY3365 (1200mAh)	≥10h (20h typ.)	≥16h (28h typ.)

Battery level detection

DETECTION LEVEL	Primary batteries	Rechargeable batteries
Battery empty	1.7V ±100mV	1.7V ±100mV
Battery weak 1	battery empty level + 0.9V ±100mV	battery empty level + 0.7V ±100mV
Battery weak 2	battery empty level + 0.6V ±100mV	battery empty level + 0.5V ±100mV
Battery weak 3	battery empty level + 0.3V ±100mV	battery empty level + 0.3V ±100mV

Charge section (not on all versions)

Charge current : 250mA ±10%
Charge time for 80% AY3365 : 4.0h nom.
Charge time for 100% AY3365 : 6.0h nom.
Max. charge time (µP controlled) : 7h
Temperature protection : 50°C ±5°C

Current consumption

CURRENT CONSUMPTION	DC-IN (4.5V)	BATT. SUPPLY (2.25V)		
	PSM/ESP off	PSM on-phase	PSM off-phase	PSM avgerage
Play-mode	89mA typ.	120mA typ.	40mA typ.	83mA typ.
Jump-mode	300mA typ.	250mA typ.		
Charge-mode	280mA typ.	n/a		
Tuner-mode	50mA typ.	37mA typ.		
Stand-by (excl. recharge)	21mA typ.	0.45mA typ.		

1) off-phase means servos switched off and audio data is played back from ESP memory

Headphone out CD/MP3/WMA (16Ω load, DBB/ESP=off)

Output power (THD≤10%)
/17 version only : 2x5mW (+2/-3dB)
all other versions : 2x2.5mW (+1/-3dB)
Frequency response (1mW) : 100Hz-20kHz within 6dB
S/N ratio (unwght) : ≥80dB (83dB typ.)
S/N ratio (A-wght) : ≥82dB (85dB typ.)
THD+N (1kHz, 1mW) : ≤1% (0.2% typ.)
Channel crosstalk (1kHz, no load) : ≤-24dB (-30dB typ.)
Channel unbalance (-40dB) : ≤5dB
Volume attenuation (1kHz) : ≥60dB

Sound presets

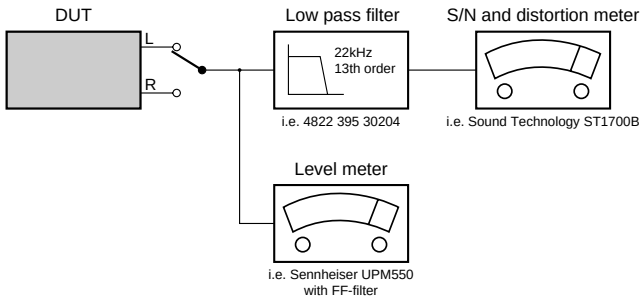
SOUND PRESET	Frequency response		
	63kHz	1kHz	10kHz
DBB1	+6dB ±2dB	0dB ±2dB	0dB ±2dB
DBB2	+12dB ±2dB	0dB ±2dB	+5dB ±2dB

Laser

Output power : <5mW (3mW typ.)
Wavelength : 780nm

Measurement setup CD/MP3/WMA

Use Audio Signal disc SBC429 4822 397 30184



FM-Tuner

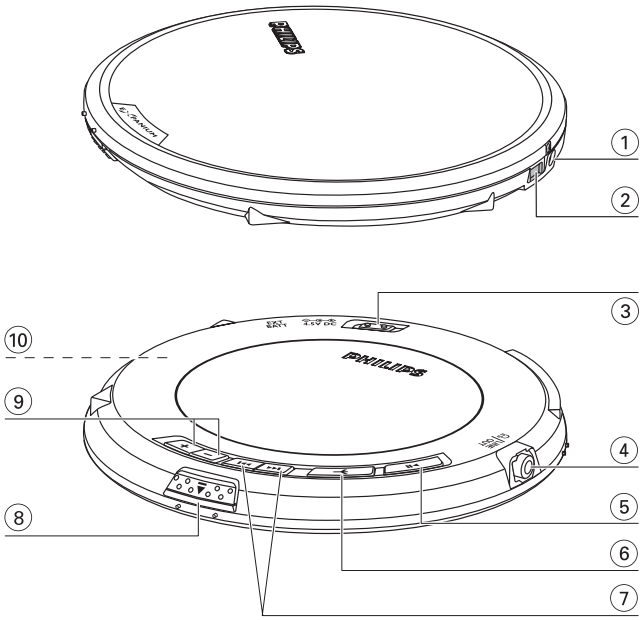
Tuning range : 87.5..108MHz
Tuning grid : 50kHz (100kHz for /17)
IF : 225kHz
Sensitivity (26dB S/N, m=30%) : ≤22dBf (15dBf typ.)
-3dB limiting point : ≤26dBf (15dBf typ.)
Distortion (rf=1mV, Δf=75kHz) : ≤7% (2% typ.)

Headphone out Tuner (16Ω load, DBB/ESP=off)

Output power (THD≤10%)
/17 version only : 2x5mW (+2/-3dB)
all other versions : 2x3mW (+1/-3dB)
Frequency response : 100Hz-9kHz within 6dB
S/N ratio stereo (A-wght) : ≥52dB (55dB typ.)
THD+N (1kHz, 0dB) : ≤1% (0.4% typ.)
Channel crosstalk (1kHz, no load) : ≤-22dB (-25dB typ.)
Channel unbalance (1kHz, 0dB) : ≤5dB

CONNECTIONS AND CONTROLS

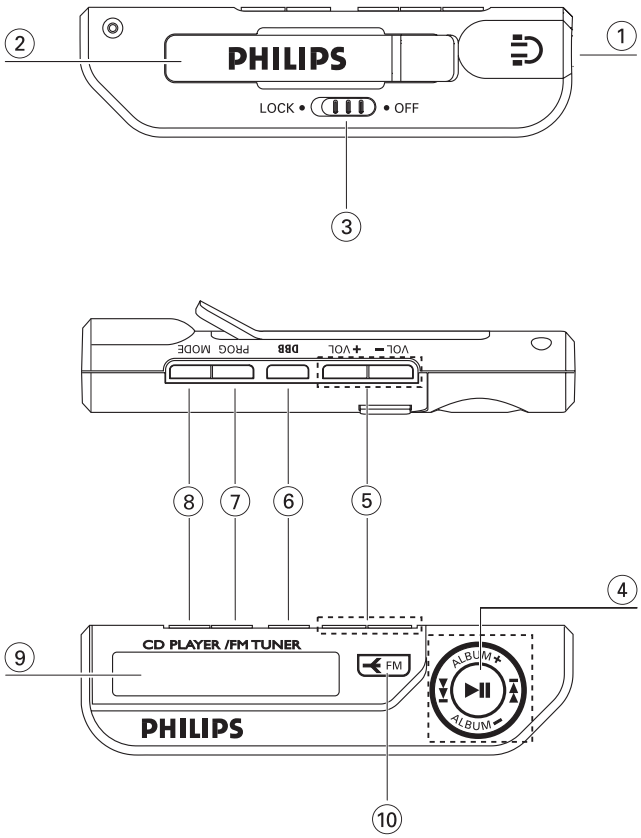
Portable CD-player EXP7361



①	4.5V DC	jack for AC/DC adaptor power supply
②	EXT. BATT	jack for external battery supply
③	LOCK•UNLOCK	locks/unlocks all buttons on the set only
④	🎧 / LINE OUT	connect the remote control here and your headphones to the remote control
⑤	▶II	switches the player on, starts or pauses CD play; stops CD play, clears a program or switches the player off. Press and hold ▶II for 2 seconds to enter stop mode.
⑥	⏾	switches radio on/off.
⑦	⏮ / ⏭	skips and searches backward / forward tracks; (FM) tunes to stations
⑧	• • ⏏ • •	opens the CD lid
⑨	VOL +/–	adjusts the volume
⑩	Rechargeable battery compartment inside the CD player	

The model & serial numbers are located inside the battery compartment.

Remote Control AY3786



①	🎧	3.5mm headphone jack
②	Clip	
③	LOCK•OFF	locks/unlocks all buttons on the remote control
④	⏮ / ⏭	skips and searches backward / forward tracks; (FM) tunes to stations
	▶II	switches the player on, starts or pauses CD play; stops CD play, clears a program or switches the player off. Press and hold ▶II for 2 seconds to enter stop mode.
	ALBUM +/–	MP3/WMA-CD only: • selects the previous or next album • skips backward or forward
⑤	VOL +/–	adjusts the volume
⑥	DBB	switches the bass enhancement on/off
⑦	PROG	programs tracks programs FM station presets
⑧	MODE	selects playback options; to select and enter the display function, press and hold MODE for 3 seconds.
⑨	Display	
⑩	FM	switches radio on/off

FEATURES

FEATURES OF CD-PORTABLE PRODUCT FAMILY "EXPANIUM 7"	EXP7361
	all versions
AAC / MP3 / WMA PLAYBACK	– / ● / ●
CD-REWRITABLE COMPATIBILITY	●
ELECTRONIC SKIP PROTECTION CDDA	173s
ELECTRONIC SKIP PROTECTION MP3	475s
ESP DRAM SIZE	64Mbit
POWER SAVE MODE	●
HOLD / RESUME FUNCTION	● / ●
DBB / TREBLE STAGES	2
ACOUSTIC FEEDBACK	●
PROGRAM MEMORY	99
RECHARGE FUNCTION	●
BELT CLIP	–
CORD LCD REMOTE CONTROL	●
DISPLAY BACKLIGHT	–
LINE / DIGITAL OUTPUT	– / –

ACCESSORIES

ACCESSORIES FOR CD-PORTABLE PRODUCT FAMILY "EXPANIUM 7"		EXP7361					
		/00c	/01	/05z	/10	/15	/17
AY3170/00 AC/DC Adaptor	4822 219 10617	X					
AY3170/02 AC/DC Adaptor	4822 219 10676		X				
AY3170/05 AC/DC Adaptor	3140 118 33610			X			
AY3170/10 AC/DC Adaptor	3140 118 32182				X		
JW100B/15 AC/DC Adaptor	314011833861					X	
AY3170/17 AC/DC Adaptor	4822 219 10616						X
AY3268 Carrying Pouch	3140 113 10811	X	X	X	X	X	X
AY3365 Rechargeable Batteries	3103 308 84821	X	X	X	X	X	X
AY3380 External Battery Case	3140 118 51261	X	X	X	X	X	X
AY3464 HIFI CORD (3.5mm → cinch, L-plug)	4822 320 11881	O	O	O	O	O	O
AY3501/00 Car Adaptor Cassette	4822 397 10059	O	O	O	O	O	O
AY3545/00 Car DC/DC Converter	4822 219 10033	O	O	O	O	O	O
AY3786 Cord LCD Remote Control	3103 308 55291	X	X	X	X	X	X
SBC HE570/77s Earphone (S-plug)	9082 100 01724	X	X	X	X	X	X

X...supplied with the set, O...optional available

SAFETY & WARNINGS

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 Pulsarmband 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.

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 Sicherheitsvorschriften zu beachten. Der Originalzustand des Gerätes darf nicht verändert werden. Für Reparaturen sind Originalersatzteile 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 !

SERVICE HINTS

LEAD FREE PRODUCED SET

This set is manufactured with lead-free production technology. This is also indicated by the PHILIPS-lead-free logo you find on the printed boards.

The set is produced with lead-free solder-alloy as well as with lead-free sub-parts. It can be considered as lead-free. Due to this fact some rules have to be respected by the workshop during a repair:

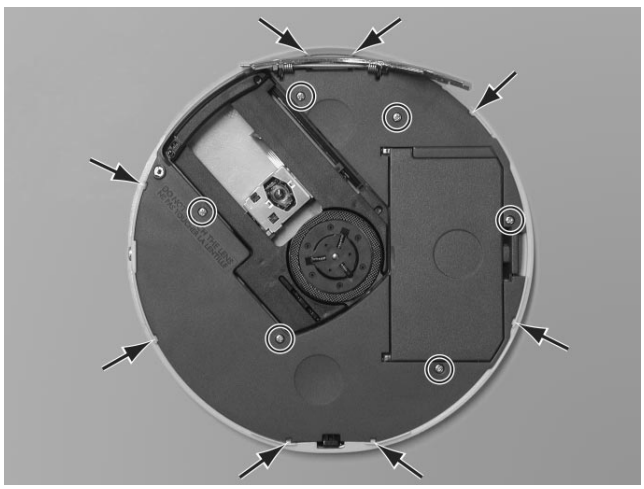
- Use only lead-free soldering-tin Philips SAC305 with order code 0622 149 00106. If lead-free solder-paste is required, please contact the manufacturer of your solder-equipment.
- Use only adequate solder tools applicable for lead-free soldering-tin.
- Adjust your solder tool so that a temperature around 217° – 220° is reached at the solder joint.
- Do not mix lead-free soldering-tin with leaded soldering-tin. This would lead to unreliable solder joints.
- On our website http://www.atyourservice.ce.philips.com you find more information to
  - aspects of lead-free technology
  - BGA-de-/soldering, heating-profiles of BGAs used in Philips-sets, and others

DISMANTLING CD-DOOR

To dismantle the CD-door proceed as follows:

1. Loosen screws on back side of player (2x)
2. Open CD-door
3. Lift CD-door

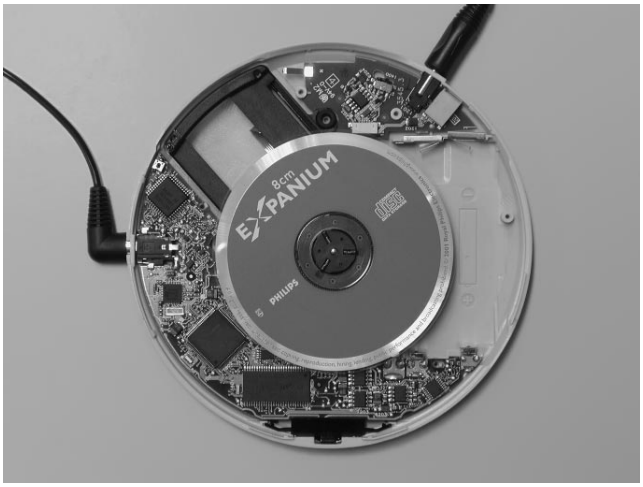
DISMANTLING CABINET



To dismantle the cabinet proceed as follows:

1. Dismantle CD-door
2. Loosen screws of cabinet (6x)
3. Release snaps from bottom to cabinet (8x)
4. Lift cabinet

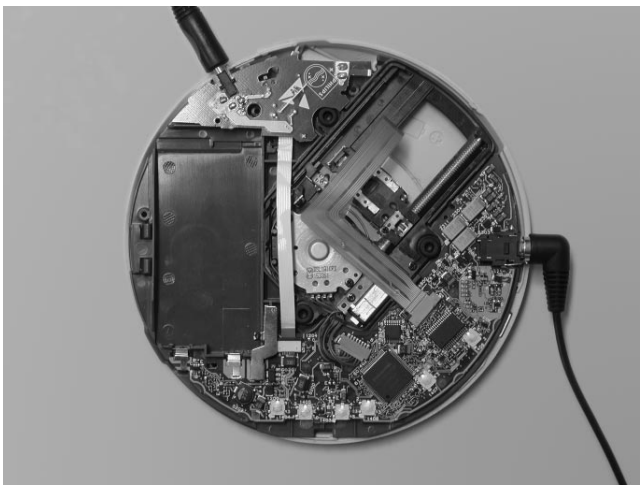
REPAIR POSITION TOP-SIDE



To get access to the top-side of the Main Board proceed as follows:

1. Dismantle CD-door
2. Dismantle cabinet
3. Supply the unit via external DC-socket
4. To carry out measurements short-circuit door-switch or start Service Test Program → Playback Test

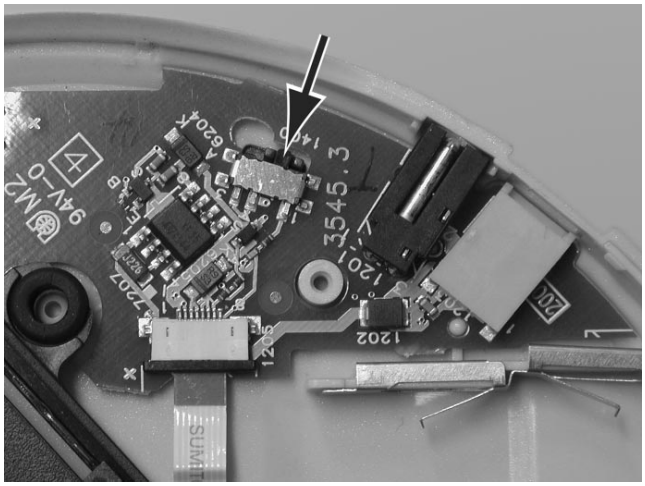
REPAIR POSITION BOTTOM-SIDE

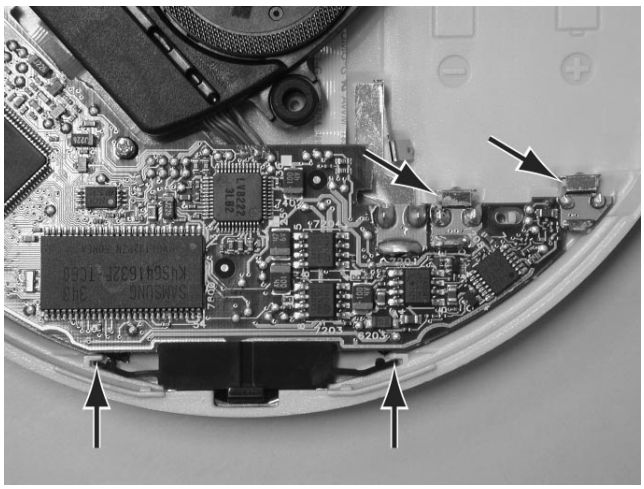


To get access to the botom-side of the Main Board proceed as follows:

1. Dismantle CD-door
2. Dismantle cabinet
3. Lift printed boards and place flipped boards into cabinet
4. Position cabinet over bottom so that CD can turn without touching other parts
5. Supply the unit via external DC-socket
6. To carry out measurements short-circuit door-switch or start Service Test Program → Playback Test

REASSEMBLING THE UNIT



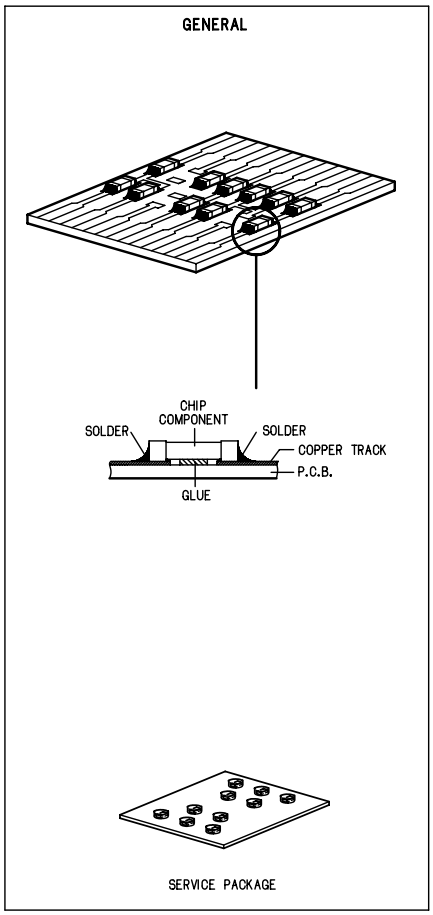


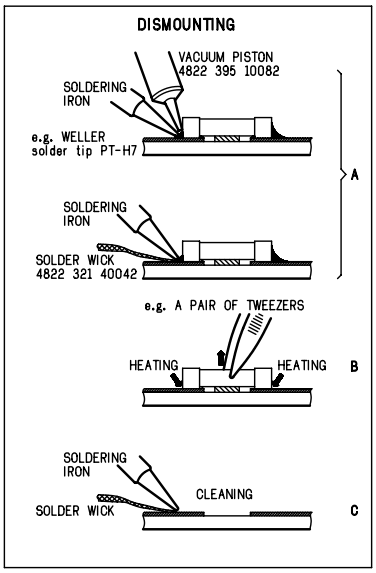
When reassembling the unit take care that

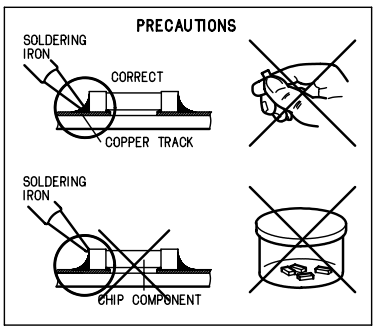
- the door-switch is operable
- lock switch & lock slider are in the correct position
- the battery spring contacts are not hidden behind studs
- the opening mechanism is locked

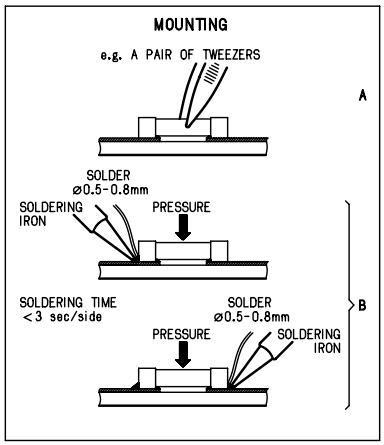
When mounting cabinet to bottom start locking snaps around the opening mechanism first.

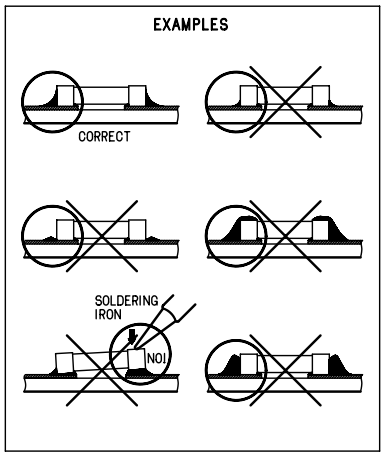
HANDLING CHIP COMPONENTS











SERVICE TOOLS

Audio signal disc SBC429	4822 397 30184
Playability test disc SBC444A	4822 397 30245
CD-RW printed audio disc	7104 099 96611
MP3 8cm disc (for testing MP3 files, bitrates: 128; 160 and 192 kbit/s)	7104 099 28271
SubChassis 8A test disc (8cm disc)	7104 099 32841

ESD PROTECTION EQUIPMENT

ESD3 KIT 4822 310 10671

- Anti-static table mat (600x650x1.25mm)
- Anti-static wristband
- Connection box (3 press stud connections, 1MΩ)
- Extendible cable (2m, 2MΩ, to connect wristband to connection box)
- Connecting cable (3m, 2MΩ, to connect table mat to connection box)
- Earch cable (1MΩ, to connect any product to table mat or to connection box)

PIN DESCRIPTION OF INTEGRATED CIRCUITS

TEA5767HN – LOW POWER FM-TUNER

Pin	*Name*	*Direction*	*Description*
1	NC1	–	no connection
2	CPOUT	FM-tuner →	charge pump output of synthesizer PLL
3	VCOTANK1	FM-tuner →	voltage controlled oscillator tuned circuit output 1
4	VCOTANK2	FM-tuner →	voltage controlled oscillator tuned circuit output 2
5	VCCVCO	→ FM-tuner	voltage controlled oscillator supply voltage
6	DGND	GND	digital ground
7	VDIG	→ FM-tuner	digital supply voltage
8	DATA	µP ↔ FM-tuner	bus data line input/output
9	CLOCK	µP → FM-tuner	bus clock line input
10	NC2	–	no connection
11	WRITE/READ	µP → FM-tuner	write/read control input for the 3-wire bus
12	BUSMODE	→ FM-tuner	bus mode select input
13	BUSENABLE	→ FM-tuner	bus enable input
14	SWPORT1	→ FM-tuner	software programmable port 1
15	SWPORT2	→ FM-tuner	software programmable port 2
16	XTAL1	→ FM-tuner	crystal oscillator input 1
17	XTAL2	→ FM-tuner	crystal oscillator input 2
18	PHASEDET	→ FM-tuner	phase detector loop filter
19	PILDET	→ FM-tuner	pilot detector low-pass filter
20	NC3	–	no connection
21	NC4	–	no connection
22	VAFL	FM-tuner → headphone amp.	left audio frequency output voltage
23	VAFR	FM-tuner → headphone amp.	right audio frequency output voltage
24	TMUTE	→ FM-tuner	time constant for soft mute
25	MPXOUT	FM-tuner →	FM demodulator MPX signal output
26	VREF	→ FM-tuner	reference voltage
27	TIFCENTER	→ FM-tuner	time constant for IF centre adjust
28	LIMDEC1	→ FM-tuner	decoupling IF limiter 1
29	LIMDEC2	→ FM-tuner	decoupling IF limiter 2
30	NC5	–	no connection
31	NC6	–	no connection
32	IGAIN	→ FM-tuner	gain control current for IF filter
33	AGND	GND	analog ground
34	VCC	→ FM-tuner	analog supply voltage
35	RFIN1	→ FM-tuner	RF input 1
36	RFGND	GND	RF ground
37	RFIN2	→ FM-tuner	RF input 2
38	CAGC	→ FM-tuner	time constant RF AGC
39	LOOPSW	FM-tuner →	switch output of synthesizer PLL loop filter
40	NC7	–	no connection

AN8399SA – HF-PREAMPLIFIER

Pin	*Name*	*Direction*	*Description*
1	PD	→ HF-preamp	input for LD output monitoring PD signals
2	LD	→ HF-preamp	external TR drive pin for driving LD
3	VCC	+HF (+2.6V)	power supply
4	RFN	→ HF-preamp	RF addition amp inverting input
5	RFOUT	HF-preamp →	RF addition amp output
6	RFIN	→ HF-preamp	AGC amp input
7	LDRCTL	→ HF-preamp	LD reference voltage control pin
8	CAGC	→ HF-preamp	AGC loop filter connection pin
9	ARF	HF-preamp →	RF after AGC output
10	CEA	→ HF-preamp	capacitor for 3T-ENV detection filter connection pin
11	3TOUT	HF-preamp →	3T-ENV detection output
12	CBDO	→ HF-preamp	capacitor for low-speed dark level BDO detection connection pin
13	BDO	HF-preamp →	BDO detection output
14	COFTR	→ HF-preamp	capacitor for low-speed off-track detection connection pin
15	OFTR	HF-preamp →	off-track detection output
16	NRFDET	HF-preamp →	RF signal amplitude detection information output
17	GND	GND	ground pin
18	SLPSW	→ HF-preamp	sleep mode control pin
19	VREF	VREF	reference voltage output (VCC / 2)
20	TEN	→ HF-preamp	TE amp inverting input
21	TEOUT	HF-preamp →	track error output
22	FEN	→ HF-preamp	FE amp inverting input
23	FEOUT	HF-preamp →	focus error output
24	GCTL	→ HF-preamp	gain & APC control pin
25	FBAL	→ HF-preamp	pin to input signal for controlling focus balance adjustment
26	TBAL	→ HF-preamp	pin to input signal for controlling tracking balance adjustment
27	E	→ HF-preamp	satellite diode signal input
28	F	→ HF-preamp	satellite diode signal input
29	D	→ HF-preamp	central diode signal input
30	B	→ HF-preamp	central diode signal input
31	C	→ HF-preamp	central diode signal input
32	A	→ HF-preamp	central diode signal input

SM8613AV – LASER DIODE DRIVER

Pin	*Name*	*Direction*	*Description*
1	LDISET	→ laser diode driver	LD drive maximum current setting resistor connection
2	NC1	–	no connection
3	MUTE	→ laser diode driver	intermittent drive stop signal
4	PCK	→ laser diode driver	intermittent control reference pulse input
5	DUTYADJ	→ laser diode driver	intermittent duty ratio adjust resistor connection
6	FLOCK	→ laser diode driver	intermittent drive control signal
7	NC2	–	no connection
8	GND	GND	ground
9	PDVIN	→ laser diode driver	laser luminosity monitor voltage input
10	NC3	–	no connection
11	LDOFF	→ laser diode driver	LD drive current control signal
12	LDIOUT	laser diode driver →	LD drive current output
13	VCC	+2.6V	supply voltage
14	RG2	laser diode driver →	APC frequency response control capacitor connection
15	NC4	–	no connection
16	RG1	→ laser diode driver	APC loop gain control resistor connection

LV8222W – PWM-DRIVER

Pin	*Name*	*Direction*	*Description*
1	RF	→ PWM-driver	output current detection pin
2	COM	PWM-driver →	common point of spindle motor
3	VS	→ PWM-driver	power supply for spindle motor driver
4	CP1	PWM-driver →	charge pump pulse output pin
5	CPC1	→ PWM-driver	pin for charge pump
6	CP2	PWM-driver →	charge pump pulse output pin
7	CPC2	→ PWM-driver	pin for charge pump
8	VG	→ PWM-driver	pin for charge pump
9	VCC	+2.6V	power supply for the small signal system circuit
10	FG	PWM-driver → µP	FG pulse output
11	FIL	→ PWM-driver	waveform synthetic signal filter pin
12	COMIN	→ PWM-driver	differential input of position detection comparator
13	S_S	µP → PWM-driver	start/stop input of spindle motor block
14	PWM	→ PWM-driver	PWM signal input of spindle motor block
15	BRK	→ PWM-driver	brake input of spindle motor block
16	MODE1	→ PWM-driver	PWM frequency switching pin of spindle motor block
17	MODE2	→ PWM-driver	soft switching characteristic select pin of spindle motor block
18	NC	–	no connection
19	RMAX	→ PWM-driver	sets maximum frequency of VCO pin
20	VCOIN	→ PWM-driver	pin to control voltage of VCO pin
21	VCO	→ PWM-driver	oscillation frequency of VCO pin
22	VGREG	→ PWM-driver	pre-drive regulator pin
23	VSMON	PWM-driver → µP	power supply voltage monitor pin
24	TGND	GND	ground of small signal system
25	GND	GND	ground of small signal system
26	CLK	µP → PWM-driver	channel 3 reverse output
27	IN3R	→ PWM-driver	logic input pin of actuator H-bridge 3
28	IN3F	→ PWM-driver	logic input pin of actuator H-bridge 3
29	IN2R	→ PWM-driver	logic input pin of actuator H-bridge 2
30	IN2F	→ PWM-driver	logic input pin of actuator H-bridge 2
31	IN1R	→ PWM-driver	logic input pin of actuator H-bridge 1
32	IN1F	→ PWM-driver	logic input pin of actuator H-bridge 1
33	VS3	+A	power supply for H-bridge 3
34	MUTE	µP → PWM-driver	H-bridge and three-phase sled mute pin
35	OUT3R	PWM-driver →	H-bridge forward/reverse output 3
36	PGND3	GND	ground of H-bridge output block 3
37	OUT3F	PWM-driver →	H-bridge forward/reverse output 3
38	OUT2R	PWM-driver →	H-bridge forward/reverse output 2
39	VS2	+A	power supply for H-bridge 2
40	PGND2	GND	ground of H-bridge output block 2
41	OUT2F	PWM-driver →	H-bridge forward/reverse output 2
42	OUT1R	PWM-driver →	H-bridge forward/reverse output 1
43	PGND1	GND	ground of H-bridge output block 1
44	VS1	+A	power supply for H-bridge 1
45	OUT1F	servo driver →	H-bridge forward/reverse output 1
46	WOUT	PWM-driver →	output pin for spindle motor
47	VOUT	PWM-driver →	output pin for spindle motor
48	UOUT	PWM-driver →	output pin for spindle motor

MN662793CF – DIGITAL SIGNAL PROCESSOR FOR CD

Pin	*Name*	*Direction*	*Description*
1	D11	signal processor ↔ DRAM	DRAM data I/O signal 11
2	D10	signal processor ↔ DRAM	DRAM data I/O signal 10
3	D9	signal processor ↔ DRAM	DRAM data I/O signal 9
4	D8	signal processor ↔ DRAM	DRAM data I/O signal 8
5	UDQM	signal processor → DRAM	SDRAM upper byte data mask signal output
6	SDRCK	signal processor → DRAM	SDRAM clock signal output
7	A11	signal processor → DRAM	DRAM address signal 11
8	A9	signal processor → DRAM	DRAM address signal 9
9	A8	signal processor → DRAM	DRAM address signal 8
10	A7	signal processor → DRAM	DRAM address signal 7
11	A6	signal processor → DRAM	DRAM address signal 6
12	A5	signal processor → DRAM	DRAM address signal 5
13	A4	signal processor → DRAM	DRAM address signal 4
14	LDQM	signal processor → DRAM	SDRAM lower byte data mask signal output
15	NWE	signal processor → DRAM	DRAM write enable signal output
16	NCAS	signal processor → DRAM	DRAM CAS control signal output
17	NRAS	signal processor → DRAM	DRAM RAS control signal output
18	NCS	signal processor → DRAM	SDRAM chip select signal output
19	A3	signal processor → DRAM	DRAM address signal 3
20	A2	signal processor → DRAM	DRAM address signal 2
21	A1	signal processor → DRAM	DRAM address signal 1
22	A0	signal processor → DRAM	DRAM address signal 0
23	DRVDD1	+RAM	power supply 1 for DRAM interface I/O
24	DVSS1	GND	ground 1 for digital circuits
25	A10	signal processor → DRAM	DRAM address signal 10
26	BA1	signal processor → DRAM	SDRAM bank selection signal output 1
27	BA0	signal processor → DRAM	SDRAM bank selection signal output 0
28	DVDD1	+1.8V	power supply 1 for internal digital circuits
29	SPOUT	signal processor → PWM-driver	spindle drive signal output (absolute value)
30	SPPOL	signal processor → PWM-driver	spindle drive signal output (polarity)
31	TRVP	signal processor → PWM-driver	traverse drive signal output (positive polarity)
32	TRVM	signal processor → PWM-driver	traverse drive signal output (negative polarity)
33	TRVP2	signal processor →	traverse drive signal output 2 (positive polarity)
34	TRVM2	signal processor →	traverse drive signal output 2 (negative polarity)
35	TRP	signal processor → PWM-driver	tracking drive signal output (positive polarity)
36	TRM	signal processor → PWM-driver	tracking drive signal output (negative polarity)
37	FOP	signal processor → PWM-driver	focus drive signal output positive polarity)
38	FOM	signal processor → PWM-driver	focus drive signal output (negative polarity)
39	IOVDD1	+DSP	power supply 1 for digital I/O
40	TBAL	signal processor → HF-preamp	tracking balance adjustment signal output
41	FBAL	signal processor → HF-preamp	focus balance adjustment signal output
42	FE	HF-preamp → signal processor	focus error signal input
43	TE	HF-preamp → signal processor	tracking error signal input
44	ADPVCC	PWM-driver → signal processor	voltage input for supply voltage monitor
45	RFENV	HF-preamp → signal processor	RF envelope signal input
46	LDON	signal processor →	laser on signal output
47	NRFDET	HF-preamp → signal processor	RF detection signal input
48	OFT	HF-preamp → signal processor	off-track signal input
49	BDO	HF-preamp → signal processor	dropout signal input
50	AVDD1	+HF (+2.6V)	power supply 1 for analog circuits
51	IREF	→ signal processor	analog reference current input
52	ARF	HF-preamp → signal processor	RF signal input
53	DSLF	→ signal processor	DSL loop filter pin
54	PWMSEL	→ signal processor	PWM output mode selection input (low=direct, high=3-state)
55	PLLF	signal processor →	PLL loop filter pin (for phase comparison)
56	PLLFO	signal processor →	PLL loop filter pin (for speed comparison)
57	AVSS1	GND	ground 1 for analog circuits
58	LOOUTL	signal processor → headphone amp.	left channel audio output for line-out output
59	LOVSS1	GND	ground 1 for line-out output
60	LOOUTR	signal processor → headphone amp.	right channel audio output for line-out output
61	LOVDD1	+3.0V	power supply 1 for line-out output
62	NTEST2	→ signal processor	headphone output control input
63	TMON1	signal processor →	left channel audio output for headphone output
64	LOVDD2	+3.0V	power supply 2 for headphone output
65	LOVSS2	GND	ground 2 for headphone output
66	TMON2	signal processor →	right channel audio output for headphone output
67	DVDD3	+1.8V	power supply 3 for digital circuits
68	DVSS2	GND	ground 2 for digital circuits
69	EXT0	signal processor ↔	expansion I/O port 0
70	EXT1	signal processor ↔	expansion I/O port 1
71	EXT2	signal processor ↔	expansion I/O port 2
72	MCLK	µP → signal processor	microcontroller command clock signal input
73	MDATA	µP → signal processor	microcontroller command data signal input
74	MLD	µP → signal processor	microcontroller command load signal input
75	STAT	signal processor → µP	status signal output
76	BLKCK	signal processor → µP	subcode block clock signal output
77	SMCK	signal processor → PWM-driver	4.2336MHz/8.4672MHz clock signal output
78	PMCK	signal processor →	88.2kHz clock signal output
79	TX	signal processor →	digital audio interface signal output
80	FLAG	signal processor →	flag signal output
81	NRST	µP → signal processor	LSI reset signal input
82	NTEST	+DSP	test mode setting input
83	DVSS3	GND	ground 3 for digital circuits
84	X1	→ signal processor	crystal oscillator circuit input
85	X2	signal processor →	crystal oscillator circuit output
86	IOVDD2	+DSP	power supply 2 for digital I/O
87	DVDD2	+1.8V	power supply 2 for internal digital circuits
88	D2	signal processor ↔ DRAM	DRAM data I/O signal 2
89	D1	signal processor ↔ DRAM	DRAM data I/O signal 1
90	D0	signal processor ↔ DRAM	DRAM data I/O signal 0
91	D3	signal processor ↔ DRAM	DRAM data I/O signal 3
92	D4	signal processor ↔ DRAM	DRAM data I/O signal 4
93	D5	signal processor ↔ DRAM	DRAM data I/O signal 5
94	D6	signal processor ↔ DRAM	DRAM data I/O signal 6
95	D7	signal processor ↔ DRAM	DRAM data I/O signal 7
96	D15	signal processor ↔ DRAM	DRAM data I/O signal 15
97	D14	signal processor ↔ DRAM	DRAM data I/O signal 14
98	DRVDD2	+RAM	power supply 2 for DRAM interface I/O
99	D13	signal processor ↔ DRAM	DRAM data I/O signal 13
100	D12	signal processor ↔ DRAM	DRAM data I/O signal 12

SERVICE TEST PROGRAM

To enter the Service Test Program proceed as follows:
1. Disconnect the AC/DC adaptor and remove batteries
2. Open the CD-door
3. Hold PLAY & NEXT buttons depressed
4. Connect the AC/DC adaptor or insert batteries

The display shows the software version (e.g. “S-1201”). The program is now in the main menu. The built-in tests can be started via dedicated buttons. See flow chart on next page for details.

table1 – error codes for playback test

CODE	ERROR	TYPE	CAUSE
1000	focus error	non fatal	Triggered when the focus is lost during playback.
1001	radial error	non fatal	Triggered when the radial servo is off-track for a certain time during playback.
1002	slide in error	non fatal	The slide did not reach its inner position (innerswitch is closed) before approximately 6 seconds have passed by – innerswitch or slidemotor problem.
1003	slide out error	non fatal	The slide did not come out of its inner position (innerswitch is open) before approximately 250ms have passed by – innerswitch or slidemotor problem.
1004	DRAM filling error	non fatal	The DRAM controller was not able to connect two consecutive audio frames. Therefore, the µP had to issue a direct audio connection that produces audible clicks.
1005	jump error	non fatal	Triggered when the jump destination could not be found within a certain time.
1006	subcode error	non fatal	No valid subcode for a certain time during play.
1007	PLL error	non fatal	The Phase-Lock-Loop could not lock within a certain time.
1008	turntable motor error	non fatal	Generated when motor speed is not within ±20% of target speed.
1009	audio error	non fatal	Uncorrectable audio error.
1010	automatic adjustment error	non fatal	Automatic gain adjustment was not successful within a certain time.
1011	focus rough gain error	non fatal	Focus rough gain adjustment was not successful within a certain time.
1020	focus search error	fatal	The focus point has not been found within a certain time.
1022	fatal subcode error	fatal	No more valid subcode information.
1030	automatic adjustment focus rough gain error	fatal	The AGC focus rough gain was not successful within a certain time.
1034 1044	automatic adjustment tracking rough gain error	fatal	The AGC tracking rough gain was not successful within a certain time.
1035 1045	automatic adjustment track balance error	fatal	The AGC focus track balance was not successful within a certain time.
1036 1046	automatic adjustment focus balance error	fatal	The AGC focus balance was not successful within a certain time.
1037 1047	automatic adjustment focus fine gain error	fatal	The AGC focus fine gain was not successful within a certain time.
1038 1048	automatic adjustment tracking fine gain error	fatal	The AGC tracking fine gain was not successful within a certain time.

3-5

SERVICE TEST PROGRAM – FLOW CHART

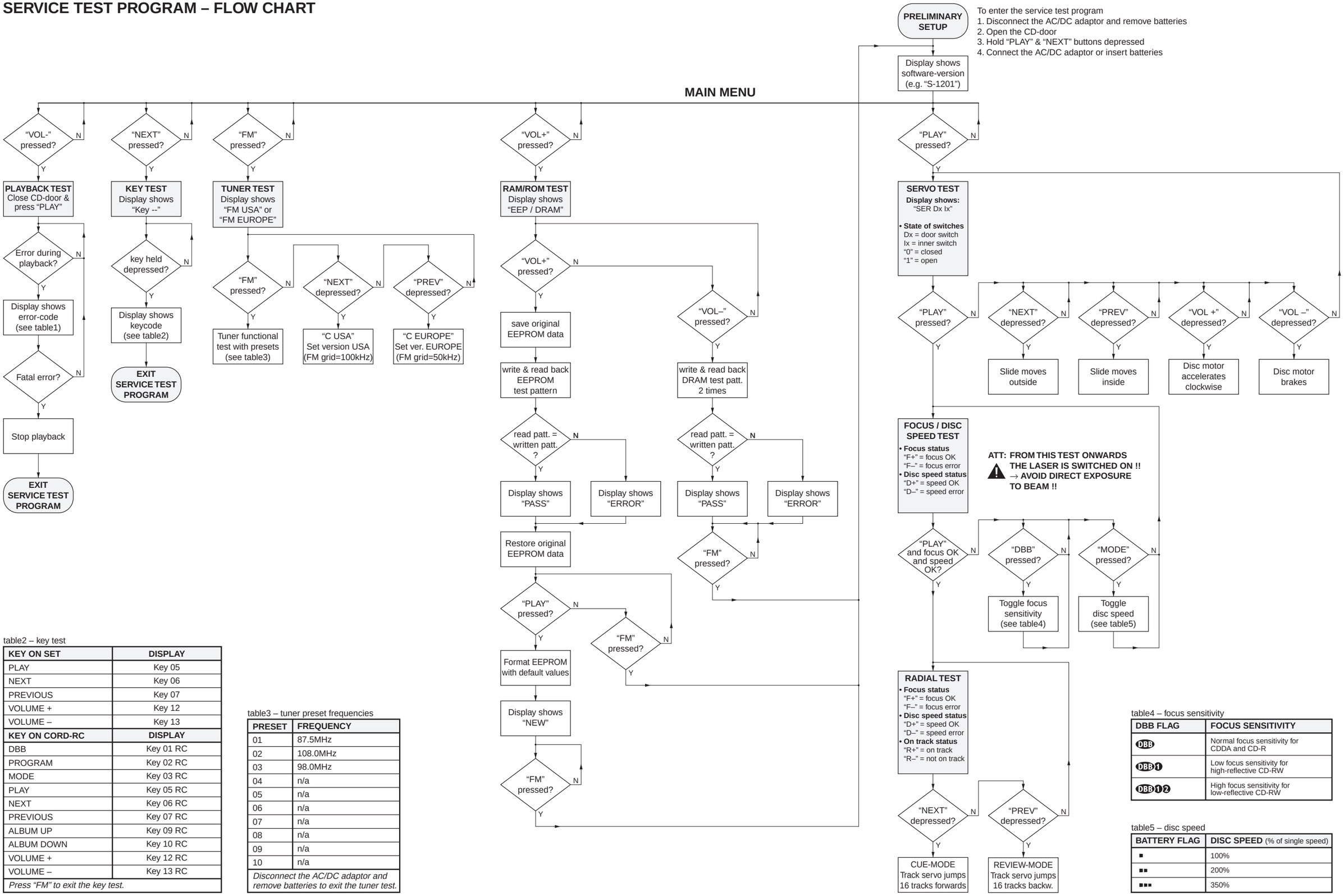


table2 – key test

KEY ON SET	DISPLAY
PLAY	Key 05
NEXT	Key 06
PREVIOUS	Key 07
VOLUME +	Key 12
VOLUME –	Key 13
KEY ON CORD-RC	**DISPLAY**
DBB	Key 01 RC
PROGRAM	Key 02 RC
MODE	Key 03 RC
PLAY	Key 05 RC
NEXT	Key 06 RC
PREVIOUS	Key 07 RC
ALBUM UP	Key 09 RC
ALBUM DOWN	Key 10 RC
VOLUME +	Key 12 RC
VOLUME –	Key 13 RC
Press “FM” to exit the key test.	

table3 – tuner preset frequencies

PRESET	FREQUENCY
01	87.5MHz
02	108.0MHz
03	98.0MHz
04	n/a
05	n/a
06	n/a
07	n/a
08	n/a
09	n/a
10	n/a
Disconnect the AC/DC adaptor and remove batteries to exit the tuner test.	

table4 – focus sensitivity

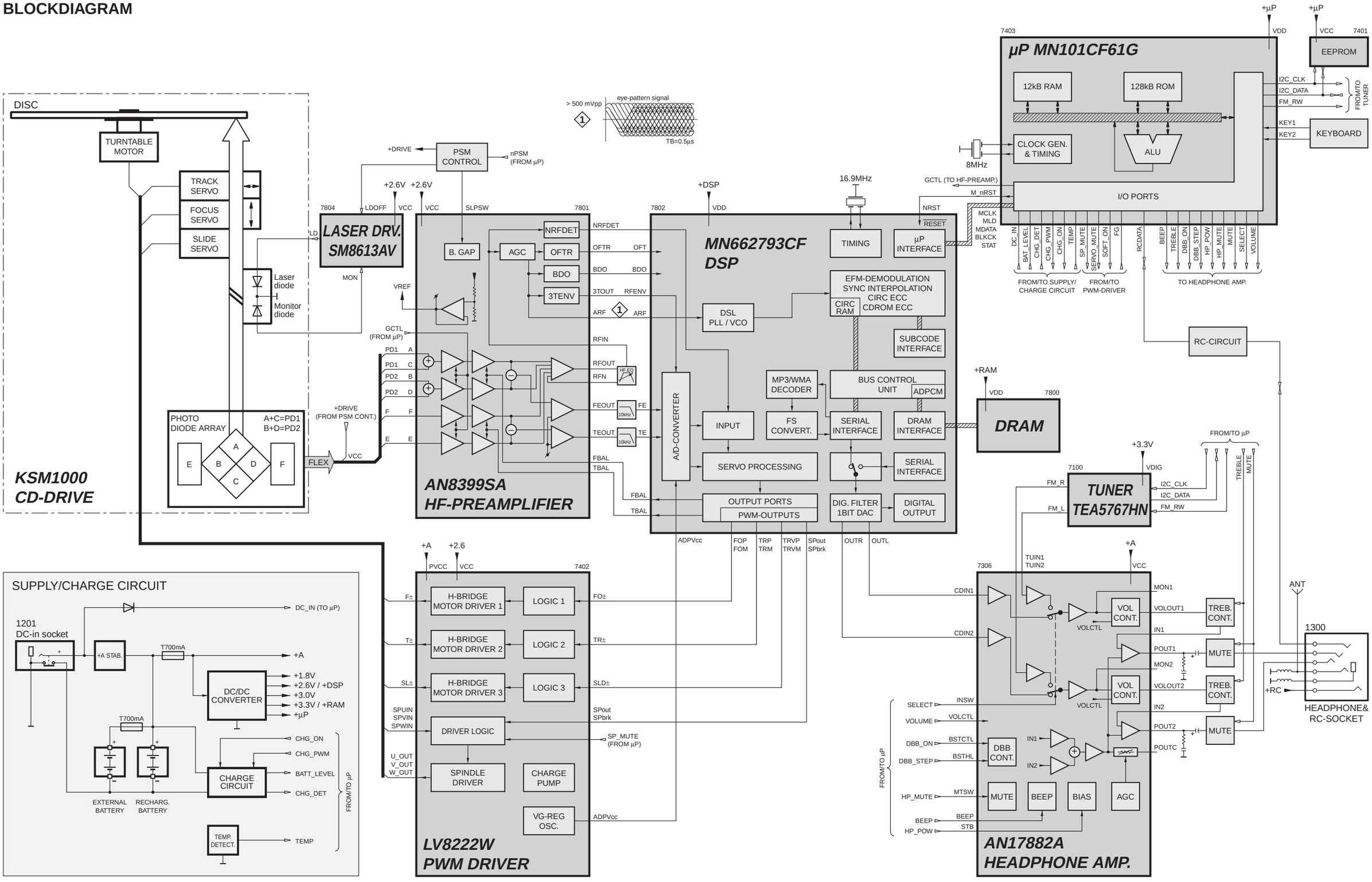
DBB FLAG	FOCUS SENSITIVITY
DBB	Normal focus sensitivity for CDDA and CD-R
DBB 1	Low focus sensitivity for high-reflective CD-RW
DBB 1 2	High focus sensitivity for low-reflective CD-RW

table5 – disc speed

BATTERY FLAG	DISC SPEED (% of single speed)
■	100%
■■	200%
■■■	350%

3-6

BLOCKDIAGRAM



4-1

SUPPLY PART

ON CONNECTOR PCB

Battery Pack

TO CONTROL PART

FROM CD PART

FROM TUNER PART

FROM TUNER PART ANT

MAIN PCB TO CONNECTOR PCB INTERFACE

HOLD SWITCH

Remote Control

{VOL1,VOL2,HP_IN1,HP_IN2,AREF}

= only for provision

DC Voltages measured in PLAY-mode, set supplied via mains adapter

EVM

4-2

1401 D8 1402 G4 1403 H8 1404 H9 1405 H10 1406 H11 1407 H11 1408 H12 1409 A14 2400 E14 2402 D6 2403 C6 2404 A4 2405 C6 2406 C6 2407 B3 2408 C6 2410 B4 2411 D7 2412 E1 2413 E2 2415 D7 2416 H7 2417 G9 2418 C7 2419 H8 2420 H13 2421 H6 2422 B7 2423 B7 2424 B8 2425 B8 2426 B8 2427 D13 3400 D6 3401 D6 3402 F6 3403 E15 3404 D14 3406 B14 3407 A4 3408 B4 3409 C8 3412 C7 3417 B14 3419 D7 3422 H8 3423 H11 3424 H9 3425 H9 3426 H11 3427 H12 3428 H7 3429 G7 3438 C14 3441 G6 3442 H8 3443 G11 3444 H13 3445 H13 3446 H14 7401 E14 7402 B3 7403 B8 7404 G7 7405 G6 7406-1 H14 7406-2 H14 F400 H8 F401 G11 F403 C14 F404 G4 F405 G4 F406 G4 F407 G4 F408 G4 F409 G4 F410 G4 F411 G5 F413 A13 F417 H9 F418 C15 F419 H12 F420 C15 F421 C15 F422 C15 F423 C15 F424 C15 F425 C15 F426 D15 F429 D15 F430 D15

CONTROL PART

CONTROL - W00

TO CD PART

TO POWER PART

7402 LV8222W

7403 MN101CF61G

CPU MN101C61G

ROM 128KB

RAM 12KB

PORT8 HIGH CURRENT OUTPUT

PORT7

PORT6

PORT5 EXT INT 5

PORT4 SIO / TIMER5 KEY INTERRUPT

PORT0 SI 1+2

PORT1 TIMER 0-3,7

PORT2 EXT INT O-4

PORT3 SI 3,4

ADC INPUT

OSCILLATOR

SENSORLESS LOGIC

VCO

OSC VG-REG

DRIVER3 H-BRIDGE

DRIVER2 H-BRIDGE

DRIVER1 H-BRIDGE

DRIVER SPINDLE

PUMP CHARGE

7401 MZ4C02-RDW6 (256x8) EEPROM

7404 BC847BW

7405 BC807-25W

7406-1 BC847BPN

7406-2 BC847BPN

PANAX SERIAL WRITER

RS232 TO PC

TO TUNER PART

I2C_DATA

I2C_CLK

FM_RW

nWAKE

Inner_SW

KEY1

KEY2

FORW (0-2Ah)

VOL+ (2Bh-83h)

VOL- (84h-E5h)

PLAY (0-2Ah)

TUNER (2Bh-83h)

REW (84h-E5h)

DOOR

HOLD

RESET

RS232

REPLACEMENT OF CD-DRIVE KSM1000 (3103 309 05440)

ATT: CD-drive KSM1000 is delivered with closed solder joints S1 and S2. For proper functionality both solder joints must be opened (desoldered) after connecting the new drive to the printed circuit board.

SOLDER JOINT S1

SOLDER JOINT S2

S1 S2

FOCUS COIL

TRACKING COIL

FLZ

CD-DRIVE KSM1000
(3103 309 05440)

slide motor

disc motor

inner switch

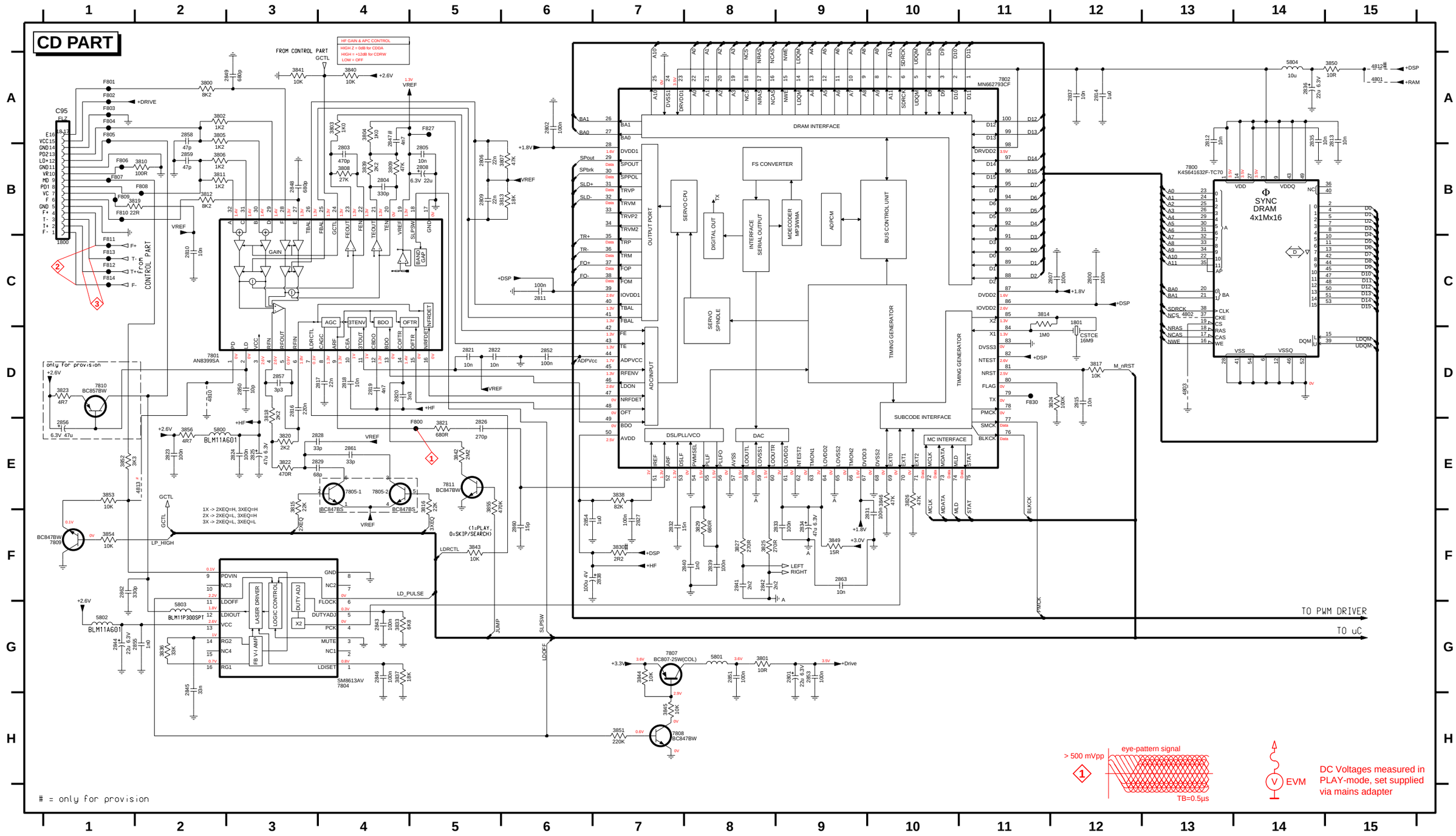
DC Voltages measured in PLAY-mode, set supplied via mains adapter

EVM

= only for provision

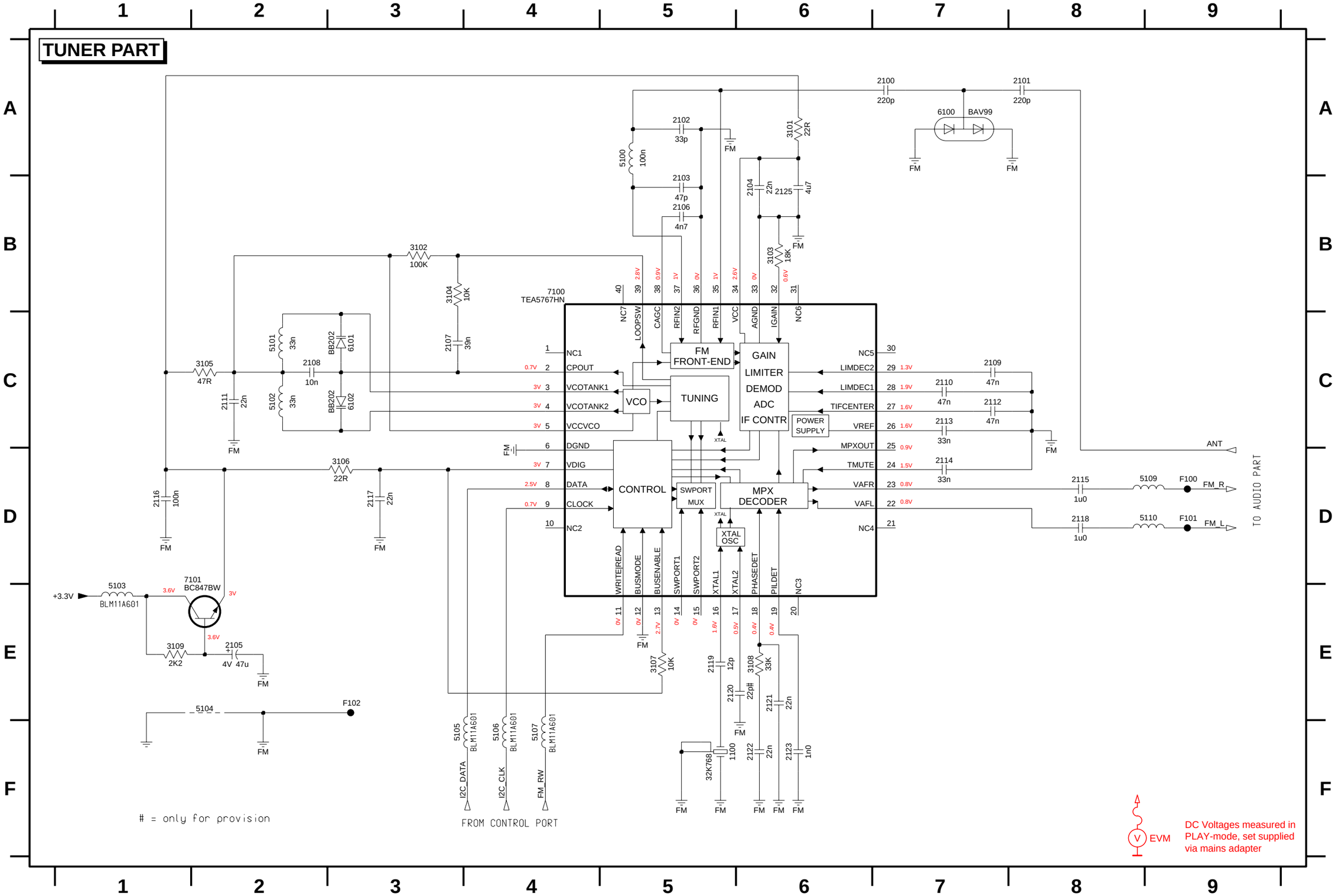
4-3

1800 C1	2804 B4	2810 C2	2816 D3	2822 D5	2828 E3	2835 A14	2841 F8	2847 A4	2853 G9	2859 B2	3802 A2	3808 B4	3814 C11	3820 E3	3826 E10	3837 G4	3843 F5	3851 H7	4801 A15	5800 E2	7801 D2	7808 H7	F802 A1	F808 B2	F814 C1
1801 C12	2805 B5	2811 C6	2817 D4	2823 E2	2829 E3	2836 A14	2842 F8	2848 B3	2854 F6	2860 F6	3803 A4	3809 B4	3815 E3	3821 E5	3827 F8	3838 E7	3844 G7	3852 E1	4802 C13	5801 G8	7802 A11	7809 F1	F803 A1	F809 B1	F827 A5
2800 C12	2806 B5	2812 A13	2818 D4	2824 E3	2831 F10	2837 A12	2843 G4	2849 A3	2855 G2	2861 E4	3804 A4	3810 B2	3816 E5	3822 E3	3829 F8	3839 B4	3845 H7	3853 E1	4803 D13	5802 G1	7804 G4	7810 D1	F804 A1	F810 B1	F830 D11
2801 G9	2807 C12	2813 A15	2819 D4	2825 E3	2832 F7	2838 F7	2844 G1	2850 D3	2856 E1	2862 F1	3805 A2	3811 B2	3817 D12	3823 D1	3830 F7	3833 G4	3841 A3	3854 E2	4810 D2	5803 G2	7805-1 E4	7811 E5	F805 A1	F811 C1	
2802 A6	2808 B5	2814 A12	2820 D4	2826 E5	2833 F9	2839 F8	2845 G2	2851 G8	2857 D3	2863 A2	3800 A2	3806 B2	3812 B2	3818 D3	3824 D12	3834 A3	3842 E5	3855 E5	4812 E15	5804 A14	7805-2 E4	F800 E5	F806 B1	F812 C1	
2803 B4	2809 B5	2815 D12	2821 D5	2827 F7	2834 F9	2840 F8	2846 G4	2852 D6	2858 A2	3801 G8	3807 B6	3813 B6	3819 B1	3825 F8	3836 G2	3842 E5	3850 A15	3856 E2	4813 E2	7800 B13	7807 G7	F801 A1	F807 B1	F813 C1	



4-4

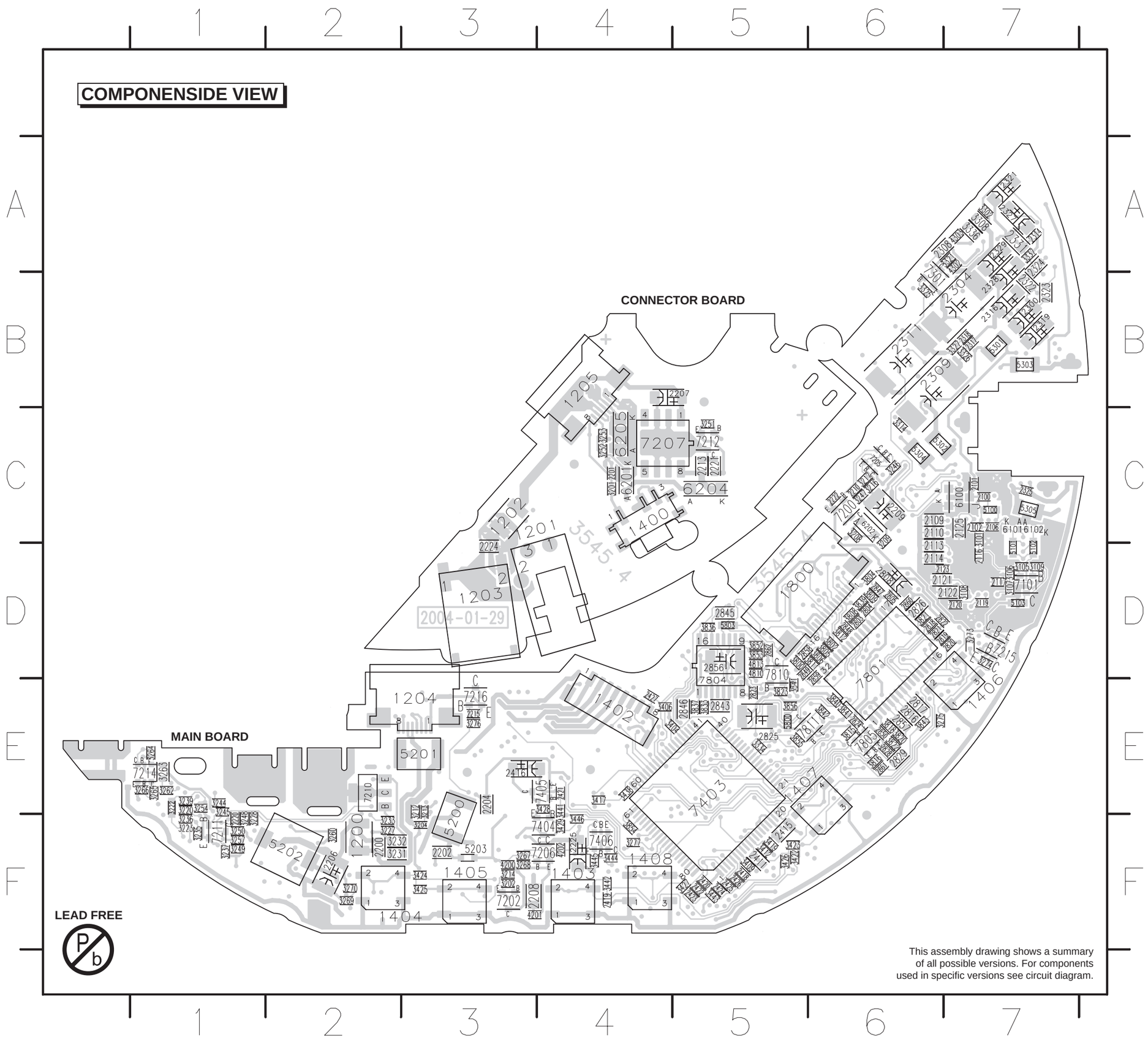
TUNER PART



1100 F5
2100 A7
2101 A8
2102 A5
2103 B5
2104 B6
2105 E2
2106 B5
2107 C3
2108 C2
2109 C7
2110 C7
2111 C2
2112 C7
2113 C7
2114 D7
2115 D8
2116 D1
2117 D3
2118 D8
2119 E5
2120 E5
2121 E6
2122 F6
2123 F6
2125 B6
3101 A6
3102 B3
3103 B6
3104 B3
3105 C2
3106 D3
3107 E5
3108 E6
3109 E1
5100 A5
5101 C2
5102 C2
5103 E1
5104 E2
5105 F3
5106 F4
5107 F4
5109 D9
5110 D9
6100 A7
6101 C3
6102 C3
7100 B4
7101 D1
F100 D9
F101 D9
F102 E3

4-5

COMPONENSIDE VIEW



1200	F2	2419	F4	3245	E1	3818	E6
1202	C3	2420	F5	3246	C6	3820	E6
1203	D3	2421	E4	3247	C6	3821	D6
1204	E3	2422	F5	3248	F1	3822	E6
1205	B4	2423	F5	3249	F1	3823	E5
1400	C4	2424	F5	3250	F1	3833	E5
1402	E4	2425	F5	3251	C5	3836	D5
1403	F4	2426	F5	3252	C4	3837	E5
1404	F2	2427	E4	3253	C4	3839	D6
1405	F3	2803	D6	3254	E1	3840	E6
1406	E7	2804	D6	3257	F1	3841	E6
1407	E5	2805	D6	3260	F2	3842	E6
1408	F4	2808	D6	3262	E1	3843	E6
1800	D5	2816	E6	3263	E1	3852	D5
2100	C7	2817	E6	3264	E1	3853	D5
2101	C7	2818	D6	3265	E1	3854	F4
2102	C7	2819	D6	3266	E1	3855	E5
2106	C7	2820	D7	3267	F3	3856	E5
2109	C6	2821	D6	3268	F3	4200	F3
2110	C6	2822	D6	3269	F2	4201	F3
2113	D6	2823	E5	3270	F2	4202	F4
2114	D6	2824	E6	3273	D7	4302	A7
2116	D7	2825	E5	3274	D7	4303	A7
2117	D7	2826	D6	3275	E6	4810	D5
2119	D7	2828	E6	3276	E3	4813	D5
2120	D7	2829	E6	3277	F4	5100	C7
2121	D6	2843	E5	3302	A7	5101	D7
2122	D7	2845	D5	3308	A7	5102	D7
2123	D6	2846	E5	3314	C6	5103	D7
2125	C7	2847	D6	3321	A7	5200	F3
2200	F2	2848	D6	3325	B6	5201	E3
2201	C4	2849	D5	3326	B7	5202	F2
2202	F3	2850	E6	3327	B7	5203	F3
2204	E3	2856	D5	3334	E5	5301	B7
2206	F2	2857	E6	3336	A7	5302	C6
2207	B5	2858	D5	3337	A7	5303	B7
2208	F3	2859	D6	3341	E5	5304	C6
2209	C6	2860	D6	3404	E5	5305	C7
2210	C6	2861	E6	3406	E4	5800	E5
2213	C5	2862	D5	3409	F5	5803	D5
2215	E3	3101	C7	3412	F5	6100	C7
2220	F1	3105	D7	3417	E4	6101	C7
2221	C5	3106	D7	3419	F5	6102	C7
2222	C6	3107	D7	3422	F5	6201	C4
2224	D3	3108	D7	3423	F5	6202	C6
2225	F4	3109	D7	3424	F3	6204	C5
2300	B7	3201	C4	3425	F3	6205	C4
2304	B7	3202	F3	3426	F5	7101	D7
2308	A6	3204	F3	3427	F5	7200	C6
2309	B6	3208	C6	3428	E4	7202	F3
2311	B6	3209	C6	3429	F4	7205	C6
2314	A7	3212	E3	3438	E4	7206	F4
2316	B7	3213	E3	3441	E4	7207	C4
2317	B7	3214	F3	3442	F4	7210	E2
2318	B7	3216	C6	3443	F5	7211	F1
2319	B7	3217	C6	3444	F4	7212	C5
2321	A7	3220	E1	3445	F4	7214	E1
2322	B7	3222	E1	3446	F4	7215	D7
2323	B7	3223	F1	3800	D5	7216	E3
2324	A7	3227	F2	3802	D6	7301	B6
2325	C7	3228	F1	3804	D6	7403	E5
2327	A7	3231	F2	3805	D6	7404	F4
2328	B7	3232	F2	3806	D6	7405	E4
2329	A7	3233	F2	3808	D6	7406	F4
2331	A7	3235	F1	3809	D6	7801	D6
2411	F5	3236	F1	3811	D6	7804	E5
2415	F5	3237	F1	3812	D6	7805	E6
2416	E3	3239	E1	3815	E6	7810	D5
2418	F5	3244	E1	3816	E6	7811	E6

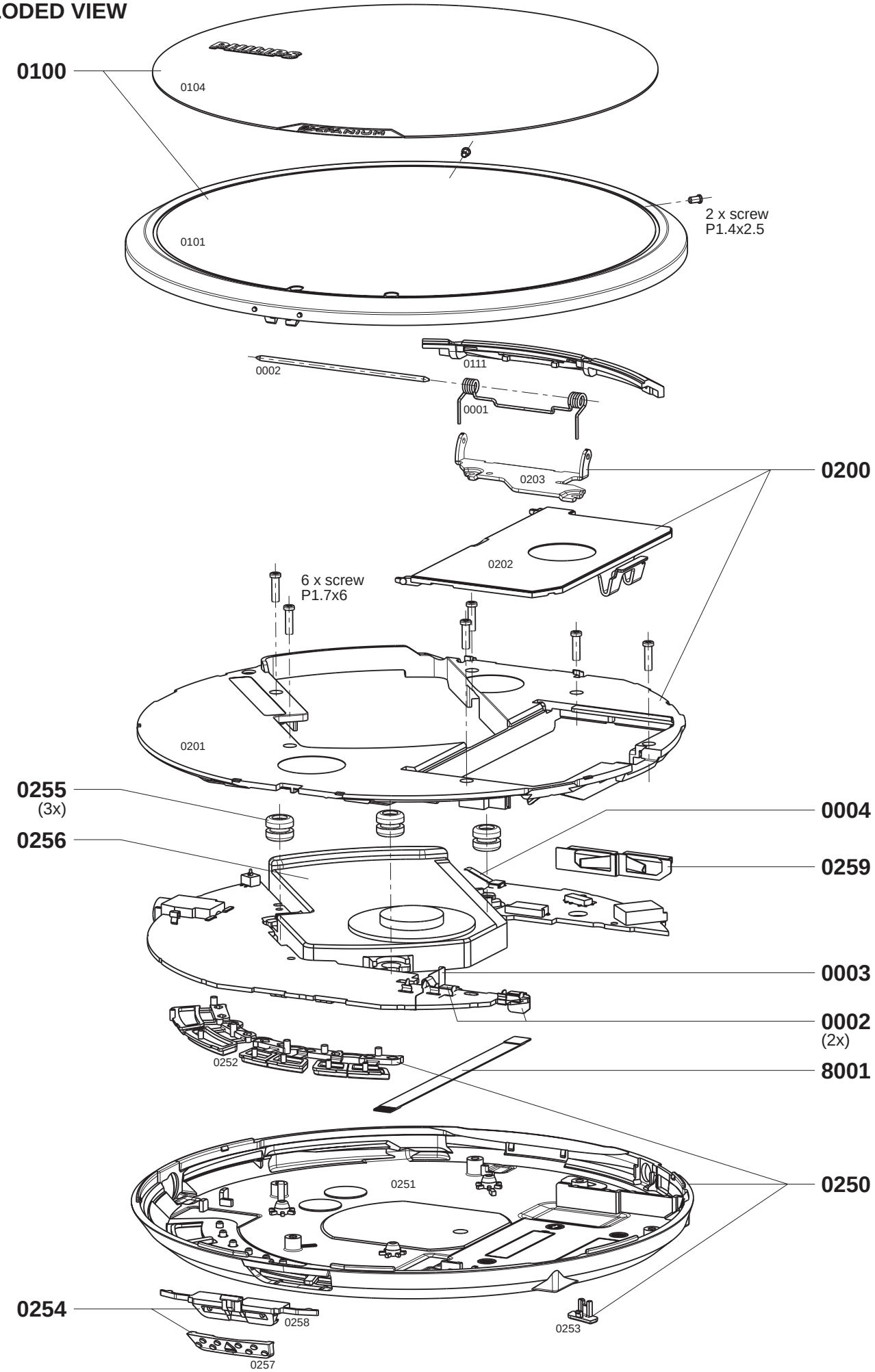
4-6

COPPERSIDE VIEW

This assembly drawing shows a summary of all possible versions. For components used in specific versions see circuit diagram.

1100	D1	2835	E3	3328	C2	7306	A1
1300	C1	2836	E4	3330	B2	7401	E3
1401	F3	2837	E2	3331	B2	7402	E5
1409	A1	2838	D2	3332	B1	7800	F4
1801	E2	2839	D2	3339	B1	7802	E2
2103	C1	2840	D2	3340	B1	7807	D3
2104	C1	2841	D2	3400	E4	7808	D3
2105	C1	2842	D2	3401	E4	7809	E3
2107	C1	2844	D3	3402	E4		
2108	D1	2851	D3	3403	E4		
2111	D1	2852	D2	3407	E5		
2112	D2	2853	D3	3408	E5		
2115	D2	2854	D2	3801	D3		
2118	D2	2855	E3	3803	D3		
2203	F5	2863	D2	3807	D3		
2205	E5	3102	C1	3810	D3		
2211	F6	3103	C2	3813	D3		
2212	F6	3104	C1	3814	E2		
2214	C5	3200	F7	3817	E1		
2217	E7	3203	F5	3819	D2		
2219	E7	3205	F6	3824	E2		
2226	F6	3206	F6	3825	D2		
2301	B2	3207	F6	3826	D2		
2302	B1	3210	F5	3827	D2		
2303	B2	3211	F5	3829	D2		
2305	B2	3215	F6	3830	C2		
2306	C2	3218	F6	3838	D2		
2307	B2	3219	E6	3844	D3		
2310	B2	3221	F7	3845	D3		
2312	B1	3224	E7	3846	D2		
2313	C2	3225	F7	3849	D2		
2315	B2	3226	F7	3850	E4		
2320	A1	3229	E7	3851	D3		
2326	A1	3230	E7	4300	B2		
2332	C2	3234	E7	4301	C2		
2333	C2	3238	E7	4801	E4		
2334	B1	3240	E7	4802	F3		
2335	B2	3241	E7	4803	E3		
2336	B2	3242	E7	4812	E4		
2337	C1	3243	E7	4814	E4		
2400	E4	3255	F7	5104	C2		
2402	E4	3256	F7	5105	D1		
2403	E4	3258	F7	5106	D1		
2404	E5	3259	F6	5107	D1		
2405	E4	3261	E7	5109	D2		
2406	E4	3271	E6	5110	D2		
2407	E5	3272	E6	5204	F6		
2408	E4	3278	F6	5205	F6		
2410	E5	3300	B2	5206	F7		
2412	E5	3301	B2	5300	C2		
2413	E5	3303	B1	5306	C2		
2417	E3	3304	B2	5307	C2		
2800	E2	3305	B2	5308	C1		
2801	D3	3306	B1	5801	D3		
2802	D3	3307	B2	5802	D3		
2806	D3	3309	B2	5804	E4		
2807	E2	3310	B2	6203	F6		
2809	D3	3311	B1	6206	D1		
2810	D3	3312	C2	6301	C2		
2811	D3	3313	C2	7100	D1		
2812	E4	3315	B1	7201	F6		
2813	F4	3316	B1	7203	F5		
2814	E2	3317	B2	7204	E5		
2815	E2	3318	B2	7208	F7		
2827	D2	3319	B2	7209	F7		
2831	D2	3320	B1	7213	F7		
2832	D2	3322	B2	7300	B2		
2833	D2	3323	B2	7302	C2		
2834	D1	3324	C2	7304	B2		

EXPLODED VIEW



MECHANICAL PARTSLIST

0002	3103 301 46611	SPRING-BATTERY
0003	3103 301 46621	SPRING-BATTERY-CHARGE
0004	3103 301 46631	SPRING-CONTACT
0100	3103 309 50271	DOOR-CD-ASSEMBLY
0200	3103 309 50281	CABINET-ASSEMBLY
0250	3103 309 50291	BOTTOM-ASSEMBLY
0254	3103 308 15491	BUTTON-OPEN-ASSEMBLY
0255	3103 304 73581	SUSPENSION
0256	3103 309 05440	CD-DRIVE KSM1000
0259	3103 301 46601	SPRING-BATTERY-SHORT
8001	3103 308 93891	FFC, 8P

Note: Codenumbers in gray color are no longer available as service spare part and published for orientation only!!

ELECTRICAL PARTSLIST

MISCELLANEOUS

0256	3103 309 05440	CD-DRIVE KSM1000
1200 ⚠	2422 086 11012	FUSE 0,7A 50V UL
1201	2422 030 00394	EXT. DC SOCKET
1202 ⚠	2422 086 11012	FUSE 0,7A 50V UL
1203	2422 025 17428	SOCKET, EXT. BATTERY PACK
1204	2422 025 18207	CONNECTOR, 8P
1205	2422 025 18207	CONNECTOR, 8P
1300	2422 026 05552	SOCKET, HEADPHONE&RC
1300	8203 303 87841	SOCKET, HEADPHONE&RC
1400	2422 127 00543	SWITCH, SLIDE
1402	2422 025 17817	CONNECTOR, 8P, SIDE ENTRY
1403	2422 128 02975	SWITCH, TACT
1404	2422 128 02975	SWITCH, TACT
1405	2422 128 02975	SWITCH, TACT
1406	2422 128 02975	SWITCH, TACT
1407	2422 128 02975	SWITCH, TACT
1408	2422 128 02975	SWITCH, TACT
1409	2422 128 03066	SWITCH, CD-DOOR
1800	2422 025 17916	CONNECTOR, 16P, SIDE ENTRY
8001	3103 308 93891	FFC, 8P

CAPACITORS

2100 ©	3198 035 02210	220pF	10%	50V
2101 ©	3198 035 02210	220pF	10%	50V
2102 ©	2238 869 15339	33pF	5%	50V
2103 ©	2238 869 15479	47pF	5%	50V
2104 ©	3198 035 72230	22nF	5%	16V
2105 ©	2020 004 90331	47µF	20%	4V
2106 ©	3198 035 14720	4,7nF		25V
2107 ©	2020 552 96712	39nF	10%	10V
2108 ©	3198 035 21030	10nF	10%	16V
2109 ©	3198 017 34730	47nF	10%	16V
2110 ©	3198 017 34730	47nF	10%	16V
2111 ©	3198 035 72230	22nF	5%	16V
2112 ©	3198 017 34730	47nF	10%	16V
2113 ©	3198 017 33330	33nF	10%	16V
2114 ©	3198 017 33330	33nF	10%	16V
2115 ©	2022 552 05614	1µF	10%	6,3V
2116 ©	3198 035 71040	100nF	10%	16V
2117 ©	3198 035 72230	22nF	5%	16V
2118 ©	2022 552 05614	1µF	10%	6,3V
2119 ©	3198 034 01290	12pF	10%	50V
2121 ©	3198 017 32230	22nF	10%	25V
2122 ©	3198 017 32230	22nF	10%	25V
2123 ©	3198 035 01020	1nF	10%	50V
2125 ©	2020 552 00004	4,7µF	10%	6,3V
2125 ©	2020 552 00005	4,7µF	10%	6,3V
2125 ©	2022 552 05731	4,7µF	10%	6,3V
2200 ©	3198 017 41050	1µF	20%	10V
2201 ©	3198 035 01020	1nF	10%	50V
2202 ©	3198 017 41050	1µF	20%	10V
2203 ©	3198 032 15190	100µF	20%	4V
2204 ©	3198 017 41050	1µF	20%	10V
2205 ©	3198 032 25170	47µF	20%	6,3V
2206 ©	3198 032 15190	100µF	20%	4V
2207 ©	3198 032 24150	22µF	20%	6,3V
2208 ©	2020 552 96305	4,7µF	20%	10V
2209 ©	3198 032 25170	47µF	20%	6,3V
2210 ©	3198 035 21030	10nF	10%	16V
2211 ©	3198 035 71040	100nF	10%	16V
2212 ©	3198 032 15190	100µF	20%	4V
2213 ©	3198 017 41050	1µF	20%	10V

CAPACITORS

2214 ©	3198 023 41040	100nF	10%	25V
2215 ©	3198 035 21030	10nF	10%	16V
2217 ©	3198 017 41050	1µF	20%	10V
2219 ©	3198 035 04710	470pF		50V
2220 ©	3198 035 71040	100nF	10%	16V
2221 ©	3198 017 41050	1µF	20%	10V
2222 ©	3198 035 03320	3,3nF	10%	50V
2224 ©	3198 023 41040	100nF	10%	25V
2225 ©	3198 032 24150	22µF	20%	6,3V
2226 ©	3198 035 71040	100nF	10%	16V
2300 ©	3198 032 24150	22µF	20%	6,3V
2301 ©	3198 035 26820	6,8nF		16V
2302 ©	3198 017 32240	220nF	10%	10V
2303 ©	3198 017 41050	1µF	20%	10V
2304 ©	3198 032 28210	220µF	20%	6,3V
2305 ©	2020 552 00004	4,7µF	10%	6,3V
2305 ©	2020 552 00005	4,7µF	10%	6,3V
2305 ©	2022 552 05731	4,7µF	10%	6,3V
2306 ©	3198 017 42230	22nF	10%	50V
2307 ©	3198 035 26820	6,8nF		16V
2308 ©	2022 552 05614	1µF	10%	6,3V
2309 ©	3198 032 28210	220µF	20%	6,3V
2310 ©	2020 552 00004	4,7µF	10%	6,3V
2310 ©	2020 552 00005	4,7µF	10%	6,3V
2310 ©	2022 552 05731	4,7µF	10%	6,3V
2311 ©	3198 032 28210	220µF	20%	6,3V
2312 ©	3198 035 26820	6,8nF		16V
2313 ©	3198 017 42230	22nF	10%	50V
2314 ©	3198 035 71040	100nF	10%	16V
2315 ©	3198 035 26820	6,8nF		16V
2316 ©	3198 032 24150	22µF	20%	6,3V
2317 ©	3198 035 71040	100nF	10%	16V
2318 ©	3198 035 71040	100nF	10%	16V
2319 ©	3198 032 24150	22µF	20%	6,3V
2320 ©	3198 035 71040	100nF	10%	16V
2321 ©	3198 032 24150	22µF	20%	6,3V
2322 ©	3198 017 34730	47nF	10%	16V
2323 ©	3198 017 41050	1µF	20%	10V
2324 ©	3198 017 34730	47nF	10%	16V
2326 ©	3198 017 24740	470nF	10%	16V
2327 ©	3198 032 24150	22µF	20%	6,3V
2328 ©	3198 032 24150	22µF	20%	6,3V
2329 ©	3198 032 24150	22µF	20%	6,3V
2331 ©	2020 552 96305	4,7µF	20%	10V
2332 ©	3198 035 02210	220pF	10%	50V
2333 ©	3198 035 02210	220pF	10%	50V
2334 ©	2022 552 05614	1µF	10%	6,3V
2335 ©	2022 552 05614	1µF	10%	6,3V
2337 ©	3198 035 21030	10nF	10%	16V
2400 ©	3198 035 71040	100nF	10%	16V
2402 ©	3198 035 71040	100nF	10%	16V
2403 ©	3198 035 71040	100nF	10%	16V
2404 ©	3198 035 14720	4,7nF		25V
2405 ©	3198 017 41050	1µF	20%	10V
2406 ©	3198 035 71040	100nF	10%	16V
2407 ©	3198 017 32240	220nF	10%	10V
2408 ©	3198 035 02220	2,2nF	10%	50V
2410 ©	3198 017 41050	1µF	20%	10V
2411 ©	3198 017 41050	1µF	20%	10V
2412 ©	3198 035 71040	100nF	10%	16V
2413 ©	3198 032 15190	100µF	20%	4V
2415 ©	2020 552 96305	4,7µF	20%	10V
2416 ©	3198 032 24150	22µF	20%	6,3V
2417 ©	3198 017 31040	100nF	10%	16V

CAPACITORS

2418 ©	3198 035 01020	1nF	10%	50V
2419 ©	3198 035 01020	1nF	10%	50V
2420 ©	3198 035 01020	1nF	10%	50V
2421 ©	3198 035 71040	100nF	10%	16V
2422 ©	3198 035 01020	1nF	10%	50V
2423 ©	3198 035 01020	1nF	10%	50V
2424 ©	3198 035 01020	1nF	10%	50V
2425 ©	3198 035 01020	1nF	10%	50V
2426 ©	3198 035 01020	1nF	10%	50V
2427 ©	3198 035 21030	10nF	10%	16V
2800 ©	3198 035 71040	100nF	10%	16V
2801 ©	3198 032 24150	22µF	20%	6,3V
2802 ©	3198 035 71040	100nF	10%	16V
2803 ©	3198 035 04710	470pF		50V
2804 ©	3198 035 03310	330pF	10%	50V
2805 ©	3198 035 21030	10nF	10%	16V
2806 ©	3198 017 32230	22nF	10%	25V
2807 ©	3198 035 71040	100nF	10%	16V
2808 ©	3198 032 24150	22µF	20%	6,3V
2809 ©	3198 017 32230	22nF	10%	25V
2810 ©	3198 035 21030	10nF	10%	16V
2811 ©	3198 035 71040	100nF	10%	16V
2812 ©	3198 035 21030	10nF	10%	16V
2813 ©	3198 035 21030	10nF	10%	16V
2814 ©	3198 017 41050	1µF	20%	10V
2815 ©	3198 035 21030	10nF	10%	16V
2816 ©	3198 017 32240	220nF	10%	10V
2817 ©	3198 017 32230	22nF	10%	25V
2818 ©	3198 035 21030	10nF	10%	16V
2819 ©	3198 035 14720	4,7nF		25V
2820 ©	3198 035 03320	3,3nF	10%	50V
2821 ©	3198 035 21030	10nF	10%	16V
2822 ©	3198 035 21030	10nF	10%	16V
2823 ©	3198 035 71040	100nF	10%	16V
2824 ©	3198 035 71040	100nF	10%	16V
2825 ©	3198 032 25170	47µF	20%	6,3V
2826 ©	3198 016 32710	270pF	10%	50V
2827 ©	3198 035 71040	100nF	10%	16V
2828 ©	2238 869 15339	33pF	5%	50V
2829 ©	3198 016 36890	68pF	10%	50V
2831 ©	3198 035 71040	100nF	10%	16V
2832 ©	3198 017 31530	15nF	10%	50V
2833 ©	3198 035 71040	100nF	10%	16V
2834 ©	3198 032 25170	47µF	20%	6,3V
2835 ©	3198 035 21030	10nF	10%	16V
2836 ©	3198 032 24150	22µF	20%	6,3V
2837 ©	3198 035 21030	10nF	10%	16V
2838 ©	3198 032 15190	100µF	20%	4V
2839 ©	3198 017 31040	100nF	10%	16V
2840 ©	3198 017 31020	1nF	10%	50V
2841 ©	3198 035 02220	2,2nF	10%	50V
2842 ©	3198 035 02220	2,2nF	10%	50V
2843 ©	3198 017 31040	100nF	10%	16V
2844 ©	3198 032 24150	22µF	20%	6,3V
2845 ©	3198 017 33330	33nF	10%	16V
2846 ©	3198 017 31040	100nF	10%	16V
2848 ©	3198 035 06810	680pF	10%	50V
2849 ©	3198 035 06810	680pF	10%	50V
2850 ©	2238 869 15109	10pF	5%	50V
2851 ©	3198 035 71040	100nF	10%	16V
2852 ©	3198 035 71040	100nF	10%	16V
2853 ©	3198 035 71040	100nF	10%	16V
2854 ©	3198 017 41050	1µF	20%	10V
2855 ©	3198 035 01020	1nF	10%	50V

CAPACITORS

2857 ©	3198 016 33380	3,3pF	10%	50V
2858 ©	2238 869 15479	47pF	5%	50V
2859 ©	2238 869 15479	47pF	5%	50V
2860 ©	3198 034 01590	15pF		50V
2861 ©	2238 869 15339	33pF	5%	50V
2862 ©	3198 035 03310	330pF	10%	50V
2863 ©	3198 035 21030	10nF	10%	16V

RESISTORS

3101 ©	3198 031 02290	22Ω	5%	0,06W
3102 ©	3198 031 01040	100kΩ	5%	0,06W
3103 ©	2322 706 71803	18kΩ	1%	0,06W
3104 ©	3198 031 01030	10kΩ	5%	0,06W
3105 ©	3198 031 04790	47Ω	5%	0,06W
3106 ©	3198 031 02290	22Ω	5%	0,06W
3107 ©	3198 031 01030	10kΩ	5%	0,06W
3108 ©	3198 031 03330	33kΩ	5%	0,06W
3109 ©	3198 031 02220	2,2kΩ	5%	0,06W
3200 ©	2322 706 74703	47kΩ	1%	0,06W
3201 ©	3198 031 01020	1kΩ	5%	0,06W
3202 ©	3198 031 01030	10kΩ	5%	0,06W
3203 ©	2322 706 74703	47kΩ	1%	0,06W
3204 ©	2322 706 74703	47kΩ	1%	0,06W
3205 ©	2322 706 76803	68kΩ	1%	0,06W
3206 ©	3198 031 01020	1kΩ	5%	0,06W
3207 ©	3198 031 01020	1kΩ	5%	0,06W
3208 ©	3198 031 02230	22kΩ	5%	0,06W
3209 ©	3198 031 06820	6,8kΩ	5%	0,06W
3210 ©	3198 031 06840	680kΩ	5%	0,06W
3211 ©	2322 706 72204	220kΩ	1%	0,06W
3212 ©	3198 031 04740	470kΩ	5%	0,06W
3213 ©	2322 706 74703	47kΩ	1%	0,06W
3214 ©	3198 031 02230	22kΩ	5%	0,06W
3215 ©	3198 031 01030	10kΩ	5%	0,06W
3216 ©	3198 031 02240	220kΩ	5%	0,06W
3217 ©	3198 031 01030	10kΩ	5%	0,06W
3218 ©	3198 031 03310	330Ω	5%	0,06W
3219 ©	3198 031 04730	47kΩ	5%	0,06W
3220 ©	3198 031 01030	10kΩ	5%	0,06W
3221 ©	2322 704 61204	120kΩ	1%	0,06W
3222 ©	2322 704 61204	120kΩ	1%	0,06W
3223 ©	2322 706 76803	68kΩ	1%	0,06W
3224 ©	2322 706 76803	68kΩ	1%	0,06W
3225 ©	3198 031 02230	22kΩ	5%	0,06W
3226 ©	3198 031 01030	10kΩ	5%	0,06W
3227 ©	3198 031 01020	1kΩ	5%	0,06W
3228 ©	3198 031 08220	8,2kΩ	5%	0,06W
3229 ©	3198 031 01030	10kΩ	5%	0,06W
3230 ©	3198 031 01540	150kΩ	5%	0,06W
3231 ©	3198 021 31080	1Ω	5%	0,06W
3232 ©	3198 021 31080	1Ω	5%	0,06W
3233 ©	3198 031 01010	100Ω	5%	0,06W
3234 ©	2120 611 00009	10kΩ	5%	NTC
3235 ©	3198 031 03340	330kΩ	5%	0,06W
3236 ©	3198 031 06830	68kΩ	5%	0,06W
3237 ©	3198 031 04720	4,7kΩ	5%	0,06W
3238 ©	3198 031 01540	150kΩ	5%	0,06W
3239 ©	3198 031 01030	10kΩ	5%	0,06W
3240 ©	3198 031 01040	100kΩ	5%	0,06W
3241 ©	3198 031 03340	330kΩ	5%	0,06W
3242 ©	3198 031 04730	47kΩ	5%	0,06W
3243 ©	3198 031 01830	18kΩ	5%	0,06W
3244 ©	3198 031 01830	18kΩ	5%	0,06W
3245 ©	3198 031 01030	10kΩ	5%	0,06W

RESISTORS

3246 ©	3198 031 05630	56kΩ	5%	0,06W
3247 ©	3198 031 02240	220kΩ	5%	0,06W
3248 ©	3198 031 04740	470kΩ	5%	0,06W
3249 ©	3198 031 01540	150kΩ	5%	0,06W
3250 ©	3198 031 01030	10kΩ	5%	0,06W
3251 ©	3198 031 01030	10kΩ	5%	0,06W
3252 ©	3198 031 03320	3,3kΩ	5%	0,06W
3253 ©	3198 031 03320	3,3kΩ	5%	0,06W
3254 ©	3198 031 01030	10kΩ	5%	0,06W
3255 ©	3198 031 02240	220kΩ	5%	0,06W
3256 ©	3198 031 04740	470kΩ	5%	0,06W
3258 ©	3198 031 01050	1MΩ	5%	0,06W
3259 ©	3198 031 04740	470kΩ	5%	0,06W
3260 ©	3198 031 06840	680kΩ	5%	0,06W
3261 ©	3198 031 04730	47kΩ	5%	0,06W
3262 ©	3198 031 04740	470kΩ	5%	0,06W
3263 ©	3198 021 32250	2,2MΩ	5%	0,06W
3264 ©	3198 031 04730	47kΩ	5%	0,06W
3265 ©	3198 031 04740	470kΩ	5%	0,06W
3266 ©	3198 031 04740	470kΩ	5%	0,06W
3269 ©	3198 031 01050	1MΩ	5%	0,06W
3270 ©	3198 031 04740	470kΩ	5%	0,06W
3271 ©	3198 021 34710	470Ω	5%	0,06W
3272 ©	3198 021 34710	470Ω	5%	0,06W
3273 ©	3198 031 01210	120Ω	5%	0,06W
3274 ©	3198 031 01020	1kΩ	5%	0,06W
3275 ©	3198 031 01030	10kΩ	5%	0,06W
3276 ©	3198 031 04740	470kΩ	5%	0,06W
3277 ©	3198 031 04740	470kΩ	5%	0,06W
3278 ©	3198 031 02240	220kΩ	5%	0,06W
3300 ©	3198 031 01050	1MΩ	5%	0,06W
3301 ©	3198 031 02220	2,2kΩ	5%	0,06W
3302 ©	3198 031 04790	47Ω	5%	0,06W
3303 ©	3198 031 01830	18kΩ	5%	0,06W
3304 ©	3198 031 02210	220Ω	5%	0,06W
3305 ©	3198 031 02220	2,2kΩ	5%	0,06W
3306 ©	3198 031 01830	18kΩ	5%	0,06W
3307 ©	3198 031 03320	3,3kΩ	5%	0,06W
3308 ©	3198 021 32280	2,2Ω	5%	0,06W
3309 ©	3198 031 02710	270Ω	5%	0,06W
3310 ©	3198 031 01030	10kΩ	5%	0,06W
3311 ©	3198 031 04730	47kΩ	5%	0,06W
3312 ©	3198 031 01020	1kΩ	5%	0,06W
3313 ©	3198 031 04720	4,7kΩ	5%	0,06W
3314 ©	3198 031 01590	15Ω	5%	0,06W
3315 ©	3198 031 04730	47kΩ	5%	0,06W
3316 ©	3198 031 02710	270Ω	5%	0,06W
3317 ©	3198 031 01030	10kΩ	5%	0,06W
3318 ©	3198 031 01590	15Ω	5%	0,06W
3319 ©	3198 031 03320	3,3kΩ	5%	0,06W
3320 ©	3198 031 02220	2,2kΩ	5%	0,06W
3321 ©	3198 031 02230	22kΩ	5%	0,06W
3322 ©	3198 031 02220	2,2kΩ	5%	0,06W
3323 ©	3198 031 01020	1kΩ	5%	0,06W
3324 ©	3198 031 04720	4,7kΩ	5%	0,06W
3325 ©	3198 031 01040	100kΩ	5%	0,06W
3326 ©	3198 031 02280	2,2Ω	5%	0,06W
3327 ©	3198 031 02280	2,2Ω	5%	0,06W
3328 ©	3198 031 01020	1kΩ	5%	0,06W
3330 ©	3198 031 02220	2,2kΩ	5%	0,06W
3331 ©	3198 031 01050	1MΩ	5%	0,06W
3332 ©	2350 033 10103	4x10kΩ	5%	
3334 ©	3198 031 01030	10kΩ	5%	0,06W
3336 ©	3198 021 32280	2,2Ω	5%	0,06W

RESISTORS

3337 ©	3198 031 01530	15kΩ	5%	0,06W
3339 ©	3198 031 01530	15kΩ	5%	0,06W
3340 ©	3198 031 01530	15kΩ	5%	0,06W
3341 ©	3198 031 04720	4,7kΩ	5%	0,06W
3400 ©	3198 021 31080	1Ω	5%	0,06W
3401 ©	3198 021 31080	1Ω	5%	0,06W
3402 ©	3198 031 04720	4,7kΩ	5%	0,06W
3403 ©	3198 031 01010	100Ω	5%	0,06W
3404 ©	3198 031 01040	100kΩ	5%	0,06W
3406 ©	3198 031 01040	100kΩ	5%	0,06W
3407 ©	3198 031 04730	47kΩ	5%	0,06W
3408 ©	3198 021 31060	10MΩ	5%	0,06W
3409 ©	3198 031 01040	100kΩ	5%	0,06W
3417 ©	3198 031 01040	100kΩ	5%	0,06W
3419 ©	3198 031 01090	10Ω	5%	0,06W
3422 ©	3198 031 06820	6,8kΩ	5%	0,06W
3423 ©	3198 031 06820	6,8kΩ	5%	0,06W
3424 ©	3198 031 03320	3,3kΩ	5%	0,06W
3425 ©	3198 031 01230	12kΩ	5%	0,06W
3426 ©	3198 031 01520	1,5Ω	5%	0,06W
3427 ©	3198 031 01230	12kΩ	5%	0,06W
3428 ©	3198 031 01020	1kΩ	5%	0,06W
3429 ©	3198 031 08210	820Ω	5%	0,06W
3438 ©	3198 031 01020	1kΩ	5%	0,06W
3441 ©	3198 031 01030	10kΩ	5%	0,06W
3442 ©	3198 031 01020	1kΩ	5%	0,06W
3443 ©	3198 031 01020	1kΩ	5%	0,06W
3444 ©	3198 031 04730	47kΩ	5%	0,06W
3445 ©	3198 031 02240	220kΩ	5%	0,06W
3446 ©	3198 031 02240	220kΩ	5%	0,06W
3800 ©	3198 031 08220	8,2kΩ	5%	0,06W
3801 ©	3198 031 01090	10Ω	5%	0,06W
3802 ©	3198 031 01220	1,2kΩ	5%	0,06W
3803 ©	3198 031 01020	1kΩ	5%	0,06W
3804 ©	3198 031 01020	1kΩ	5%	0,06W
3805 ©	3198 031 01220	1,2kΩ	5%	0,06W
3806 ©	3198 031 01220	1,2kΩ	5%	0,06W
3807 ©	3198 031 04730	47kΩ	5%	0,06W
3808 ©	3198 031 02730	27kΩ	5%	0,06W
3809 ©	3198 031 04730	47kΩ	5%	0,06W
3810 ©	3198 031 01010	100Ω	5%	0,06W
3811 ©	3198 031 01220	1,2kΩ	5%	0,06W
3812 ©	3198 031 08220	8,2kΩ	5%	0,06W
3813 ©	3198 031 01830	18kΩ	5%	0,06W
3814 ©	3198 031 01050	1MΩ	5%	0,06W
3815 ©	3198 031 02230	22kΩ	5%	0,06W
3816 ©	3198 031 02230	22kΩ	5%	0,06W
3817 ©	3198 031 01030	10kΩ	5%	0,06W
3818 ©	3198 031 02220	2,2kΩ	5%	0,06W
3819 ©	3198 031 02290	22Ω	5%	0,06W
3820 ©	3198 031 02220	2,2kΩ	5%	0,06W
3821 ©	3198 031 06810	680Ω	5%	0,06W
3822 ©	3198 031 04710	470Ω	5%	0,06W
3824 ©	3198 031 01040	100kΩ	5%	0,06W
3825 ©	3198 031 02710	270Ω	5%	0,06W
3826 ©	3198 031 04730	47kΩ	5%	0,06W
3827 ©	3198 031 02710	270Ω	5%	0,06W
3829 ©	3198 031 06810	680Ω	5%	0,06W
3833 ©	3198 031 06820	6,8kΩ	5%	0,06W
3836 ©	3198 031 03330	33kΩ	5%	0,06W
3837 ©	3198 031 01830	18kΩ	5%	0,06W
3838 ©	3198 031 08230	82kΩ	5%	0,06W
3839 ©	3198 031 02220	2,2kΩ	5%	0,06W
3840 ©	3198 031 01030	10kΩ	5%	0,06W

RESISTORS

3841 ©	3198 031 01030	10kΩ	5%	0,06W
3842 ©	3198 031 02250	2,2MΩ	5%	0,06W
3843 ©	3198 031 01030	10kΩ	5%	0,06W
3844 ©	3198 031 01030	10kΩ	5%	0,06W
3845 ©	3198 031 01030	10kΩ	5%	0,06W
3846 ©	3198 031 04730	47kΩ	5%	0,06W
3849 ©	3198 031 01590	15Ω	5%	0,06W
3850 ©	3198 031 01090	10Ω	5%	0,06W
3851 ©	3198 031 02240	220kΩ	5%	0,06W
3852 ©	3198 031 03320	3,3kΩ	5%	0,06W
3853 ©	3198 031 01030	10kΩ	5%	0,06W
3854 ©	3198 031 01030	10kΩ	5%	0,06W
3855 ©	3198 031 04740	470kΩ	5%	0,06W
3856 ©	3198 031 04780	4,7Ω	5%	0,06W
4202 ©	3198 031 90010	CHIP JUMPER 0402		
4301 ©	3198 031 90010	CHIP JUMPER 0402		
4302 ©	3198 031 90010	CHIP JUMPER 0402		
4303 ©	3198 031 90010	CHIP JUMPER 0402		
4801 ©	3198 031 90010	CHIP JUMPER 0402		
4802 ©	3198 031 90010	CHIP JUMPER 0402		
4803 ©	3198 031 90010	CHIP JUMPER 0402		
4810 ©	3198 031 90010	CHIP JUMPER 0402		
4814 ©	3198 021 90030	CHIP JUMPER 0603		
5104 ©	3198 021 90030	CHIP JUMPER 0603		
5206 ©	3198 021 90020	CHIP JUMPER 0805		

COILS

1100 ©	2422 543 01388	XTAL 32,768kHz		
1401 ©	2422 540 98577	CER.RES. 8MHz		
1801 ©	2422 540 98579	CER.RES. 16,9MHz		
5100 ©	2422 536 00471	100nH	2%	
5101 ©	2422 536 00469	33nH	2%	
5102 ©	2422 536 00469	33nH	2%	
5103 ©	3198 018 90040	FILTER 100MHz		
5105 ©	3198 018 90040	FILTER 100MHz		
5106 ©	3198 018 90040	FILTER 100MHz		
5107 ©	3198 018 90040	FILTER 100MHz		
5109 ©	3198 018 90040	FILTER 100MHz		
5110 ©	3198 018 90040	FILTER 100MHz		
5200 ©	2422 536 00502	33µH	10%	
5201 ©	2422 536 00502	33µH	10%	
5202 ©	2422 536 00517	22µH	20%	
5203 ©	3198 018 90040	FILTER 100MHz		
5204 ©	2422 549 44197	FILTER 100MHz		
5205 ©	2422 549 44197	FILTER 100MHz		
5300 ©	2422 536 00841	2,2µH	20%	
5301 ©	2422 536 00841	2,2µH	20%	
5302 ©	2422 536 00841	2,2µH	20%	
5303 ©	2422 536 00841	2,2µH	20%	
5304 ©	2422 536 00841	2,2µH	20%	
5305 ©	2422 536 00841	2,2µH	20%	
5306 ©	3198 018 90040	FILTER 100MHz		
5307 ©	3198 018 90040	FILTER 100MHz		
5308 ©	3198 018 90040	FILTER 100MHz		
5800 ©	3198 018 90040	FILTER 100MHz		
5801 ©	3198 018 90040	FILTER 100MHz		
5802 ©	3198 018 90040	FILTER 100MHz		
5803 ©	2422 549 43769	FILTER 100MHz/30Ω		
5804 ©	3198 018 31090	10µH	10%	

DIODES

6100 ©	3198 010 10620	BAV99
6101 ©	9340 569 20135	BB202
6102 ©	9340 569 20135	BB202
6201 ©	3198 010 10630	BAS316
6202 ©	3198 010 10630	BAS316
6203 ©	9322 185 88685	SL03
6204 ©	9322 185 88685	SL03
6205 ©	9322 185 88685	SL03
6301 ©	3198 020 51090	BZX384-C10

TRANSISTORS

7101 ©	3198 010 42310	BC847BW
7200 ©	3198 010 42320	BC857BW
7202 ©	3198 010 44350	BC807-25W
7205 ©	9340 425 20115	BC847BS
7209 ©	9340 425 30115	BC847BPN
7210 ▲	9336 787 70115	BC868
7211 ©	3198 010 42310	BC847BW
7212 ▲	3198 010 44340	BC817-25W
7213 ©	3198 010 42310	BC847BW
7214 ©	9340 425 30115	BC847BPN
7215 ©	9340 425 20115	BC847BS
7216 ©	3198 010 42310	BC847BW
7300 ©	9340 425 20115	BC847BS
7301 ©	3198 010 42310	BC847BW
7302 ©	3198 010 44340	BC817-25W
7304 ©	3198 010 44340	BC817-25W
7404 ©	3198 010 42310	BC847BW
7405 ©	3198 010 44350	BC807-25W
7406 ©	9340 425 30115	BC847BPN
7805 ©	9340 425 20115	BC847BS
7807 ©	3198 010 44350	BC807-25W
7808 ©	3198 010 42310	BC847BW
7809 ©	3198 010 42310	BC847BW
7811 ©	3198 010 42310	BC847BW

INTEGRATED CIRCUITS

7100 ©	9352 730 18118	TEA5767HN/V2, FM-TUNER
7201 ▲	9352 701 07118	TEA1208T/N1, DC/DC-CONVERTER
7203 ©	9352 701 07118	TEA1208T/N1, DC/DC-CONVERTER
7204 ©	9352 701 07118	TEA1208T/N1, DC/DC-CONVERTER
7207 ▲	9322 185 08668	KF35BD, STABILIZER IC
7208 ©	9322 185 74668	LM324P, QUAD OPAMP
7306 ©	9322 199 29671	AN17883A, HEADPHONE AMPLIFIER
7401 ©	9322 198 47668	M24C02-RDW6, EEPROM
7402 ©	9322 199 07669	LV8222W, SERVO DRIVER
7403 ©	3103 308 84831	MN101C61G-EXP7361, µP
7800 ©	9322 178 78668	K4S641632F-TC70, DRAM
7801 ©	9322 182 66671	AN8399SA, HF PRE-AMPLIFIER
7802 ©	9322 197 87671	MN662793CF, DSP
7804 ©	9322 182 63668	SM8613AV, LASER CONTROL

Note: Codenumbers in gray color are no longer available as service spare part and published for orientation only!!

REVISION LIST

Manual 3103 785 25240 – Version 1.0
• Initial release