cambridge audio

SERVICE MANUAL

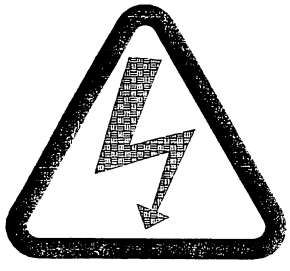
CD6 Compact Disc Player

Cambridge Audio
Richer House
Hankey Place
London SE1 4BB
ENGLAND

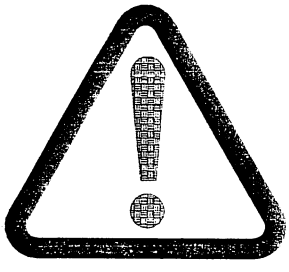
SM 0009 / 1

SAFETY PRECAUTIONS & IMPORTANT NOTES

1. Check that the rear of the product indicates the correct supply voltage for your area.



2. The lightning flash with the arrowhead within an equilateral triangle is intended to alert the user to the presence of dangerous voltages within the product enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.



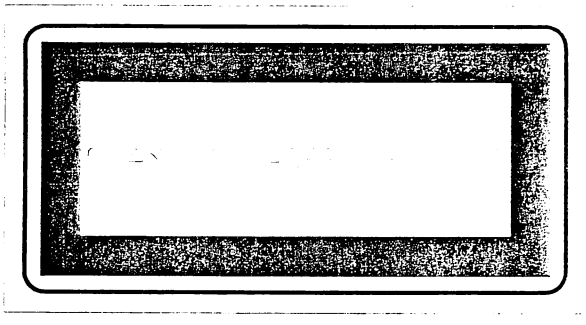
3. The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (Servicing) instructions in the literature accompanying the appliance.

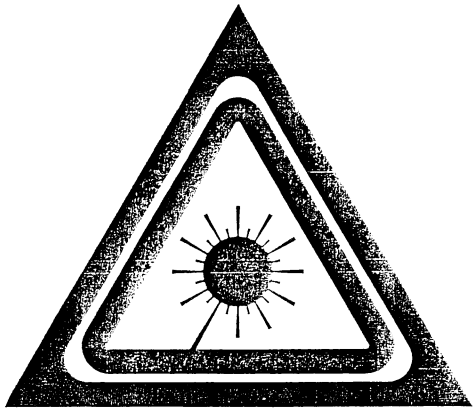
4. This product complies with the EEC Low Voltage (73/23/EEC) and Electromagnetic Compatibility (89/336/EEC) Directives. For continued compliance all components marked safety and EMC critical must only be replaced by Ariston approved parts.

5. Any unauthorised design alterations or additions will void the manufacturer's warranty; furthermore the manufacturer cannot accept responsibility for personal injury or property damage resulting therefrom.

6. When servicing, care should be taken to observe the original routing and dressing of the leads and it should be confirmed that they have been returned to normal after re-assembly.

7. **CAUTION:** These labels may be attached to the unit on the rear and inside to inform that it contains a laser component. Use of controls or adjustments, or performance of procedures other than those specified within the service or instruction manual may result in hazardous radiation exposure.





WARNING!

1. Service should only be performed by qualified personnel.

2. This equipment has been designed and manufactured to meet international safety standards, it is the legal responsibility of the repairer to ensure that these safety standards are maintained.

3. Any repairs must be made in accordance with the relevant safety standards.

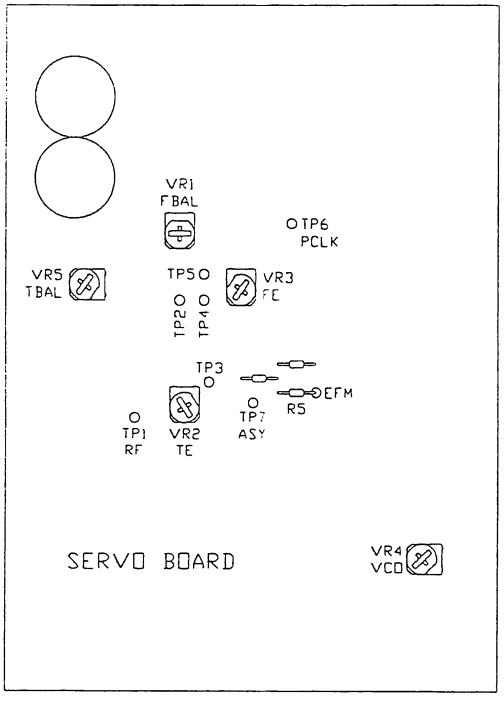
4. It is essential that safety and EMC critical components are replaced with Cambridge Audio approved parts only.

SET UP & ADJUSTMENT

NOTE : The adjustment procedures documented here enable fast and accurate set-up of the CD6 with no necessity for dedicated test equipment. These procedures are designed for general maintenance routines. For Further information, contact Cambridge Audio at the address shown at the rear of this Manual.

Before performing any adjustments, ensure power supply rails on both the transport servo board and the audio board are at the correct voltages.

Test Point Locations

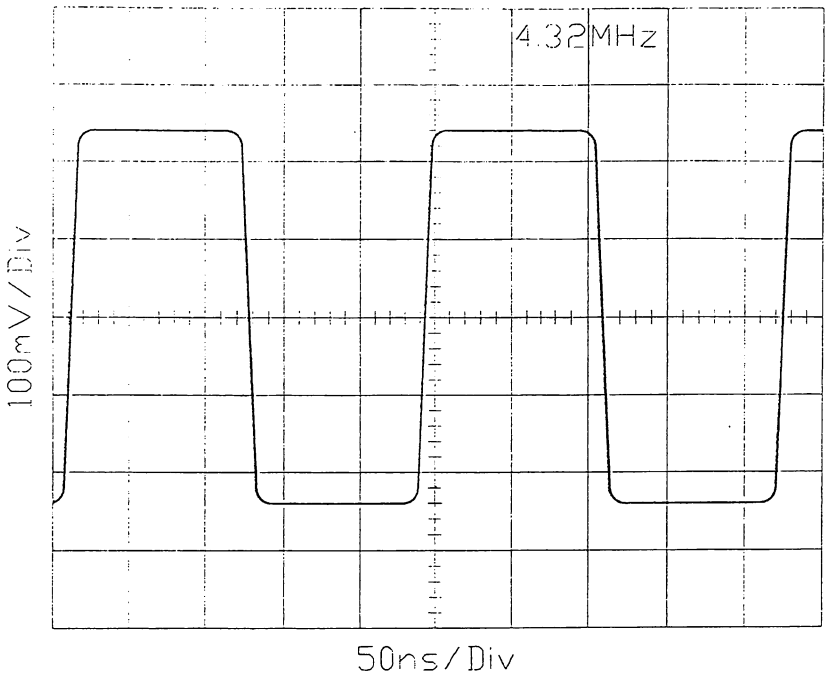


VCO Free Running Frequency Adjustment

- With the power to the unit turned on, no disc in the machine and the drawer open, ground the **right** hand side of R5 using an insulated crocodile clip. R5 is marked on the above diagram, the correct side being labelled EFM.

- Using a sharp tipped probe, connect an oscilloscope or a frequency counter to the testing point, TP6.

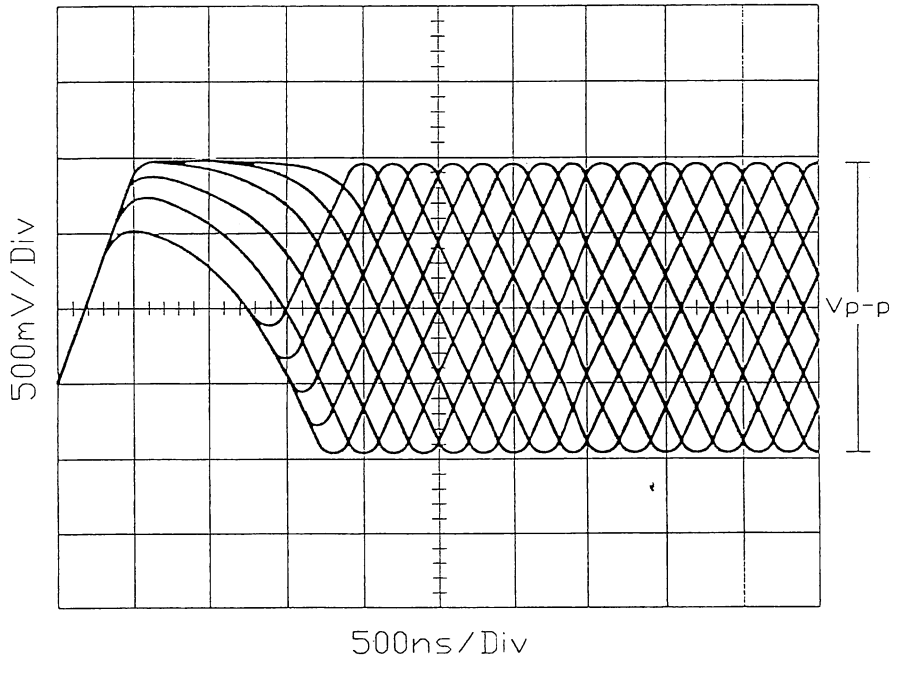
- Adjust the VCO frequency using VR4 until a reading of 4.3218MHz is achieved. If you are using an oscilloscope, the following trace should be seen.



Focus & tracking Adjustment

- Place disc in the CD6 then select and play a track positioned half-way through the playing order.

- Connect an oscilloscope to TP1 (RF), the following trace should be observed.



- Adjust VR1 (FBAL) and VR5 (TBAL) until Vp-p is stable and a maximum.

Focus & Tracking Error Gain Adjustment

- VR2 (TE) and VR3 (FE) are factory pre-set to the positions shown on the Test point Location Diagram above and should not need to be adjusted under normal circumstances. Precision adjustment requires access to a Servo Analyser, but is not necessary on a normally functional servo board.

- If the transport mechanism is noisy and erratic in operation, then VR2 and VR3 may need to be fine adjusted.

- If the mechanism will not spin or rotates at a high speed or backwards whilst attempting to read a disc, then adjust the positions of VR2 and VR3 to the correct positions and fine adjust them using the procedure below.

- Place a disc in the CD6 and play any track, with the output not connected to an amplifier.

- Gently adjust VR2 and VR3 until the transport noise becomes a minimum. Only a small amount is necessary and care should be taken not to over adjust VR3 anti-clockwise, causing high speed rotation.

- Open tray and re-insert disc several times, allowing time for the CD6 to read the disc. If, on any of these occasions, the transport will not spin, spins backwards or at high speed, re-adjust VR3 slightly clockwise.

Testing set-up of the Transport Mechanism

- Once the adjustments have been made, use a playability test disc to check the performance of the CD6. Cambridge Audio recommends the use of the Philips SBC444A ❶ or the A•BEX TCD-725A ❷ test CDs.

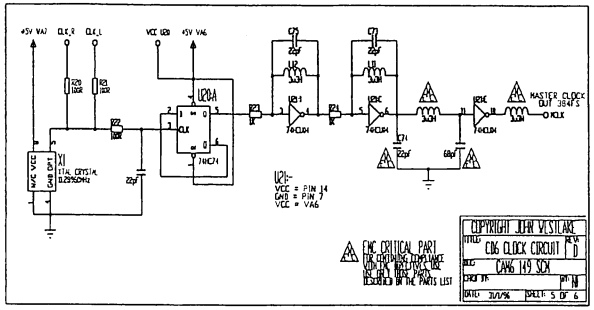
- The CD6 should be able to play to the following specification:-

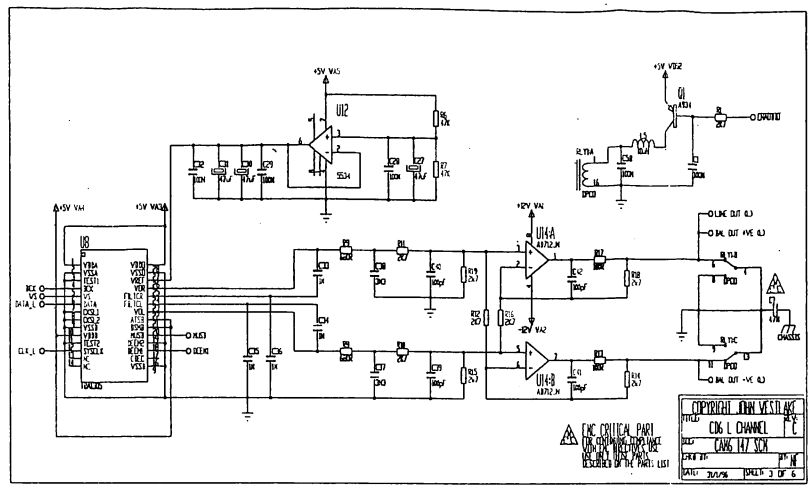
1mm scratch	❶ Track 10 ❷ Track 6
0.8 or 1mm dot	❶ Track 17 (0.8mm) ❷ Track 9 (0.8mm) or Track 11 (1mm)
Ø75µm fingerprint	❶ Track 19 ❷ Track 15

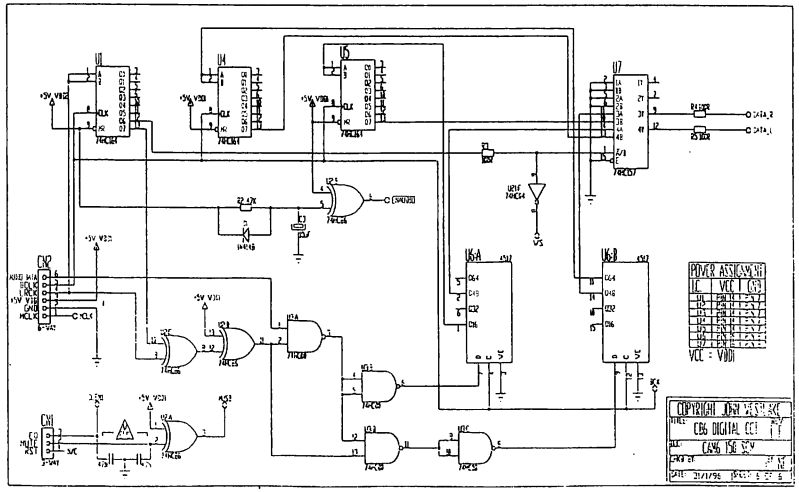
Cambridge Audio CD6
SPECIFICATIONS

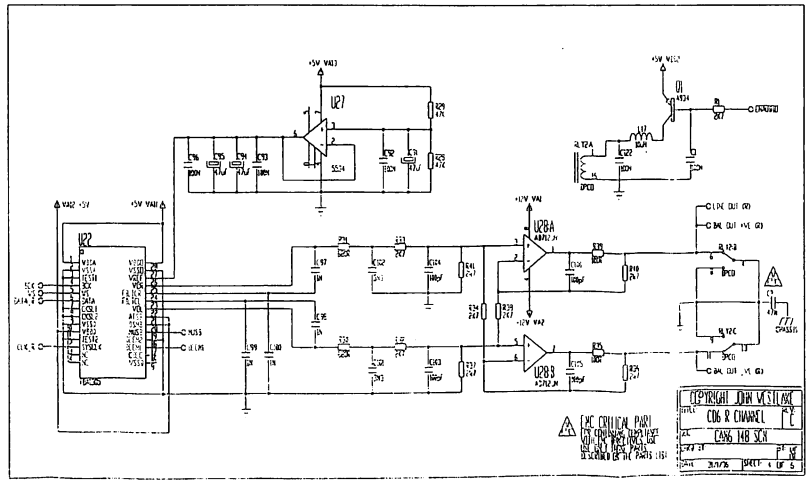
VOLTAGE AC:	220 – 240V AC 50Hz
CONSUMPTION:	40 Watts
DIMENSIONS (mm):	430w x 285d x 92h
FREQUENCY RESPONSE:	10Hz to 20kHz; +0dB / -0.5dB
DYNAMIC RANGE:	100dB
TOTAL HARMONIC DISTORTION (THD):	<0.001%
S / N RATIO:	>109dB
CHANNEL SEPARATION:	>110dB
WOW & FLUTTER:	below measurable limits
INTER – CHANNEL BALANCE:	< 0.2dB
AUDIO OUTPUT LEVEL:	2.0 V rms
OUTPUT IMPEDANCE:	<1 ohm

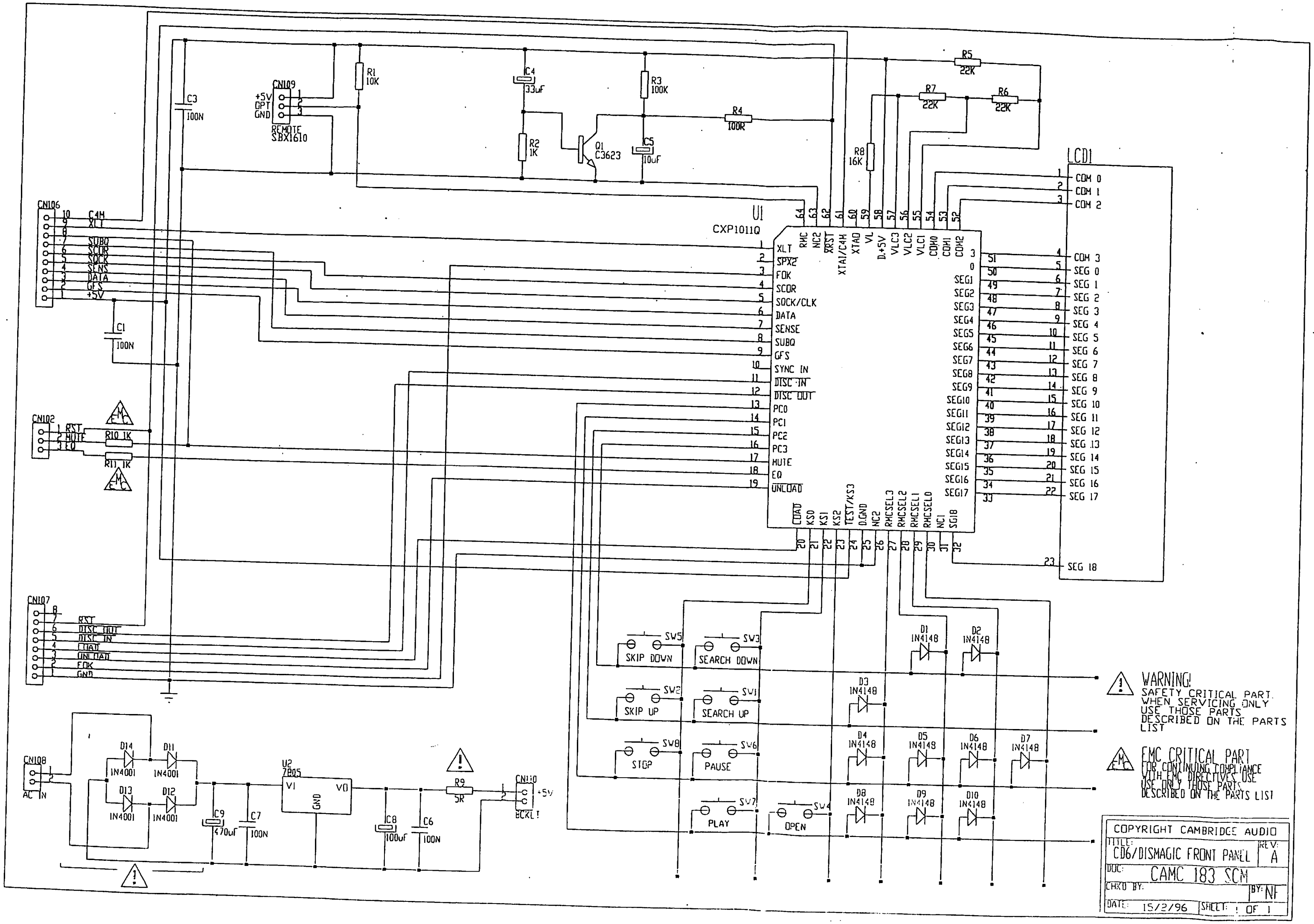
Cambridge Audio's policy is one of continuous improvement. Specifications and designs may therefore change from time to time without prior notice


COPYRIGHT JOHN WESTLAKE
CD6 CLOCK CIRCUIT
CAN6 149 SCH
MASTER CLOCK OUT 384FS
U21:-
VCC = PIN 14
GND = PIN 7
VCC = VA6


COPYRIGHT JOHN WESTLAKE
CD6 L CHANNEL
CAN6 147 SCH


COPYRIGHT JOHN WESTLAKE
CD6 DIGITAL CCT
CAN6 156 SCH

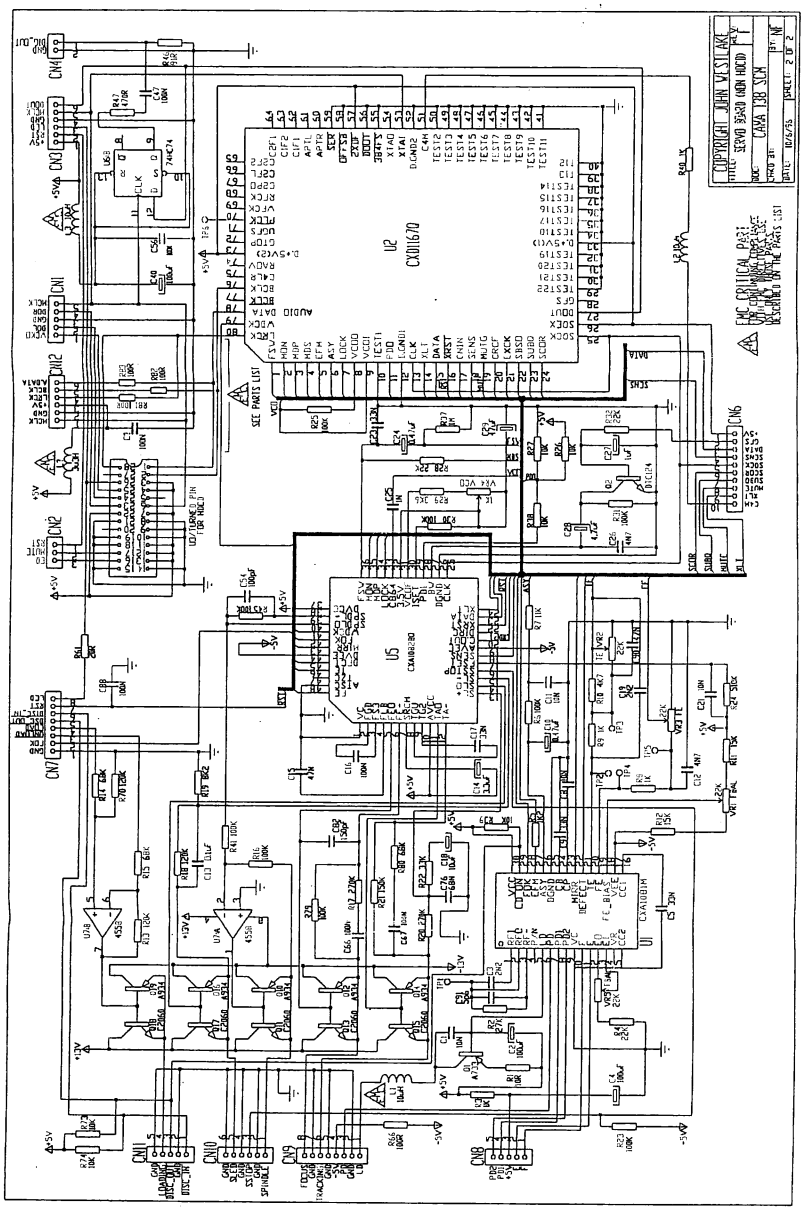

COPYRIGHT JOHN WESTLAKE
CD6 R CHANNEL
CAN6 148 SCH

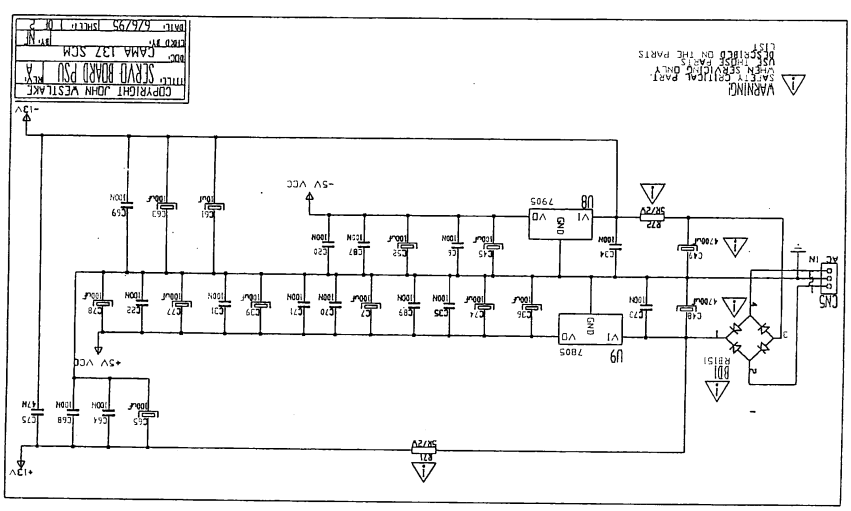


WARNING!
SAFETY CRITICAL PART.
WHEN SERVICING ONLY
USE THOSE PARTS
DESCRIBED ON THE PARTS
LIST

EMC CRITICAL PART
FOR CONTINUING COMPLIANCE
WITH EMC DIRECTIVES USE
USE ONLY THOSE PARTS
DESCRIBED ON THE PARTS LIST

COPYRIGHT CAMBRIDGE AUDIO	
TITLE: CD6/DISMAGIC FRONT PANEL	REV: A
DOC: CAMC 183 SCM	
CHKD BY:	BY: NF
DATE: 15/2/96	SHEET: 1 OF 1





ITEM NO	PART NO	ITEM DESCRIPTION	QTY	DESIGNATOR	CRITICAL
1	9815-003000-002	A3 AMPLIFIER (UK) REV B	1		
2	9400-315000-042	A3 TONE BOARD ASSY REV B	1	HKENED960568	
3	1011-001014-000	METAL FILM RESISTOR 100 OHM 1/4W +-1%	2	R511,R611	
4	1011-004014-000	METAL FILM RESISTOR 100K OHM 1/4W +-1%	4	R505,R509,R605,R609	
5	1011-803014-000	METAL FILM RESISTOR 18K OHM 1/4W +-1%	4	R506,R508,R606,R608	
6	1012-202014-000	METAL FILM RESISTOR 2.2K OHM 1/4W +-1%	4	R512,R513,R514,R612	
7	1012-401014-000	METAL FILM RESISTOR 240 OHM 1/4W +-1%	1	R503	
8	1015-000014-000	METAL FILM RESISTOR 30 OHM 1/4W +-1%	2	R501,R502	
9	1014-702014-000	METAL FILM RESISTOR 4.7K OHM 1/4W +-1%	1	R504	
10	1016-802014-000	METAL FILM RESISTOR 6.8K OHM 1/4W +-1%	2	R507,R607	
11	1019-104014-000	METAL FILM RESISTOR 910K OHM 1/4W +-1%	2	R510,R610	
12	1061-004518-130	VR 100K +-20% B TYPE FOR A2/A3 TONE	2	RV3,RV4	
13	1062-003511-160	VR 20K OHM +-20% MN CURSE FOR A2/A3 BALANCE	1	RV1	
14	1065-003511-160	VAR. RESISTOR 50K+50K LOG 16x18mm	1	RV2	
15	1100-103104-000	CERAMIC CAP. 0.01uF/400VAC +-20%	1	C700. HKENED960567	CR
16	1100-221043-000	CERAMIC CAP. 220pF/50V +- 10%	2	C508,C608	
17	1100-470043-000	CERAMIC CAP. 47PF/50V +-10%	2	C504,C604	
18	1102-100044-000	ELECT. CAP. 10UF/50V +-20%	3	C501,C502,C503	
19	1103-157042-500	POLYESTER CAP. 1n5/+-5% S DIP CASE	2	C505,C605	
20	1103-680042-500	POLYESTER CAP. 68nF/+-5% S DIP CASE	4	C506,C507,C606,C607	
21	1106-104053-000	MONO CAP. 100nF/63V +-10%	3	C509,C510,C511	
22	1402-088151-000	ZENER DIODE BZX55C15 15V 1/2W	2	ZD501,ZD502	
23	2500-006100-001	STRAIGHT CONN WAFER 6PINS 2.5MMP (2317SB-06)	2	CN2B,CN1B	
24	2536-003910-000	IEC POWER SOCKET (WELL DONE) GOLD PLATED	1	HKENED960620	CR
25	2401-010100-001	POWER SW 1P1T 250V/5A/TV5 (KNE-K14S2)	1	SW502. HKENED960568	CR
26	2409-430000-500	ROTARY SWITCH 4P3T TMEC RS003-A04SMGN-15K5Q	1	SW501. HKENED960568	
27	2511-060952-241	6PIN 95MM 2CONN SHIELD CABLE A1CBD12	2	CN1B,CN2B. HKENED960568	
28	3100-000330-001	LED BLUE COLOR 3MM	1	HKENED960634	
29	4030-000345-120	FUSE T-2A 5X20MM BSI	1	HKENED960568	CR
30	4051-050100-001	FUSE HOLDER 5X20MM PCB MOUNT WITH PLASTIC BASE	2	FL1. HKENED960568	CR
31	4054-000050-000	FUSE COVER FOR 5X20MM HOLDER BASE	2	HKENED960568	CR
32	4131-700310-000	I.C. LM317LZ TO-92	1	VR501	
33	4171-200050-100	I.C. AD712 8PIN	1	IC501	
34	4830-000040-001	A3 CONTROL PCB REV A	1	A2/A3 CONTROL	
35	6600-042504-000	EYELET 2.3X4MM	5	HKENED960630	CR
36	9107-000040-000	HEAT SHRINK TUBE 4MM	2	HKENED960620	
37	9400-315000-072	A3 POWER AMP ASSY (UK) REV B	1	HKENED960568	
38	1001-000310-000	CARBON FILM RESISTOR 10 OHM 1W +-5%	2	R109,R9	
39	1001-002320-000	CARBON FILM RESISTOR 1K 2W +-5%	1	R222	
40	1001-201312-000	CARBON FILM RESISTOR 120 OHM 1/2W +-5%	2	R121,R21. HKENED960634	
41	1011-001014-000	METAL FILM RESISTOR 100 OHM 1/4W +-1%	4	R104,R105,R4,R5	
42	1011-002014-000	METAL FILM RESISTOR 1K OHM 1/4W +-1%	4	R106,R210,R211,R6	
43	1011-002014-000	METAL FILM RESISTOR 1K OHM 1/4W +-1%	2	R114,R14	
44	1011-003014-000	METAL FILM RESISTOR 10K OHM 1/4W +-1%	3	R103,R207,R8	
45	1011-004014-000	METAL FILM RESISTOR 100K OHM 1/4W +-1%	4	R1,R101,R206,R217	
46	1011-201014-000	METAL FILM RESISTOR 120 OHM 1/4W +-1%	2	R117,R17	
47	1011-502014-000	METAL FILM RESISTOR 1.5K OHM 1/4W +-1%	2	R120,R20	
48	1011-604014-000	METAL FILM RESISTOR 160K OHM 1/4W +-1%	1	R203	
49	1012-002014-000	METAL FILM RESISTOR 2K OHM 1/4W +-1%	2	R10,R110	
50	1012-202014-000	METAL FILM RESISTOR 2.2K OHM 1/4W +-1%	3	R8/108/613. HKENED960634	
51	1012-203014-000	METAL FILM RESISTOR 22K OHM 1/4W +-1%	1	R220	
52	1012-205314-000	METAL FILM RESISTOR 2.2M 1/4W +-5%	3	R205,R215,R219	
53	1013-002014-000	METAL FILM RESISTOR 3K OHM 1/4W +-1%	1	R212	
54	1013-302014-000	METAL FILM RESISTOR 3.3K OHM 1/4W +-1%	5	R116,R118,R16,R18,R209	
55	1013-903014-000	METAL FILM RESISTOR 39K OHM 1/4W +-1%	3	R107,R208,R7	
56	1014-303014-000	METAL FILM RESISTOR 43K OHM 1/4W +-1%	2	R11,R111	
57	1014-701014-000	METAL FILM RESISTOR 470 OHM 1/4W +-1%	4	R113,R119,R13,R19	
58	1014-702014-000	METAL FILM RESISTOR 4.7K OHM 1/4W +-1%	1	R504. HKENED960634	
59	1014-703014-000	METAL FILM RESISTOR 47K OHM 1/4W +-1%	2	R102,R2	
60	1015-102014-000	METAL FILM RESISTOR 5.1K OHM 1/4W +-1%	1	R204	
61	1015-602014-000	METAL FILM RESISTOR 5.6K OHM 1/4W +-1%	1	R221	
62	1015-603014-000	METAL FILM RESISTOR 56K OHM 1/4W +-1%	2	R115,R15	
63	1016-200014-000	METAL FILM RESISTOR 62 OHM 1/4W +-1%	2	R112,R12	
64	1016-802014-000	METAL FILM RESISTOR 6.8K OHM 1/4W +-1%	2	R214,R216	
65	1016-803014-000	METAL FILM RESISTOR 68K OHM 1/4W +-1%	2	R213,R215	
66	1054-701514-000	SEMI-FIXED RESISTOR 470 OHM +-20% T.ADJ. 10X5 LEAD	2	P1,P101	
67	1072-208530-000	WIREWOUND RESISTOR 0.22 OHM 3W +-5%	4	R122,R123,R22,R23	
68	1075-008430-000	WIREWOUND RESISTOR 0.05 OHM 3W +-10%	2	R201,R202	
69	1100-102043-000	CERAMIC CAP. 1000PF/50V +-10%	8	C208,C212,C214	
70	1100-121043-000	CERAMIC CAP. 120pF/50V +- 10%	2	C2,C102	
71	1100-221043-000	CERAMIC CAP. 220pF/50V +- 10%	2	C5,C105	
72	1100-680043-000	CERAMIC CAP. 68pF/50V +-10%	4	C114,C14,C15,C115	
73	1100-827043-000	CERAMIC CAP. 8.2pF/50V +-10%	2	C7,C107	
74	1102-103044-000	ELECT. CAP. 10000uF/50V +-20%	2	C205,C206	
75	1102-470024-000	ELECT. CAP. 47UF/25V +-20%	1	C210	
76	1102-470054-000	ELECT CAP. 47UF/63V +-20%	1	C207	
77	1102-471044-000	ELECT. CAP. 470uF/50V +-20%	2	C216,C217	
78	1103-101053-500	POLYESTER CAP. 100nF/63V +-10%	14	C103,C104,C106,C11,C110,	
79	1103-101093-500	POLYESTER CAP. 100nF/250V +-10%	12	C109,C112,C113,C12,C13,	
80	1103-221073-500	POLYESTER CAP. 220nF/160V +-10%	2	C117,C17	
81	1105-101014-000	ELECT. CAP. 100uF/16V +-20% (NON-POLAR)	2	C211,C213	
82	1106-104044-000	MONO CAP. 0.1UF/50V +-20%	1	HKENED960568	
83	1107-100054-000	LOW ESR CAP. 10UF/63V +-20%	2	C1,C101. HKENED960620	
84	1107-101034-000	LOW ESR CAP. 100UF/35V +-20%	2	C8,C108. HKENED960620	
85	1107-477044-000	LOW ESR CAP. 4u7/50V LL20%	1	C215	
86	1300-001390-814	TRANSISTOR NPN POWER BD139	2	Q11,Q111	
87	1300-005460-121	TRANSISTOR NPN BC546C	13	Q3,Q4,Q103,Q104,Q201,	
88	1300-005500-121	TRANSISTOR NPN BC550C	6	Q1,Q101,Q2,Q102/301/401. HKENED960634	
89	1300-006830-121	TRANSISTOR NPN BC639	2	Q10,Q110	
90	1300-229220-900	TRANSISTOR NPN 2SC2922 SANKEN FLAT	2	Q13,Q113	
91	1301-001400-814	TRANSISTOR PNP BD140 TO-126	2	Q12,Q112	
92	1301-005560-121	TRANSISTOR PNP BC556B	8	Q105,Q106,Q109,Q210,	
93	1301-006400-121	TRANSISTOR PNP BC640	2	Q108,Q8	
94	1301-212160-900	TRANSISTOR PNP 2SA1216 SANKEN FLAT	2	Q14,Q114	
95	1303-100001-000	TRANSISTOR VN10LM OR KM TO23 MOSFET	1	Q211	
96	1303-330609-900	TRANSISTOR MOSFET ZVP3306 E-LINE	2	Q107,Q7	
97	1401-140040-000	DIODE RECTIFIER 1N4004	9	D2,D3,D102,D103,D205,	
98	1401-141480-000	DIODE 1N4148	4	D1,D101,D207,D208	
99	1401-640000-000	DIODE GA05 6A 400V (GA4) R6	4	D201,D202,D203,D204	
100	1402-088151-000	ZENER DIODE BZX55C15 15V 1/2W	3	ZD1,ZD101,ZD201	
101	2300-006100-001	STRAIGHT CONN WAFER 6PINS 2.5MMP (2317SB-06)	2	CN1,CN2	
102	2353-008911-300	SPEAKER 8 POLE 4MM BLIND	1	SKT1,SKT101. HKENED960560	
103	2600-103203-600	320MM JUMPER WIRE AWG#24 UL1007 BLUE	1	HKENED960568	
104	2600-103203-800	320MM JUMPER WIRE AWG#24 UL1007 WHITE	1	HKENED960568	
105	2600-104503-500	450MM JUMPER WIRE AWG#24 GREEN	2	HKENED960568	
106	2605-101501-500	150MM GND WIRE 1 RING (M4) AWG#20 UL1015 GREEN	1	HKENED960568	
107	2605-101801-000	180MM GND WIRE 1 RING (M4) AWG#20 UL1015 BLACK	1	HKENED960634	
108	2610-218309-005	1850MM AC POWER CORD BSI 13A FUSED W/3A FUSE BLK	1	HKENED960634	CR
109	2614-100909-000	90mm INSULATED WIRE AWG#22	1	LK34	
110	2614-101109-000	110mm INSULATED WIRE AWG#22	1	LK35	
111	3100-000000-005	LED RED COLOR ROUND HEAD 3MM DIA.	4	LED1,LED101,LED2,LED102	
112	3200-000010-001	TRANSFORMER R-CORD 250V OR 115V (A3) old A2	1		CR
113	6600-120040-000	SCREW NUT M4X7X3	4	HKENED960630	
114	7004-010010-022	SCREW M4X10 M/C. P/H	4	HKENED960630	
115	7104-308504-082	EX-TOOTHED LOCK WASHER M4	4	HKENED960630	