

Marantz CD63mkII modifications

Power supply

Part:	Org. value:	Replace by:	Brand:	Farnell:	Remark:
C801/802	22n cer.	47n/MKS	Wima		
C803/804	470u/35V	2200u/35V	Panasonic FC	303-6455	+100n X7R
C805/806	470u/16V	1200u/16V	Panasonic FC	303-6182	+100n X7R
C811/812	22n cer.	47n/MKS	Wima		
C813	4700u/16V	4700u/16V	Panasonic FC	303-6212	+100n X7R
C814	1000u/16V	3300u/16V	Panasonic FC	303-6200	+100n X7R
C815	3300u/6,3V	4700u/6,3V	Panasonic FC	303-6005	+100n X7R
D801...804	S5688G	MBR1100	IR	489-7432	
D811...814	S5688G	MBR1100	IR	489-7432	
D851/854	S5688G	MBR1100	IR	489-7432	
DN01/02	S5688G	MBR1100	IR	489-7432	
Q801/802	78M12/79M12	LM317/LM337	* see below		
Q811	7805	LM340AT-5,0	NSC	412-703	

HDAM & OPAMPS (Q605/606)

C611...614	220u/16V	470u/25V	Elna RJH	321-3444	+100n PPS
C651...654 #	220u/16V	470u/25V	Elna RJH	321-3444	+100n PPS #
C655...658	220u/16V	wire jumper			measure offset first!
C659/660	100p	remove			
R613...616	10R	1mH/14R	Siemens	608-609	+2 ferrites
R651...654 #	27R	1mH/14R	Siemens	608-609	+2 ferrites #
R655/656	10k	remove			
R657/658	100R	wire jumper			
R659/660	100R	47R			
QN05...08	2SC2878	remove			
Q605/606 **	NJM2114D	AD827/LM6172/LT1361....		experiment!	** see below
- insert extra 220n/PPS between pins 4 and 8			Panasonic	383-5492	SMD

OUTPUT FILTER

C601...604	120p	120p/1% PS	Styroflex	303-9900	
C605/606	1000p	430p/1% PS	Styroflex	952-0783	Bessel filter
C607/608	100p	100p/1% PS	Styroflex	303-9894	
CD21...24	120p	120p/1% PS	Styroflex	303-9900	
L601/602	220uH	470uH	Siemens	608-580	Bessel filter
R601...604	27k	27k/0,1%	Philips	308-6288	MELF
R607/608	18k	18k/0,1%	Philips	308-6240	MELF
R609/610	22k	22k/0,1%	Philips	308-6264	MELF
R605/606/611/612	10k	14k/0,1%	Welwyn	950-0332	Bessel filter
RD21...28	10k	10k/0,1%	Philips	308-6185	MELF

DAC (QD01, SM5872BS)

CD04	220u/10V	remove			
CD05	47n cer.	470u/10V	Elna RJH	321-3316	+100n PPS
CD06	47n cer.	470u/10V	Elna RJH	321-3316	+100n PPS
CD07	220u/10V	remove			
CD12/13	47n cer.	470u/10V	Elna RJH	321-3316	+100n PPS
CD15/16	220u/10V	remove			
RD01/04	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
U200	jumper	470uH/2,5R	Siemens	517-070	+2 ferrites

HF-amp (Q501/502)

C503	47n cer.	100n PPS			
C504	220u/10V	470u/10V	Elna RJH	321-3316	
C505	2200p cer.	2n2 PS	Styroflex	303-9705	
R505	100R	1mH/14R	Siemens	608-609	+2 ferrites

Decoder (Q503, SAA7354)

C507	47p cer.	47p PS			
C508	22n cer.	22n MKT			
C509/512	47n cer.	470u/10V	Elna RJH	321-3316	+100n PPS
C510/511	220u/10V	remove (put new elcap in C509/512's place, closer to IC)			
C513	47n cer.	100n PPS	Panasonic	383-5418	SMD
R508	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
R511	4,7R	jumper			
U179	jumper	470uH/2,5R	Siemens	517-070	+2 ferrites

SERVO & Vref. (Q104, TDA1301T)

C120/122	47u/16V	120u/16V	Elna RJH	321-3365	
C124	10u/16V	120u/16V	Elna RJH	321-3365	
C119/121/123	47n cer.	100n X7R	Siemens		
R107	330R	1mH/14R	Siemens	608-609	+2 ferrites
R122/123	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
R124/125	150R	1k/1%			

Drivers (Q105/106/QM01, TCA0372)

C135/138/153/154	47u/16V	120u/16V	Elna RJH	321-3365	
C136/137/146/ 148/151/152	22n cer.	100n X7R	Siemens		
R127/128	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
R149/150/164/165	1,0R	100uH/0,7R	Siemens	516-570	+2 ferrites

μCONTROLLER (QF01, MN187164)

CF02	47u/16V	remove (put new elcap in CF01's place, closer to μC)			
CF01	47n cer.	120u/16V	Elna RJH	321-3365	+100n X7R
CY01	22n cer.	22u/16V in parallel			
RF01	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites
RY11	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites

- insert extra 100n X7R between pins 35 and 36 of JF01

RF AMP PCB

C107	47n cer.	120u/16V	Elna RJH	321-3365	+100n PPS
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Insert extra 100n X7R between pins 4 and 5 of J102

MORE MOD'S...

- Disable headphone circuit: remove C901/902 (signal) and jumpers U271/272 (+/- 12V).
- Disable muting circuit: remove QN24/25/91/92 and RN27/28 (cuts analog -12V to muting circuit). Remove U207, U211 and U262 (and cut trace) to disable traces running to headphone section. Decouple each muting line to GND with two 100n/X7R at junctions U222/223 and output side to remove noise coupled-in to analog section from digital-out trace that runs in parallel with muting lines for several inches!!
- Drive two new 12V muting relays: replace RN30/31 with 2k2, tap power from collector of QN02 (~12V=), jumper base and collector pins of QN24/25 and use muting-lines to drive BC547's with relays. Connect relays NC contacts to collector and emitter of QN07/08.
- Execute clock-hack as described on Acoustica.org (<http://www.acoustica.org.uk/t/63/63hacks.html>) **OR** replace clock by special low jitter clock module and connect to pin 28 of DAC. Use separate powersupply.
- Insert new 5V voltage regulators (LM317 based) for analog and digital VDD pins of DAC and clock circuit.
- Stick damping material, like bitumen pads, on the bottom, chassis and hood.
- Replace fixed powerchord by IEC socket and connect ground wire to PCB at the output socket's star point. Use high quality steel braid shielded power cable to connect player to mains.
- Place 250VAC/20mm. varistor (100-4357 or 105-7197) directly on mains pins of IEC socket or on mains terminals on the PCB.
- Insert common-mode filter (Farnell 969-4234). Remove U242/243/245/246 and insert filter instead. Place one class X or Y capacitor 4,7n/250Vac across mains before and after filter.

REMARKS

- * replace Q801/802 with LM317/337 on small PCB's. Use experimentingboard or PCB's found at <http://eddie.dyec.com.tw/diy-products/vrm/vrm.htm> for example. Fit LM337's by carefully cross-bending the input and output pins and reversing the diodes and caps. Use tantalum decoupling caps.
- ** for best results: use single opamps, each fit for their task. Example: OPA602 + THS4011 or AD8610 + AD8510 for post-DAC + filter on SMD adapters (BrownDog or eq.). Experiment and listen!
- # the HDAM-circuit looks nice, but when moving up to better opamps and interconnects this circuit starts to interfere and degrades sound quality. To disable HDAM: remove R651...654 (+/- 12V), R617/618 and RH23/24. Insert wire jumper at R619/620.
- suitable ferrite beads: Farnell type 242-500.

CREDITS

A lot of information and tips came from various articles and forums I found on the internet:

- many thanks to Thorsten Loesch for his article at TNT-Audio.com
- many thanks to Acoustica.org for [The CD63 clock-hack](#)
- and credits to the members of diyAudio.com that contributed through the forum, although they are probably not aware of that (they'll know who they are if they recognize their idea here... :-)

For updated mods-lists and detailed photos: visit www.raylectronics.nl

04-07-2007, data collected by R.A. van der Steen