

Marantz CD67mkII-OSE modifications

Power supply

Part:	Org. value:	Replace by:	Brand:	Farnell:	Remark:
C803/804	470u/35V	6800u/35V	Panasonic	119-8693	+100n PPS
C805/806	470u/16V	2200u/25V	Elna RSH		+100n X7R
C813	4700u/16V	4700u/16V	Elna RSH		+100n PPS
C815	3300u/6,3V	4700u/16V	Elna RSH		+100n X7R
C871	47u/16V	470u/16V	Elna RSH		+100n X7R
D801...804	S5688G	11DQ10	IR		schottky
D811/812	S5688G	11DQ10	IR		schottky
DN01/02	S5688G	11DQ10	IR		schottky
Q801/802	78M12/79M12	LM317/LM337	* see below		
Q811	7805	LM340AT-5,0	NSC	949-0183	
Q871	7805	LM340AT-5,0	NSC	949-0183	

HDAM & Opamps (Q605/606)

C611...614	100u/25V	220u/16V	Elna Silmic (from C655...658)		+100n PPS
C651...654 #	470u/16V	470u/35V	Elna RSH		+100n PPS #
C655...658	220u/16V	wire jumper			measure offset first!
C659/660	100p	remove			
R613...616	27R	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	969-5591	SMD

OUTPUT FILTER

C601...604	120p	120p/1%	Mica	126-4881	
C605/606	1000p	470p/1% PS	Styroflex	952-0791	Bessel filter
C607/608	100p	100p/1% PS	Styroflex	952-0660	
CD21...24	120p	120p/1%	Mica	126-4881	
R601...604	27k	26k7/0,1%	Welwyn	950-1380	
R607/608	18k	18k2/0,1%	Welwyn	950-0642	
R609/610	22k	22k1/0,1%	Welwyn	950-1185	
R605/606/611/612	10k	12k1/0,1%	Welwyn	950-0154	Bessel filter
RD21...28	10k	10k/0,1%	Welwyn	949-9938	

DAC (QD01, SM5872BS)

CD04	220u/10V	remove			
CD05	47n cer.	220u/35V	Elna RSH		+100n PPS
CD06	47n cer.	220u/35V	Elna RSH		+100n PPS
CD07	220u/10V	remove			
CD12/13	47n cer.	100n PPS	Panasonic	969-5532	SMD
CD15/16	470u/10V	470u/35V	Elna RSH		+100n PPS
RD01/04	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites

Decoder (Q102, SAA7372GP)

C108	100n cer.	100n MKT	BC	116-6036	
C109	22n cer.	22n MKP	Vishay	116-6883	
C110	47p cer.	47p PS	LCR	951-9998	
C114/120	47u/16V	100u/16V	Elna RSH		
C115...119	47n cer.	100n PPS	Panasonic	969-5532	SMD
C125	1n cer.	1n MKP	Wima	100-5978	
R117/118	4,7R	470uH/2,5R	Siemens	517-070	+2 ferrites

- CRIN/CROUT modification, see '**More mods...**' section below

Drivers (Q106/107/108, TDA7073A)

C156	47u/16V	100u/16V	Elna RSH
C132/157/159	47n cer.	100n X7R	Siemens

- on bottom-side, directly between pin 5 and ground.

µController (QF01, MN187164)

CF02	47u/16V	remove			
CF01	47n cer.	100u/16V	Elna RSH		+100n X7R
CY01	47n 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

Servo PCB

C126	47u/16V	100u/16V	Elna RSH	+100n X7R
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More mod's...

To clean up the +/- 12V supply that's used for the opamps, all other circuits that use it can be disabled:

- Disable headphone circuit: remove C901/902 (signal) and jumpers U139/140 (+/- 12V).
- Disable muting circuit: remove QN24/25/91/92 and RN27/28 (disables analog -12V supply to muting circuit).

Some noise reduction...

- Replace fixed powerchord by an IEC socket and connect ground wire to chassis at the output socket. 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 U243/245 and insert filter instead. Place one class-X capacitor 4,7n/250VAC across mains before and after filter.
- Insert a 100n film capacitor and 22R resistor across the sled motor. This adds a snubber, similar to R161 and C162 for the disc motor. There are empty places for these components located near JM01.

Disable Digital Out:

- Remove R114, U172, U196 and U204 to disable the DO signal to the outputs on the back-panel.
- Remove U201 to disable +5V to the optical output connector.

Disable IR remote switch and RC-5 IN/OUT bus:

- Remove U125, U133 and DF52 to isolate the RC-5 signal.
- Remove RF52, RF54 and RF61 to disable the 5V power supply for this circuit.
- Insert a jumper wire from U125 (the hole farthest from QF61) to U133 (the hole near QF02).

And these are for the die-hard's...

- Insert a new muting relays: replace RN30/31 with 2k2 (from RN17/18), jumper base and collector pins of QN24/25 and use muting-lines to drive two BC547's with relays: emitters to GND, relay in collector circuit. Tap power from collector of QN02 (approx. 12VDC). Connect NC contacts to empty collector and emitter pins of QN07/08.
- Replace the 16.9344MHz crystal by a low jitter clock module, like [The Flea](#). Remove CD02/03, RD02 and XD01. Connect clock signal to pin 28 of DAC and GND. Use separate power supply for best results.
- Feed the digital (DVDD) and analog supply pins (AVDD1...4) of the DAC separately, through their own inductors. Remove U203. Place RD04 in the empty "+" hole of CD07 and in the hole of U203 that connects it to U200, together with a new 470uH inductor (+ 2 ferrites) that replaces U203. The digital and analog +5V of the DAC are now separated.
OR: insert a separate 5V voltage regulator for the analog AVDD pins of the DAC. Remove U203 **and** U202. This trace is no longer used since C901 is removed. Place RD04 in the empty "+" hole of CD07 and in the empty hole of U203 that connects it to U200. Place a new 470uH inductor (+ 2 ferrites) in the other hole of U203 and the hole of U202 that leads to C901. Place a new voltage regulator on the back of the PCB, near C813. Tap power from U267 (GND) and U268 (+). Place a small cap at the output of the regulator and connect it with a short wire to the empty "+" pin of C901, that leads to our new inductor.
- To separate the +/- 12V circuit for the opamps further: modify the power-transformer and separate the common 5V / 12V center-tap. Remove the transformer from the PCB. Carefully desolder the two thickest wires connected to pin 4 of the transformer. These are the 5V center-tap wires. Wrap them together a bit and solder a small piece of wire on them. Remove U239. Insert a wire between the two un-named holes in line with U239. This will reconnect the now separate 12V center-tap to the 12V section. Put the transformer back on the PCB and connect the free 5V center-tap wires to the empty hole of U239 that's closest to U241.

REMARKS

- * replace Q801/802 with LM317/337 on small PCB's. Use expermentingboard 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.

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